



Oregon

Theodore R. Kulongoski, Governor

Department of Land Conservation and Development

635 Capitol Street, Suite 150

Salem, OR 97301-2540

(503) 373-0050

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www.lcd.state.or.us



## NOTICE OF ADOPTED AMENDMENT

03/01/2011

TO: Subscribers to Notice of Adopted Plan  
or Land Use Regulation Amendments

FROM: Plan Amendment Program Specialist

SUBJECT: City of Springfield Plan Amendment  
DLCD File Number 003-10

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures\*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Thursday, March 17, 2011

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

\*NOTE: The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. NO LUBA Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.

Cc: Mark Metzger, City of Springfield  
Gloria Gardiner, DLCD Urban Planning Specialist  
Ed Moore, DLCD Regional Representative  
Amanda Punton, DLCD Regional Representative

<paa> YA



FORM 2

DLCD

# Notice of Adoption

In person  electronic  mailed

DATE  
STAMP

DEPT OF

FEB 25 2011

LAND CONSERVATION  
AND DEVELOPMENT

For Office Use Only

This Form 2 must be mailed to DLCD within **5-Working Days after the Final Ordinance is signed** by the public Official Designated by the jurisdiction and all other requirements of ORS 197.615 and OAR 660-018-000

Jurisdiction: **City of Springfield**

Local file number: **LRP2010-00002**

Date of Adoption: **2/22/2011**

Date Mailed: **2/24/2011**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD?  Yes  No Date: 11/19/2010

Comprehensive Plan Text Amendment

Comprehensive Plan Map Amendment

Land Use Regulation Amendment

Zoning Map Amendment

New Land Use Regulation

Other: **Goal 5 document updates.**

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

The adopted amendments update the Springfield Local Wetland Inventory, the Springfield Inventory of Natural Resources Sites (Riparian Inventory) and the Springfield Natural Resources Study (ESEE Analysis and Recommended Protections) to include newly identified wetland and riparian sites in the Glenwood area. The amendments are replacement pages and inserts for each of the three documents.

Does the Adoption differ from proposal? **No, no explanation necessary**

Plan Map Changed from:

to:

Zone Map Changed from:

to:

Location:

Acres Involved:

Specify Density: Previous:

New:

Applicable statewide planning goals:

<b>1</b>	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Was an Exception Adopted?  YES  NO

Did DLCD receive a Notice of Proposed Amendment...

45-days prior to first evidentiary hearing?

Yes  No

If no, do the statewide planning goals apply?

Yes  No

If no, did Emergency Circumstances require immediate adoption?

Yes  No

DLCD file No. 003-10 (18616) [16536]

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

City of Springfield, Lane County

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Local Contact: **Mark Metzger**

Phone: (541) 726-3775 Extension:

Address: **225 Fifth Street**

Fax Number: **541-726-3775**

City: **Springfield**

Zip: **97477**

E-mail Address: **mrmetzger@ci.springfield.or.us**

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## **ADOPTION SUBMITTAL REQUIREMENTS**

**This Form 2 must be received by DLCD no later than 5 days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s) per ORS 197.615 and OAR Chapter 660, Division 18**

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting the adopted amendment, please print a completed copy of Form 2 on light **green paper if available**.
3. Send this Form 2 and one complete paper copy (documents and maps) of the adopted amendment to the address below.
4. Submittal of this Notice of Adoption must include the final signed ordinance(s), all supporting finding(s), exhibit(s) and any other supplementary information (ORS 197.615).
5. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) of adoption (ORS 197.830 to 197.845).
6. In addition to sending the Form 2 - Notice of Adoption to DLCD, please also remember to notify persons who participated in the local hearing and requested notice of the final decision. (ORS 197.615).
7. Submit **one complete paper copy** via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.
8. Please mail the adopted amendment packet to:

**ATTENTION: PLAN AMENDMENT SPECIALIST  
DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT  
635 CAPITOL STREET NE, SUITE 150  
SALEM, OREGON 97301-2540**

9. **Need More Copies?** Please print forms on 8½ -1/2x11 **green paper only if available**. If you have any questions or would like assistance, please contact your DLCD regional representative or contact the DLCD Salem Office at (503) 373-0050 x238 or e-mail **plan.amendments@state.or.us**.

<http://www.oregon.gov/LCD/forms.shtml>

Updated December 16, 2010

# **Glenwood Update of the Springfield Natural Resources Study and Related Inventory Documents**

**City of Springfield  
February 24, 2011**

**Contents: DLCDC Notice of Adoption**

## **Adopting Ordinance #6265 with Exhibits**

- **Exhibit A:** Amendments to the Springfield Local Wetland Inventory
- **Exhibit B:** Amendments to the Springfield Inventory of Natural Resources Sites
- **Exhibit C:** Amendments to the Springfield Natural Resources Study

## **Supporting Documents**

- **Staff Report**
- **Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield**
- **Glenwood Natural Resource Wildlife Habitat Assessment 2010**

**ORDINANCE**

**ORDINANCE NO. 6265 (General)**

**AN ORDINANCE AMENDING THE *EUGENE-SPRINGFIELD METROPOLITAN PLAN* TO UPDATE THE SPRINGFIELD LOCAL WETLAND INVENTORY, THE SPRINGFIELD INVENTORY OF NATURAL RESOURCE SITES AND THE SPRINGFIELD NATURAL RESOURCES STUDY TO INCLUDE NEWLY IDENTIFIED WETLAND AND RIPARIAN SITES IN THE GLENWOOD AREA; TO ADOPT PROTECTION MEASURES FOR THE NEW GLENWOOD SITES AND TO UPDATE THE BOUNDARIES OF KNOWN SITES; AND ADOPTING A SEVERABILITY CLAUSE.**

**THE CITY COUNCIL OF THE CITY OF SPRINGFIELD FINDS THAT:**

**WHEREAS**, the Springfield Local Wetland Inventory (Wetland Inventory) was adopted by the City Council in 1998 and identifies wetlands within the Springfield Urban Growth Boundary; and

**WHEREAS**, the Springfield Inventory of Natural Resource Sites (NR Inventory) was adopted by the City Council in 2004, and identifies riparian corridors within the Springfield Urban Growth Boundary; and

**WHEREAS**, the Springfield Natural Resources Study (NR Study) was adopted by the City Council in 2005 and prescribes protection measures for the resource sites identified in the Wetland and NR Inventories; and

**WHEREAS**, a new inventory of wetland and riparian resources in the Glenwood area has identified additional resource sites and refined the boundaries of known sites, and has prompted the need to amend the NR Study, the NR Inventory, and the Wetland Inventory; and

**WHEREAS**, amendments to the NR Study, which was adopted as a functional plan of the Eugene-Springfield Metropolitan General Plan, are processed as amendments to the Metro Plan; and

**WHEREAS**, Section 5.14-100 of the Springfield Development Code (SDC) sets forth procedures for amendments to the Metro Plan; and

**WHEREAS**, a public open house was held on January 11, 2011 to explain the proposed Glenwood amendments to NR Study, the NR Inventory and the Wetland Inventory and to receive public comment; and

**WHEREAS**, the Springfield Planning Commission conducted a public hearing on the Glenwood amendments to the Springfield Natural Resources Study (NR Study), the Springfield Inventory of Natural Resource Sites (NR Inventory) and the Springfield Local Wetland Inventory (Wetland Inventory) on January 19, 2011 and voted unanimously to recommend approval of the amendments to the City Council based upon findings in support of adoption of these amendments as set forth in the Staff Report and the Recommendation to the Council incorporated herein by reference (Case Number LRP2010-00002); and based on the evidence

and testimony in the record demonstrating that the proposed amendments comply with the criteria for approving Metro Plan amendments; and

**WHEREAS**, the Joint Elected Officials of the City of Springfield and Lane County held a public hearing on the proposed Glenwood amendments to the NR Study, the NR Inventory and the Wetland Inventory on February 7, 2010 and the Springfield City Council is now ready to take action on this matter based upon the above recommendation and the evidence and testimony already in the record as well as the evidence and testimony presented at this public hearing held in the matter of hearing this Ordinance adopting the Glenwood amendments to the NR Study, the NR Inventory and the Wetland Inventory.

**NOW THEREFORE, THE CITY OF SPRINGFIELD ORDAINS AS FOLLOWS:**

**Section 1:** The proposed Glenwood amendments to the Springfield Local Wetland Inventory, attached as Exhibit A, are adopted.

**Section 2:** The proposed Glenwood amendments to the Springfield Inventory of Natural Resource Sites, attached as Exhibit B, are adopted;

**Section 3:** The proposed Glenwood amendments to the Springfield Natural Resources Study, attached as Exhibit C, are adopted;

**Section 4:** If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portion thereof.

**Section 5:** Notwithstanding the effective date of Ordinances as provided in Section 2.110 of the Springfield Municipal Code, this Ordinance shall become effective upon the date that all of the following have occurred: (a) the Ordinance has been acknowledged, and/or at least 30 days have passed since the date the Ordinance was approved.

**ADOPTED** by the Common Council of the City of Springfield by a vote of 5 for and 0 against, this 22nd day of February, 2011.

**APPROVED** by the Mayor of the City of Springfield, this 22nd day of February, 2011.

**ATTEST:**

Amy Iowa  
City Recorder

William L. Perry  
Mayor

**REVIEWED & APPROVED**  
AS TO FORM  
[Signature]  
DATE: 2/7/11  
OFFICE OF CITY ATTORNEY

**Exhibit A: Springfield Local Wetland Inventory Report**  
**Strikeout text is removed. Shaded text is added.**

[Insert at pg. "Local Wetland Inventory Summary-9"]

Wetland W19 is 41.65 acres and is classified as POW/PFO. The wetlands were determined through on- and off-site methods. The wetlands are adjacent to the Springfield sheriff's pistol range and the portion of the Mill Race that has been widened to create a log pond for a mill. Soils were dark in color with mottles. Hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation changed and there were no longer indicators of hydrology and through use of black and white and infrared aerial photo interpretation and are limited to TOB.

[W19 was inadvertently left off of the original Local Wetland Inventory descriptions]

~~Wetland W20 is 3.39 acres and classified as PSS/PAB. The wetland is adjacent to Glenwood Slough and the railroad tracks. Overstory dominant species include Oregon ash, Oregon white oak (*Quercus garryana*) and big leaf maple. Understory dominant was willow (*Salix* sp.). Herbaceous dominants were yellow flag iris (*Iris pseudoacorus*), spreading rush (*Juncus patens*) and marsh horsetail (*Equisetum arvense*). Soils were dark in color with mottles. Seasonal hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation changed and there were no longer indicators of hydrology.~~

Wetland W20 is 3.73 acres and is classified a Palustrine Shrub-Scrub wetland. The wetland is adjacent to Glenwood Slough and the railroad tracks. It is part of the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected 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 W-20 was previously delineated (WD96-0375).

The dominant wetland vegetation includes Oregon Ash, Sitka Willow, Red-Osier Dogwood, Field Mint, Begger's Tick, Soft Rush and Short Scale Sedge.

Soil types include: Chehalis silty clay loam.

Wetland W21 Wetland W-21 is .47 acres and is classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21 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. W-21 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 and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red-Osier Dogwood, Slough Sedge, and Creeping Buttercup.

Soil types include: Chehalis silty clay loam, Pengra-Urban land complex.

Wetland W22 is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 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 W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red Alder, Clustered Wild Rose, Red-Osier Dogwood, Slough Sedge, Nipplewort and Soft Rush.

Soil types include Chehalis silty clay loam.

Wetland W23 is .87 acres and is classified as Palustrine Emergent (PEM) wetland. W-23 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 flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

The dominant wetland vegetation includes Black Cottonwood, Wild Mint, Begger's Tick, Soft Rush, Sawbeak Sedge, Soft Brome, Common Velvet Grass, English Plantain, Tall Fescue, and Bluegrass species.

Soils types include: Dixonville-Philomath-Hazelair Complex

Wetland 24 is .51 acres and is classified as a Palustrine Forested wetland (PFO). W-24 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 McVay Hwy. and the railroad and out to the Willamette River. W-24 is located between I-5 and McVay Hwy. with residential land uses to the north and south.

The dominant wetland vegetation includes Black Cottonwood, Pacific Willow, Red-Osier Dogwood, Reed Canary Grass, Water-Parsley, Stinging Nettles, Slough Sedge and Field Horsetail.

Soil types include: Dixonville-Philomath-Hazelair Complex.

Wetland W25 is 4.31 acres in size and is a Palustrine Forested wetland (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 commercial 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*

Soil types include: Chehalis silty clay loam

Wetland 26 is .86 acres in size and is a mosaic 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*

Soil types include: Urban land-Hazelair-Dixonville complex

The tables below summarize the size and classification of the wetland areas within Springfield's Urban Growth Boundary.

**Table 1.**  
**City of Springfield Wetlands—McKenzie River Basin Wetlands**

Site Number	**OFWAM Significance	Acres	USFWS Classification(s)	"Other" Created Waters (Acres)
M1		4.94	RLP	
M2		3.12	PEM	10.50
M3		2.73	PEM/PFO	
M4	Locally Significant Wetlands Special Interest for Protection	5.02	PEM	
M5	Locally Significant Wetlands	9.13	PFO/PSS/PEM	
M6		4.05	PEM/PSS	
M7		0.2	PEM	
M8*		0.2	PSS	
M10*		2.72	RIN	
M11*		1.01	POW	
M12		1.22	PEM	
M14	Locally Significant Wetlands	33.45	PEM/PFO	
M15		6.41	PEM	

Site Number	**OFWAM Significance	Acres	USFWS Classification(s)	"Other" Created Waters (Acres)
M16	Locally Significant Wetlands	8.44	PFO/POW/RLP/PEM	
M17		3.15	PEM	
M18*		40.72	POW/PSS	16.75
M19		0.37	PFO	
M20	Locally Significant Wetlands	0.52	RLP	
M21		0.39	PEM	
M22		0.1	PEM	
M23		0.19	PEM	
M24		0.51	PEM	
M25		24.0	PEM	
M26	Locally Significant Wetlands	1.85	PFO/PEM/PSS	
M27		8.28	PEM/PFO	
M28	Special Interest for Protection- Mitigation Site	1.51	PEM	
M29	Locally Significant Wetlands Special Interest for Protection	1.08	PFO/PEM	
M30		6.49	PFO/PEM/POW	
M31		0	POW	8.06
M32		3.39	PEM	
M33		13.75	POW/PSS/RLP	116.17
M34		0.8	PFO	
M35		4.91	PEM	
M36		0.75	PEM	
M37		0.4	PEM	
M38		0.08	PEM/PFO	
M39*		1.88	PEM	
M40		16.51	RLP	
	<b>Total</b>	<b>214.27</b>		<b>151.48</b>

\*denotes off-site wetland determination and mapping

\*\* Subsequent to the adoption of the Springfield Local Wetland Inventory, a state mandated analysis was completed to determine which wetlands were "locally significant" under state law. The results of the analysis are added to the summary information found in Tables 1 and 2. The term **OFWAM** stands for the Oregon Freshwater Wetland Assessment Methodology which by state mandate, is the analytical tool that is used to determine if a wetland is "significant."

**Table. 2**  
**City of Springfield Wetlands—Willamette River Basin Wetlands**

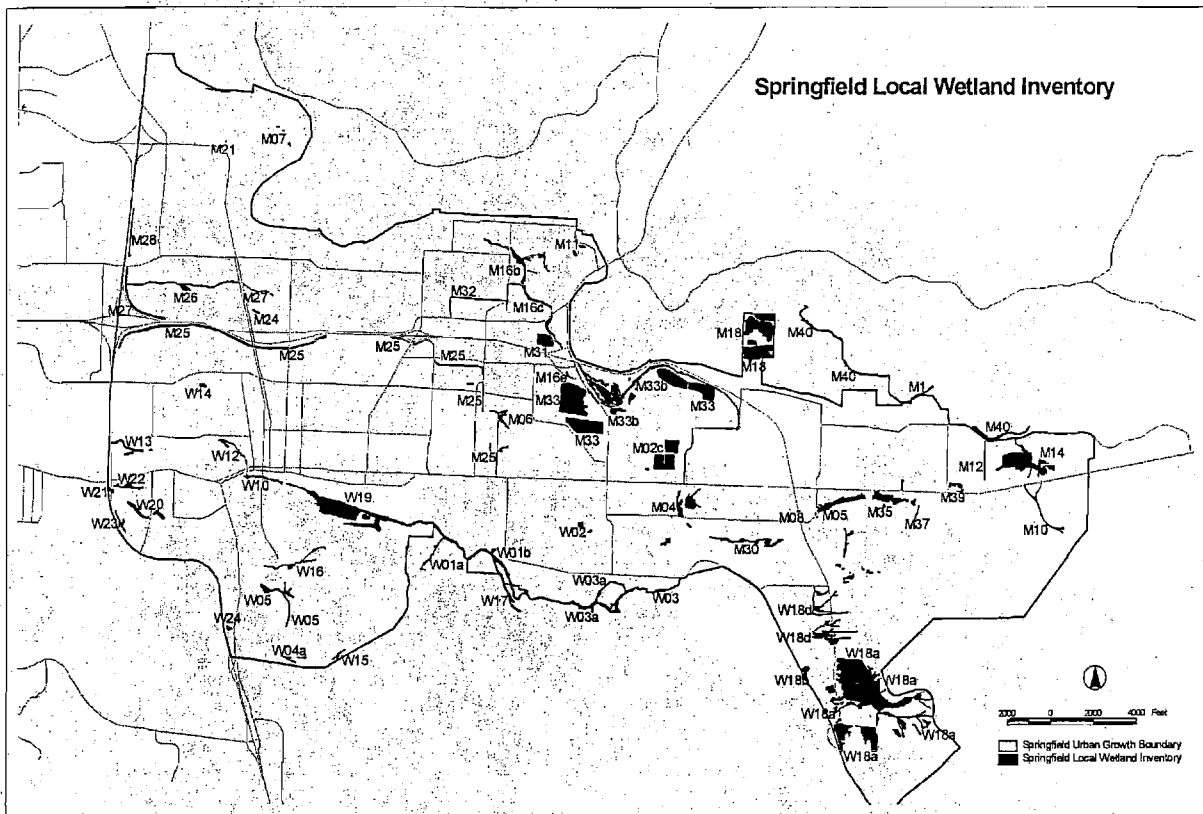
Site Number	OFWAM Significance	Acres	USFWS Classification(s)	“Other” Created Waters (Acres)
W1*		4.14	RLP	
W2	Locally Significant Wetlands, Special Interest for Protection	0.90	PEM	
W3		1.27	PFO/PEM/POW	
W4	Locally Significant Wetlands	0.97	PFO/PEM	
W5		5.6	POW/PFO/PEM	
W6		5.63	PFO	
W7*		0	POW	36.02
W8*		1.22	POW	
W9		0.22	PEM	
W11		0.67	PSS	
W12	Locally Significant Wetlands	1.42	PFO	
W10		2.25	PSS	
W13		2.24	PFO	
W14		0.97	PEM	
W15		0.79	PFO	
W16	Locally Significant Wetlands	1.46	PFO	
W17		17.21	RLP	
W18 A-C	Locally Significant Wetlands	131.99	PEM/PFO	
**W-19	Locally Significant Wetlands	41.65	POW, PFO	
W-20	Locally Significant Wetlands	3.73	PSS/PUB	
W-21	Locally Significant Wetlands	.47	PSS	
W-22	Locally Significant Wetlands	2.53	PFO	
W-23	Locally Significant Wetlands	.87	PEM	
W-24	Locally Significant Wetlands	.51	PFO	
W-25		4.31	PFO	
W-26		.86	PEM	
	Total	<del>188.99</del> 233.88		36.02

\*denotes off-site wetland determination and mapping

\*\*W-19 was inadvertently left off of this table in the original Springfield Local Wetland Inventory report. Wetlands W-20 through W-26 are the revised resource sites in the Glenwood area.

**Table 3**  
**City of Springfield Wetlands—Total Acreage**

	Jurisdictional Wetlands	“Other” Created Waters
McKenzie Basin	214.27	151.48
Willamette Basin	189.99	36.02
	269.90	
Total Acres	404.13	187.50
	484.17	



[Insert 11"x17" inch map]

**Exhibit B: Springfield Inventory of Natural Resource Sites**  
~~Strikeout text is removed. Shaded text is added.~~

[Insert at pg. 18]

~~Site: E39 (Glenwood Slough)~~

~~Type: Riparian~~

~~Acres: 23.8~~

~~WHA score: 46-47~~

~~WHA source: Ester Lev, 1990~~

~~Area map(s): 5~~

~~**Description:** Site E39 consists of several sloughs, wetlands, and riparian strips near or adjacent to Interstate 5 and the Southern Pacific Railroad tracks in the Glenwood area. Vegetation includes willows (*Salix* spp.), black cottonwood (*Populus trichocarpa*), sedge (*Carex* spp.), rush (*Juncus* spp.), cattails (*Typha latifolia*), and reed canarygrass (*Phalaris arundinacea*). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but the site's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that a portion of this site is a regulated wetland.~~

**Site: S25 (Formerly E39)**

**Type: Riparian**

**Acres: 12.3**

**WHA score: 46-47**

**WHA source: Ester Lev, 1990**

**Area map(s): 6**

**Description:** Site S-25 (formerly E-39) consists of segments of the Glenwood Slough near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area. S-25 is generally surrounded by industrial uses, railroad tracks and a highway.

The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.

The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (*Salix* spp.), black cottonwood (*Populus trichocarpa*), sedge (*Carex* spp.), rush (*Juncus* spp.), cattails (*Typha latifolia*), and reed canarygrass (*Phalaris arundinacea*). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of

wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust and Oregon Maple.

No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.

**Site:** S26

**Type:** Riparian

**Acres:** 1.56

**WHA score:** 17-57

**WHA source:** Washburn

**Area map(s):** 6

**Description:** Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge. S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River.

The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust, Oregon Maple, and Pacific Willow.

No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. The Eugene drainage that connects to S-26 has been documented by ODFW as having cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fish-bearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.

**Site:** S27

**Type:** Riparian

**Acres:** .33

**WHA score:** 45

**WHA source:** Washburn

**Area map(s):** 6

**Description:** Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with

occasional daylighting along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.

S-27 is a dense thicket, dominated by Pacific Willow, Black Cottonwood, Maple species, Alder species, and Hazelnut trees. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they "could not see the bottom of the drainage due to a steep slope and Salix sp. thicket."

No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fish-bearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.

**Site:** S28

**Type:** Riparian

**Acres:** .73

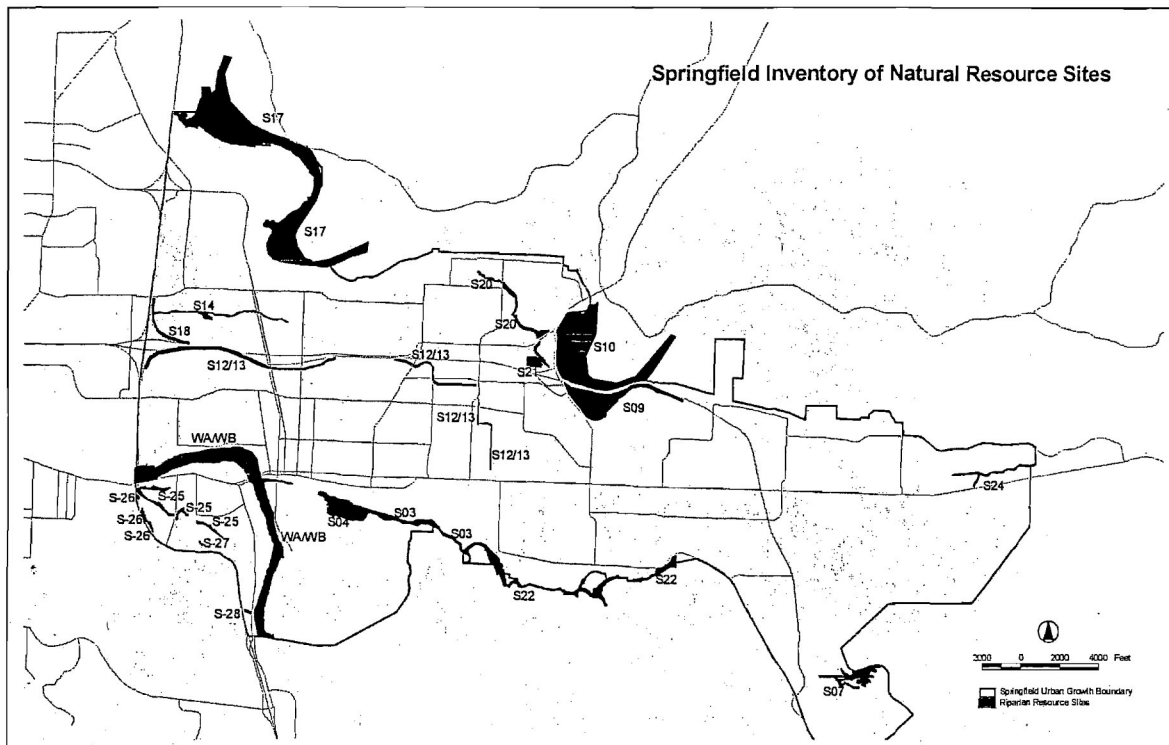
**WHA score:** 61

**WHA source:** Washburn

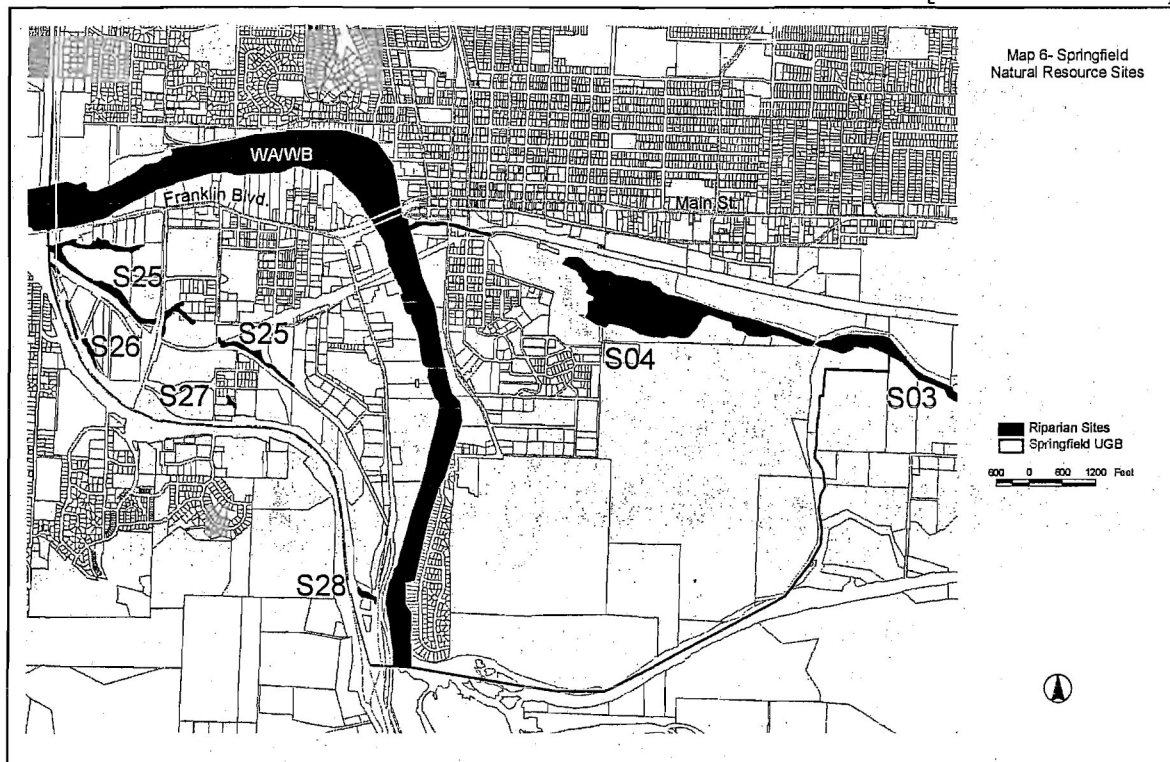
**Area map(s):** 6

**Description:** S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

The dominant riparian tree species include Oregon Ash, Douglas Fir, Red-Osier Dogwood, Black Cottonwood, Indian Plum, White Oak, and Oregon Maple.



[Insert 11"x 17" map]



[Insert 11"x 17" map]



## Exhibit C: Page Inserts for the Springfield Natural Resources Study

Table 3-1. Springfield Inventory of Natural Resource Sites [Insert at pg. 22]

Site #	Acres	Tier 1 Significance Criteria Met	Tier 2 WHA Score	Quality Ranking	Site Name
S03 <sup>1</sup>	29.7	1,2,3,4	61-62	High	Mill Race A (Rural)
S04	42.9	2,3,4,6	40-41	Moderate	Mill Race B (Urban)
S07	23.9	1,2	34	Moderate	Brand S/Natron
S09	71.9	1,2,4	50	High	Weyerhaeuser B
S10 <sup>1</sup>	195.0	1,4,6	70	High	Weyerhaeuser A
S12/13	39.1	2,4	45 (Trees) 36 (No Trees)	High Moderate	Q Street Ditch
S14	2.4	2,4	35	Moderate	Guy Lee
S17 <sup>1</sup>	347.2	1,2,4,6	67	High	Maple Island Slough/ McKenzie River
S18	13.4	2,4	22-23	Moderate	SCS Channel #6
S20	19.6	1,2,4	67	High	Irving Slough North
S21	13.7	1,2,4	47	High	South Irvine Slough and Pond
S22 <sup>1</sup>	44.9	1,2,4	67	High	Jasper Road Slough
S24	8.0	2,3,4	55	High	Gray Creek
WA/WB	628.2	1,2,3,4,6	72-74 (Natural) 64-66 (Urban)	High	Willamette River
E39	23.8	1,4,5	46-47	High	Glenwood Slough
S25	12.30	1,4,5	46-47	High	Glenwood Slough
S26	1.56	1,4	17-57	High	Riverview/Augusta Channel
S27	.33	4	45	High	Petersen Equipment Daylighted Culvert
S28	.73	1,4	61	High	S. McVay Hwy. Channel
Total	1518.62				

## 4.4 Springfield's Locally Significant Wetlands [Insert at pg. 26]

## McKenzie River Basin Wetlands

Site Number	OFWAM Significance Rationale	Acres	USFWS Classification(s)
M4	Special Interest for Protection: Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered.	5.02	PEM
M5	Provides diverse wildlife habitat and hydrologic control function is intact.	9.00	PFO/PSS/PEM
M14	Provides diverse wildlife habitat.	33.45	PEM/PFO
M16a-c	M16a: Water quality and hydrologic functions are intact. M16b: Hydrologic function is intact. M16c: Hydrologic Function is intact	13.96	PFO/POW/RLP/PEM
M20	Provides diverse wildlife habitat and water quality is intact	0.52	RLP
M26	Provides diverse wildlife habitat; provides recreational and educational opportunities;	1.85	PFO/PEM/PSS
M28	Special Interest for Protection- Mitigation Site	1.51	PEM
M29	Special Interest for Protection- Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered.	1.08	PFO/PEM
M30	Water quality function is intact	6.49	PFO/PEM/POW
M33a	Hydrologic control function is intact	3.39	PEM
McKenzie Basin Acres		76.27	

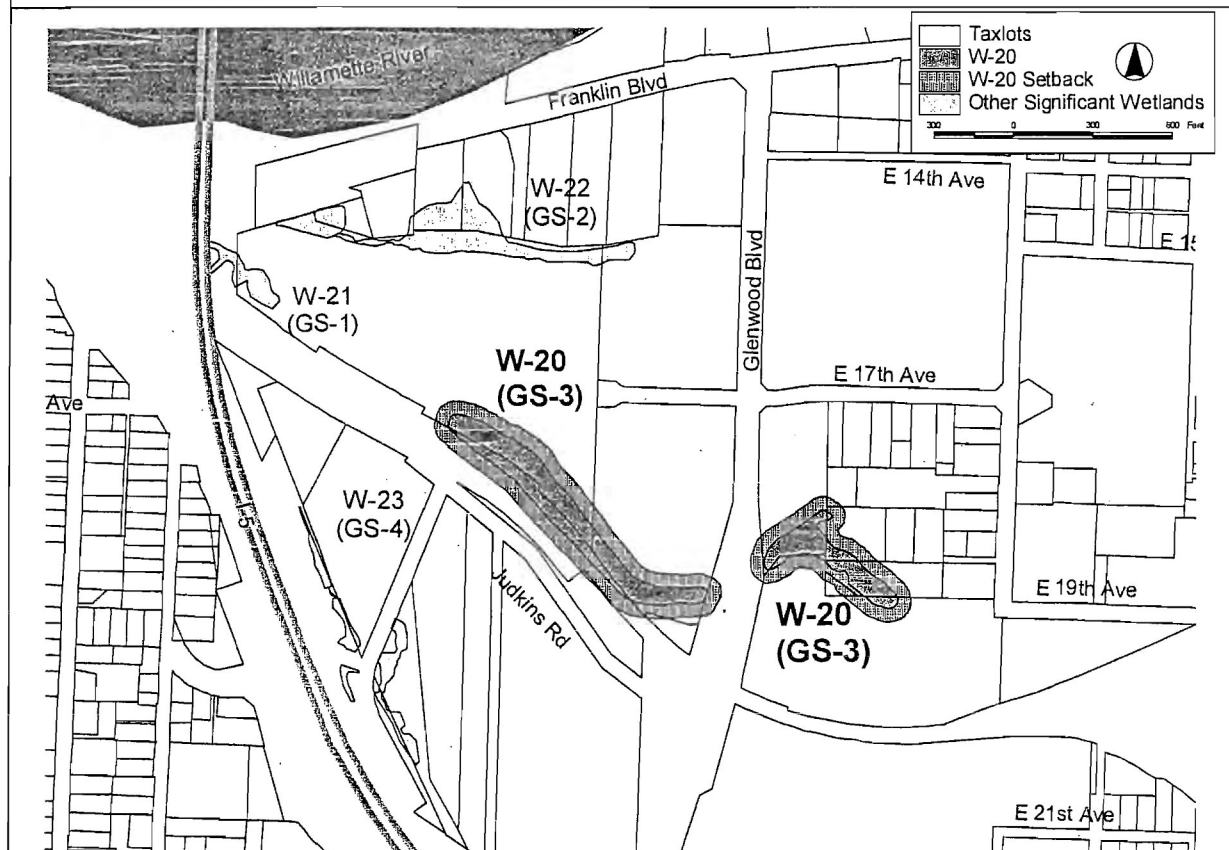
## Willamette River Basin Wetlands

Site Number	OFWAM Significance	Acres	USFWS Classification(s)
W2	Special Interest for Protection -Wetland inhabited by a species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered.	0.90	PEM
W3a	Water quality function is intact	15.30	RLP
W4a	Water quality function is intact	.67	PFO
W12	Water quality and hydrologic functions are intact	1.42	PFO
W16	Water quality and hydrologic functions are intact	1.46	PFO/PEM
W18a	Water quality and hydrologic functions are intact	128.80	PEM/PFO
W19	Hydrologic control function is intact	41.65	POW/PFO
<del>W20</del>	<del>Water quality and hydrologic functions are intact</del>	<del>3.39</del>	<del>PSS/PAB</del>
W20	Water quality and hydrologic functions are degraded	3.73	PSS/PUB
W21	Water quality and hydrologic functions are degraded	.47	PSS
W22	Water quality and hydrologic functions are degraded	2.53	PFO
W23	Water quality and hydrologic functions are degraded	.87	PEM
W24	Water quality and hydrologic functions are degraded	.51	PFO
Willamette Basin Acres		201.7	
Total acreage for all Locally Significant Wetlands		277.97	

[Insert W-20 through W-24 at pg. 190]

Site: <b>W-20</b>  <b>(GS-3)</b>	Acres: 3.73	<b>OFWAM: Locally Significant</b>	Associated Inventoried Riparian Resource?
	<b>Cowardin Class:</b>  Palustrine Scrub-Shrub (PSS), Wetland with <30% canopy cover of shrubs or small trees  Palustrine Unconsolidated Bottom (PUB) Wetland with <30% vegetation cover and a surface with >25% of the particles smaller than stones.	Wetland is within ¼ mile of DEQ 303 (d) listed water body  Wetland has a direct surface water connection to a salmonid stream  <b>Moderate Quality Wetlands</b>	Yes: S-25  WHA Score: 46-47  High Quality Resource

**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-20 is associated with the Glenwood Slough (S-25, formerly E-39). The Slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the Slough also protects W-20. Any portion of W-20 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



**Description:**

W-20 is a Palustrine Shrub-Scrub wetland. It is part of a system known as the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected 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 W-20 was previously delineated (WD96-0375).

Dominant Wetland Vegetation			
Trees/ Shrubs		Vines/ Herbs	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Mentha arvensis</i>	Field mint
<i>Salix sitchensis</i>	Sitka Willow	<i>Biden sp.</i>	Begger's tick.
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Juncus effusus</i>	Soft Rush
		<i>Carex leptopoda</i>	Short-Scale Sedge

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

<b>Soils—Mapped Series</b>	Chehalis silty clay loam
<b>Hydrologic Source</b>	Groundwater

**Wetland and Impact Area Summary**

Wetland Acreage	3.73
Impact Area Acreage	11.74
Combined Wetland and Impact Area	15.50
Vacant Acres within the Combined Area	3.73
Number of Parcels Affected	14
Combined Parcel Acreage	51.26

**Conflicting Uses by Acre and Zoning District**

SITE ID	LDR	PLO	LMI	TOTAL ACRES
W-20	.11	0	2.88	*2.99
W-20 Impact Area	1.07	.89	9.78	11.74
Total	1.18	.92	12.66	14.73

\*This number varies from the total wetland acreage since portions of the wetland and its impact area are within railroad and street right-of-way which have no zoning.

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	PLO	LMI	TOTAL ACRES
W-20	0	0	.13	.13
W-20 Impact Area	0	.89	2.71	3.60
Total	0	.89	2.84	3.73

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? **Yes.**

W-20 is associated with the Glenwood Slough (S-25, formerly E-39). The Slough is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

#### Site Specific ESEE Analysis for W-20

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

W-20 is rated as a "Moderate Quality Wetland." The wetland overlaps with a riparian resource site, S-25. S-25 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis concluded that the wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-20 does provide.

#### Social Consequences

The OFWAM analysis indicates that W-20 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

### Economic Consequences

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 3.73 acres of vacant industrial land within the combined wetland and impact area boundaries.

### Energy Consequences

None of note.

### Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-20 is associated with the Glenwood Slough (S-25, formerly E39). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-20. Any portion of W-20 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

### Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

#### Impact on Vacant Acreage by Zoning District

SITE ID	PLO	LMI	TOTAL ACRES
W-20	0	.13	.13
W-20 50-ft. Setback	.03	.67	.70
Total	.03	.80	.83

About .13 acres of W-20 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 1 lot. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under Section 4.3-115 of the Springfield Development Code. No additional setback is proposed.

A 50-foot setback would affect .67 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC 4.3-115.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-20 and its 50-foot setback area from future development effectively reduces the CIBL inventory by a total of .73 acres and the RLS by a total of .44 acres, for a total of 1.17 acres.

**Impact of Recommended Protection on  
Commercial, Industrial and Residential Land Inventories**

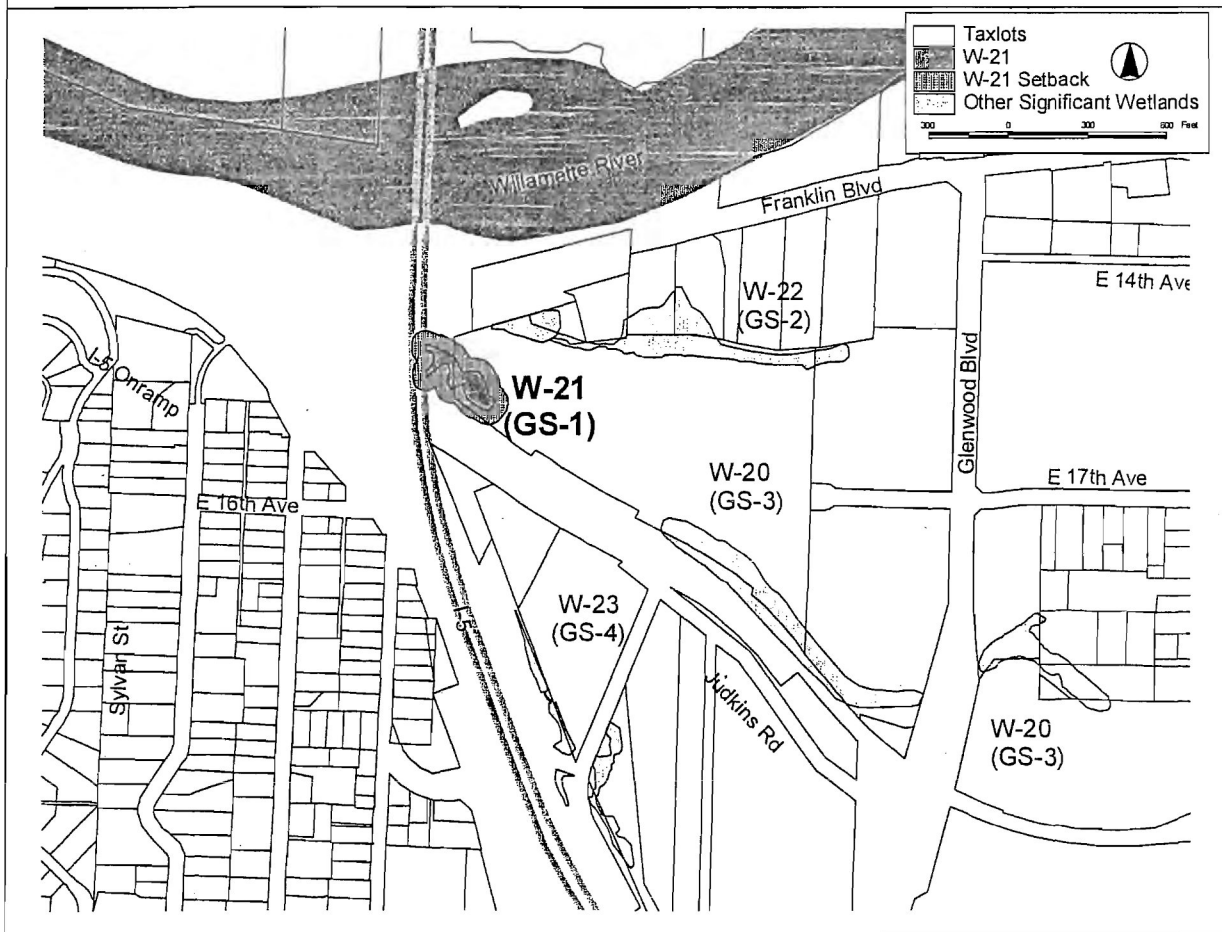
Site W-20 Zoning	Redevelopable	Vacant	Total Acres
LDR	.44	0	.44
LMI	.71	.02	.73
<b>Total Acres</b>	1.15	.02	1.17

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.17 impact of protecting W-20 with the setback is not attributed to this report.

Site: <b>W-21</b> <b>(GS-1)</b>	Acres: .47	<b>OFWAM: Locally Significant</b>	<b>Associated Inventoried Riparian Resource?</b>
	<b>Cowardin Class:</b> Palustrine Scrub Shrub (PSS) Wetland with <30% canopy cover of shrubs or small trees.	Wetland is within ¼ mile of DEQ 303 (d) listed water body  Wetland has a direct surface water connection to a salmonid stream  <b>Moderate Quality Wetlands</b>	Yes: S-25  WHA Score: 46-47  High Quality Resource

**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-21 is associated with the Glenwood Slough (S-25). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.





**Description:**

Wetland W-21 is .47 acres and classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21 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. W-21 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several channels used to convey stormwater. The wetland is less than one-half acre and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

Dominant Wetland Vegetation			
Trees/ Shrubs		Vines/ Herbs	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Carex obnupta</i>	Slough Sedge
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Ranunculus repens</i>	Creeping Butter-Cup
<i>Cornus stolonifera</i>	Red-Osier Dogwood		
<i>Salix lasiandra</i>	Pacific Willow		

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

<b>Soils—Mapped Series</b>	Chehalis silty clay loam, Pengra-Urban land complex
<b>Hydrologic Source</b>	Groundwater

**Wetland and Impact Area Summary**

Wetland Acreage	.47
Impact Area Acreage	4.54
Combined Wetland and Impact Area	5.01
Vacant Acres within the Combined Area	0
Parcels Affected (Including Impact Area)	2
Combined Parcel Acreage	43.54

**Conflicting Uses by Acre and Zoning District**

SITE ID	LMI	TOTAL ACRES
W-21	.31	*.31
W-21 Impact Area	4.54	4.54
Total	4.85	4.85

\*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LM	TOTAL ACRES
W-21	0	0*
W-21 Impact Area	0	0*
Total	0	0*

\*W-21 lies within County owned land that has been developed as a Solid Waste Transfer Site. The wetland is located within ODOT and Union Pacific right-of-way that bisects the County property. What appears to be vacant resource land within the County parcel is in fact committed for transportation uses.

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? **Yes.**

W-21 is associated with the Glenwood Slough. The Slough is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement. This 50-foot setback also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

#### Site Specific ESEE Analysis for W-21

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

W-21 is rated as a "Medium Quality Wetlands." The wetland overlaps with a riparian resource site, E-39. E-39 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis indicates that the wetland's water quality and hydrologic control functions are degraded. The resource provides habitat for some species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-21 does provide.

**Social Consequences**

The OFWAM analysis concluded that W-21 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has high potential for enhancement which may make it more of a community amenity.

**Economic Consequences**

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities, but at a significant cost. Portions of the affected tax lot have been developed as Lane County's Glenwood Solid Waste Transfer Site. The wetland itself is located beneath the Willamette River I-5 Bridge and adjacent to the Union Pacific Railway right-of-way. Fully protecting the resource site would mean no loss to the remaining vacant industrial land within the combined wetland and impact area boundaries.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-21 is associated with the Glenwood Slough. The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under provisions of SDC Section 4.3-117.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LMI	TOTAL ACRES
W-21	0	0
W-21 50-ft. Setback	0	0
Total	0	0

The land containing W-21 is not classified as vacant by the Lane County Assessor's Office. Limiting conflicting uses would allow some re-development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under SDC Section 4.3-115. This 50-foot setback protecting the slough also protects W-21. Any portion of W-21 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback.

A 50-foot setback would not affect any vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

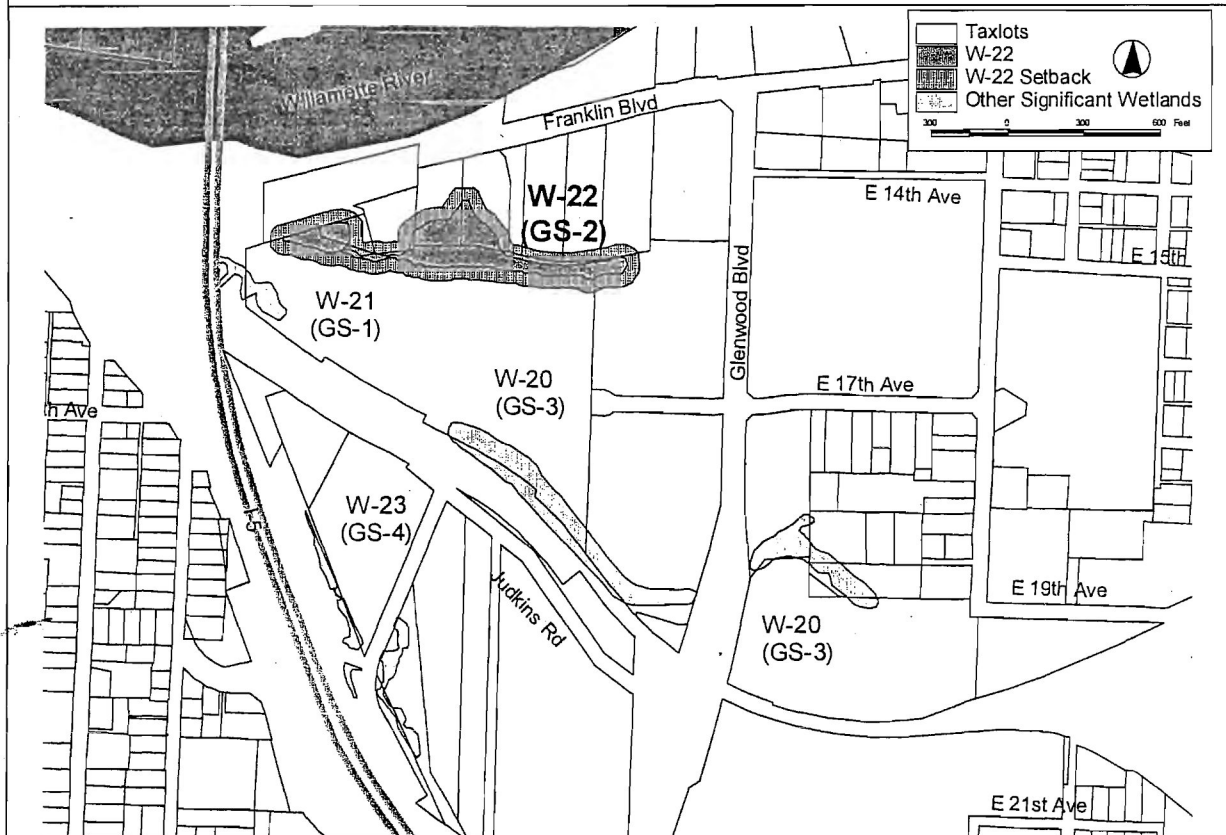
**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Neither the CIBL nor the RLS showed W-21 or its setbacks as inventoried land. Protecting W-21 will not cause a reduction in those inventories.

Site: <b>W-22</b>  <b>(GS-2)</b>	Acres: 2.53	<b>OFWAM: Locally Significant</b>  Wetland is within ¼ mile of DEQ 303 (d) listed water body  Wetland has a direct surface water connection to a salmonid stream  <b>Moderate Quality Wetlands</b>	Inventoried Riparian Resource?  Yes: S-25  WHA Score: 46-47  High Quality Resource
	Cowardin Class:  Palustrine Forested (PFO) Wetland with trees growing in standing water or saturated soils, or small wetlands entirely beneath an overhanging forest canopy.		

**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-22 is associated with the Glenwood Slough (S-25). The slough is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects W-22. Any portion of W-22 not protected by the Glenwood Slough 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



**Description:**

Wetland W-22 is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 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 W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

Dominant Wetland Vegetation			
Trees/ Shrubs		Vines/ Herbs	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Carex obnupta</i>	Slough Sedge
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Biden sp.</i>	Begger's tick.
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Juncus effusus</i>	Soft Rush
<i>Salix lasiandra</i>	Pacific Willow	<i>Lapsana communis</i>	Nipplewort
<i>Alnus Ruba</i>	Red Alder		
<i>Rosa piscocarpa</i>	Clustered Wild Rose		

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

<b>Soils—Mapped Series</b>	Chehalis silty clay loam
<b>Hydrologic Source</b>	Groundwater

**Wetland and Impact Area Summary**

Wetland Acreage	2.53
Impact Area Acreage	12.22
Combined Wetland and Impact Area	14.75
Vacant Acres within the Combined Area	2.84
Parcels Affected (Including Impact Area)	12
Combined Parcel Acreage	67.43

**Conflicting Uses by Acre and Zoning District**

SITE ID	LMI	TOTAL ACRES
W-22	2.53	2.53
W-22 Impact Area	12.22	12.22
Total	14.75	14.75

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LM	TOTAL ACRES
W-22	.56	.56
W-22 Impact Area	2.28	2.28
Total	2.84	2.84

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? **Yes.**

W-22 is associated with the Glenwood Slough-North Channel (S-25). The channel is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25 (formerly E-39). The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

#### Site Specific ESEE Analysis for W-22

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

W-22 is rated as a "Moderate Quality Wetland." The wetland overlaps with a riparian resource site, S-25. S-25 is rated as a "High Quality Resource" site with a WHA score of 46-47. The OFWAM analysis concluded that W-22's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some wildlife species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-22 provides.

#### Social Consequences

The OFWAM analysis indicates that W-22 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

### Economic Consequences

The OFWAM analysis indicates that the water quality and hydrologic control functions of the resource are already degraded. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 2.84 acres of vacant industrial land within the combined wetland and impact area boundaries.

### Energy Consequences

None of note.

### Recommended Program for Protection

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. W-22 is associated with the Glenwood Slough-North Channel (S-25, formerly E39). The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects W-22.

A small portion of W-22 (about .06 acres) is not protected by the 50-ft setback provided by the stormwater WQLW standards found in SDC Section 4.3-115. This unprotected segment of W-22 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117. Any portion of W-22 not protected by the Glenwood Slough-North Channel 50-foot setback should be protected by a 25-foot setback.

### Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory

#### Impact on Vacant Acreage by Zoning District

SITE ID	LMI	TOTAL ACRES
W-22	.56	.56
W-22 25 to 50-ft. Setback	.79	.79
Total	1.35	1.35

About .56 acres of W-22 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced. A 50-foot development setback is already required for the wetland under SDC Section 4.3-115. A small portion of W-22 (about .05 vacant acres) is not protected by the 50-ft setback, but is protected by a 25-foot setback under the provisions of SDC Section 4.3-117. A 25-foot setback applied to the unprotected wetland area affects about .09 acres of the total setback acres shown for W-22.

A 25 to 50-foot setback would affect .79 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other



open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-22 and its 25-50 foot setback area from future development effectively reduces the CIBL inventory by a total of 2.26 acres.

**Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories**

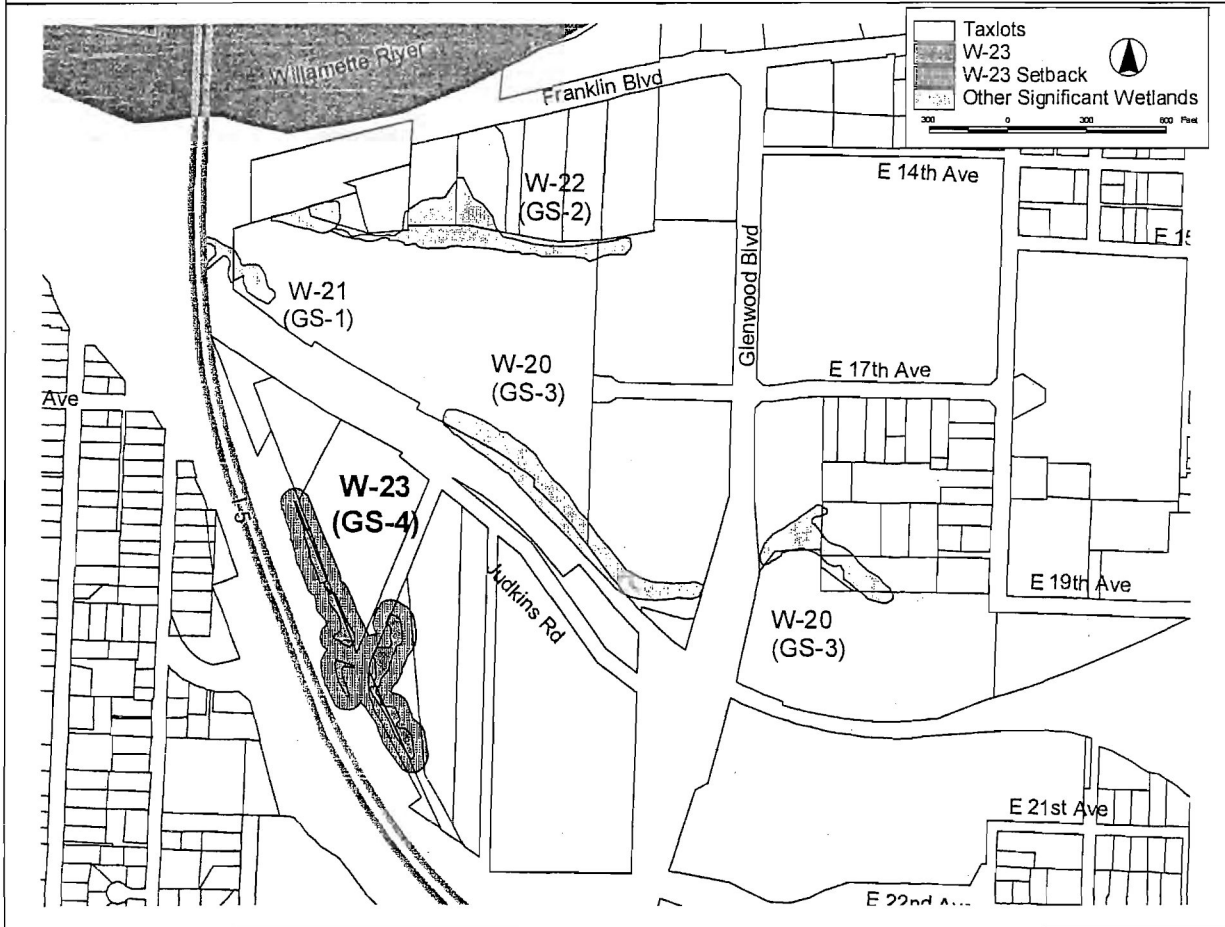
Site W-22 Zoning	Redevelopable	Vacant	Total Acres
LMI	.91	1.35	2.26
<b>Total Acres</b>	.91	1.35	2.26

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is already required under stormwater provisions of the Springfield Development Code, and thus the 2.26 acre impact of protecting W-22, including its setback, is not attributed to this report.

Site: <b>W-23</b>  <b>(GS-4)</b>	Acres: .87	<b>OFWAM: Locally Significant</b>	<b>Associated Inventoried Riparian Resource?</b>
	<b>Cowardin Class:</b> Palustrine Emergent (PEM) Herbaceous plants growing in standing water or saturated soils.	Wetland is within ¼ mile of DEQ 303 (d) listed water body  <b>Moderate Quality Wetlands</b>	Yes: S-26  WHA Score: 17-57  High Quality Resource Site

**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. Maintain an average 25-foot development setback from the wetland. The adjacent Riverview/Augusta Channel (S-26) is protected by a 50-foot development setback and site plan review standards described in Section 4.3-115 of the Springfield Development Code. Portions of this setback overlap with the recommended 25-foot setback for W-23. Any portion of W-23 not protected by the Riverview/Augusta Channel's 50-foot setback should be protected by a 25-foot setback under the provisions of SDC 4.3-117.



**Description:**

Wetland W-23 is .87 acres and classified as Palustrine Emergent (PEM) wetland. W-23 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 flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

By state mandate, the Oregon Freshwater Wetland Assessment Methodology (OFWAM) is used to determine if a wetland is "locally significant" under Oregon law. W-23 fails all criteria for the significance test with the exception that portions of the wetland are within ¼ mile of a water body listed by DEQ as a water-quality limited water body, and the wetland has an impacted or degraded water quality function.

**Dominant Wetland Vegetation**

Trees/ Shrubs		Vines/ Herbs	
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Mentha arvensis</i>	Wild mint
		<i>Biden sp.</i>	Begger's tick.
		<i>Juncus effusus</i>	Soft Rush
		<i>Carex stipata</i>	Sawbeak Sedge
		<i>Bromus hordeaceus</i>	Soft Brome
		<i>Holcus Lanatus</i>	Common Velvet Grass
		<i>Plantago Lanceolata</i>	English Plantain
		<i>Festuca arundinacea</i>	Tall Fescue
		<i>Poa sp.</i>	Bluegrass species

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

**Soils**

<b>Soils—Mapped Series</b>	Dixonville-Philomath-Hazelair Complex
<b>Hydrologic Source</b>	Groundwater

**Wetland and Impact Area Summary**

Wetland Acreage	.87
Impact Area Acreage	5.34
Combined Wetland and Impact Area	6.21
Vacant Acres within the Combined Area	2.05
Parcels Affected (Including Impact Area)	5
Combined Parcel Acreage	12.67

### Conflicting Uses by Acre and Zoning District

SITE ID	LMI	TOTAL ACRES
W-23	.53	*.53
W-23 Impact Area	5.34	5.34
Total	5.87	5.87

\*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LMI	TOTAL ACRES
W-23	.49	.49
W-23 Impact Area	1.56	1.56
Total	2.05	2.05

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? **Yes, in part. Portions of W-23 are not currently protected.**

W-23 is adjacent to, but a part of the Riverview/Augusta Channel (S-26). The Channel is a tributary to a water quality limited watercourse (Willamette River) and is protected by a 50-foot setback and by a site plan review requirement.

The Glenwood Refinement Plan includes policies that give direction for environmental design. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

#### Site Specific ESEE Analysis for W-23

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

W-23 is rated as a "Moderate Quality Wetlands." The wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat. Fully

allowing conflicting uses would mean the loss of what little function and habitat that W-23 provides.

**Social Consequences**

W-23 is not aesthetically pleasing, nor is it appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The OFWAM analysis noted that the site is not appropriate for recreational use. The wetland does not have any point of access. The site has some potential for enhancement which may make improve its wetland function.

**Economic Consequences**

Fully allowing conflicting uses would mean the loss of the water quality and hydrologic control functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 1.56 acres of vacant industrial land within the combined wetland and impact area boundaries.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the wetland. Maintain an average 25-foot development setback from the wetland. The adjacent Riverview/Augusta Channel is protected by a 50-foot development setback and site plan review standards described in Section 4.3-115 of the Springfield Development Code. Portions of this setback overlap the recommended 25-foot setback for W-23. Any portion of W-23 not protected by the Riverview/Augusta Channel 50-foot setback should be protected by a 25-foot setback.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LMI	TOTAL ACRES
W-23	.49	.49
W-23 25-ft. Setback	.68	.68
Total	1.17	1.17

About .49 acres of W-23 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 2 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced.

A 25-foot setback would affect .68 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under Section 4.3-115 of the Springfield Development Code.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in Section 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting W-23 and its 50-foot setback area from future development effectively reduces the CIBL inventory by a total of 1.02 acres.

**Impact of Recommended Protection on  
Commercial, Industrial and Residential Land Inventories**

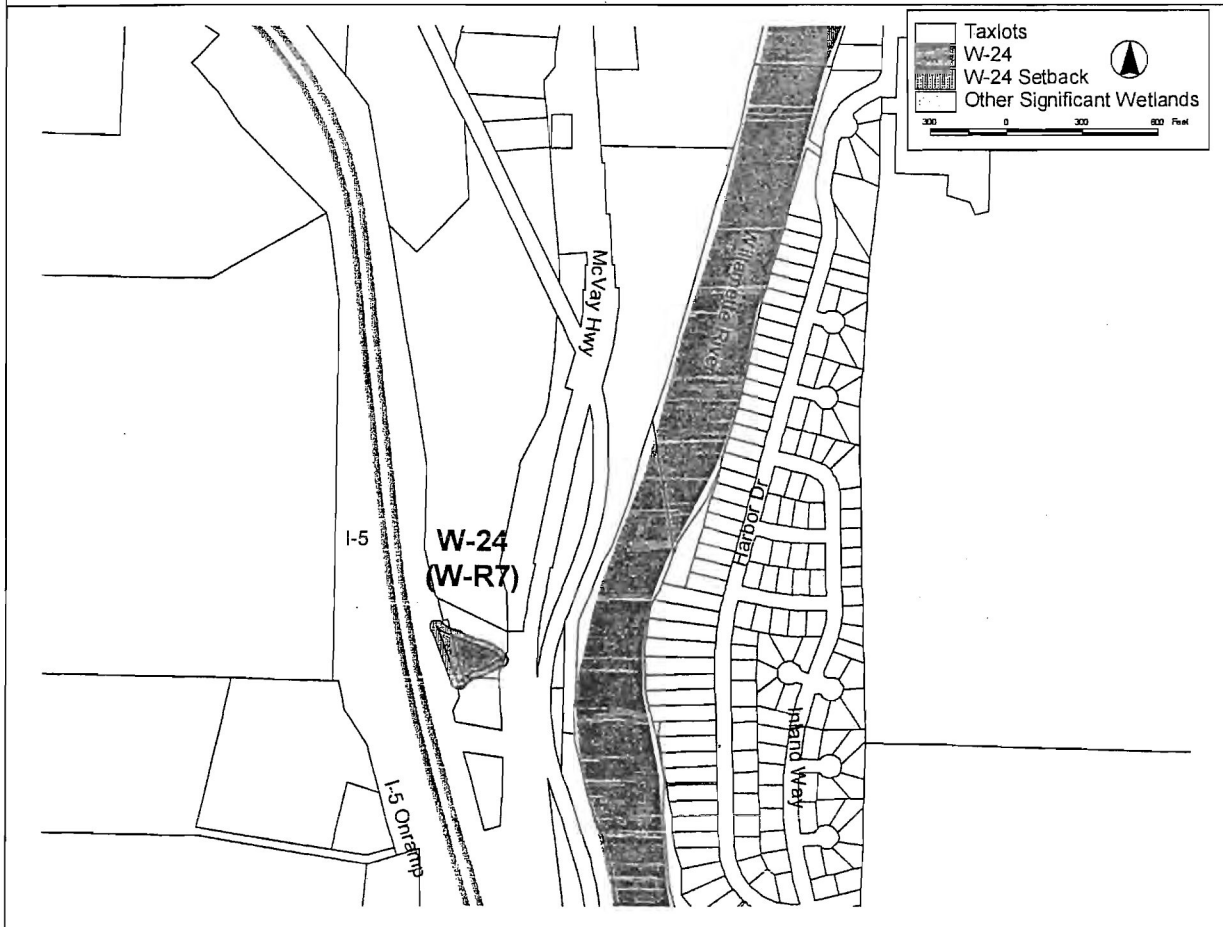
Site W-23 Zoning	Redevelopable	Vacant	Total Acres
LMI	.49	.53	1.02
<b>Total Acres</b>	.49	.53	1.02

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.02 impact of protecting W-23 with the setback is not attributed to this report.

Site: <b>W-24</b>  <b>(W-R7)</b>	Acres: .51	<b>OFWAM: Locally Significant</b>	Associated Inventoried Riparian Resource?
	Cowardin Class: Palustrine Forested (PFO); Wetland with trees growing in standing water or saturated soils, or small wetlands entirely beneath an overhanging forest canopy.	Wetland is within ¼ mile of DEQ 303 (d) listed water body  <b>Medium Quality                  Wetlands</b>	Yes: S-28  WHA Score: 61  High Quality Resource Site

**Goal 5 Recommendation:** Limit conflicting uses that may impact the wetland. Maintain an average 25-foot development setback from the wetland. Allow development within the 150-foot impact area using low impact development practices that are appropriate for the soil, water table and other site characteristics.



**Description:**

W-24 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 McVay Hwy. and the railroad and out to the Willamette River. W-24 is located between I-5 and McVay Hwy. with residential land uses to the north and south.

Dominant Wetland Vegetation			
Trees/ Shrubs		Vines/ Herbs	
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Phalaris arundinacea</i>	Reed Canary Grass
<i>Salix lasiandra</i>	Pacific Willow	<i>Oenanthe sarmentosa</i>	Water-Parsley
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Urtica dioica</i>	Stinging Nettles
		<i>Carex obnupta</i>	Slough Sedge
		<i>Equisetum arvense</i>	Field Horsetail

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

<b>Soils—Mapped Series</b>	Dixonville-Philomath-Hazelair Complex
<b>Hydrologic Source</b>	Groundwater

**Wetland and Impact Area Summary**

Wetland Acreage	.51
Impact Area Acreage	1.69
Combined Wetland and Impact Area	2.20
Vacant Acres within the Combined Area	.86
Parcels Affected (Including Impact Area)	4
Combined Parcel Acreage	22.03

**Conflicting Uses by Acre and Zoning District**

SITE ID	LD	PL	TOTAL ACRES
W-24	.35	0	*.35
W-24 Impact Area	1.28	.41	1.69
Total	1.63	.41	2.04

\*Portions of the wetland fall within right-of-way which has no zoning designation; thus this figure is less than that shown above for wetland acreage.

**Conflicting Uses by Vacant Acre and Zoning District**

SITE ID	LD	PL	TOTAL ACRES
W-24	0	0	0
W-24 Impact Area	.53	.33	.86



SITE ID	LD	PL	TOTAL ACRES
Total	.53	.33	.86

### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? No.

The Glenwood Refinement Plan includes policies that give direction for environmental design. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

### Site Specific ESEE Analysis for W-24

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

### Environmental Consequences

W-24 is rated as a "Moderate Quality Wetlands." The wetland's water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat. Fully allowing conflicting uses would mean the loss of what little function and habitat that W-24 provides.

### Social Consequences

W-24 is isolated and not easily accessible to the public. It is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. The site has moderate potential for enhancement which may make it more of a community amenity.

### Economic Consequences

Fully allowing conflicting uses would mean the loss of the water quality and hydrologic control functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site and its impact area would mean the loss of .86 acres of vacant residential land within the combined wetland and impact area boundaries.

### Energy Consequences

None of note.

**Recommended Program for Protection**

Limit conflicting uses that may impact the wetland. Maintain an average 25-foot development setback from the wetland. Allow development within the 150-foot impact area using low impact development practices that are appropriate for the soil, water table and other site characteristics.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LD	PI	TOTAL ACRES
W-24	0	0	0
W-24 25-ft. Setback	.02	0	.02
Total	.02	0	.02

About .02 acres of W-24 is classified as vacant by the Lane County Assessor’s Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the wetland area where the developer could show how the essential functions of the wetland could be preserved or enhanced.

A 25-foot setback would affect .02 acres of vacant residential land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-117.

Employing low impact development practices within 150 feet of the wetland could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

**Reduction in the Buildable Land Inventory:**

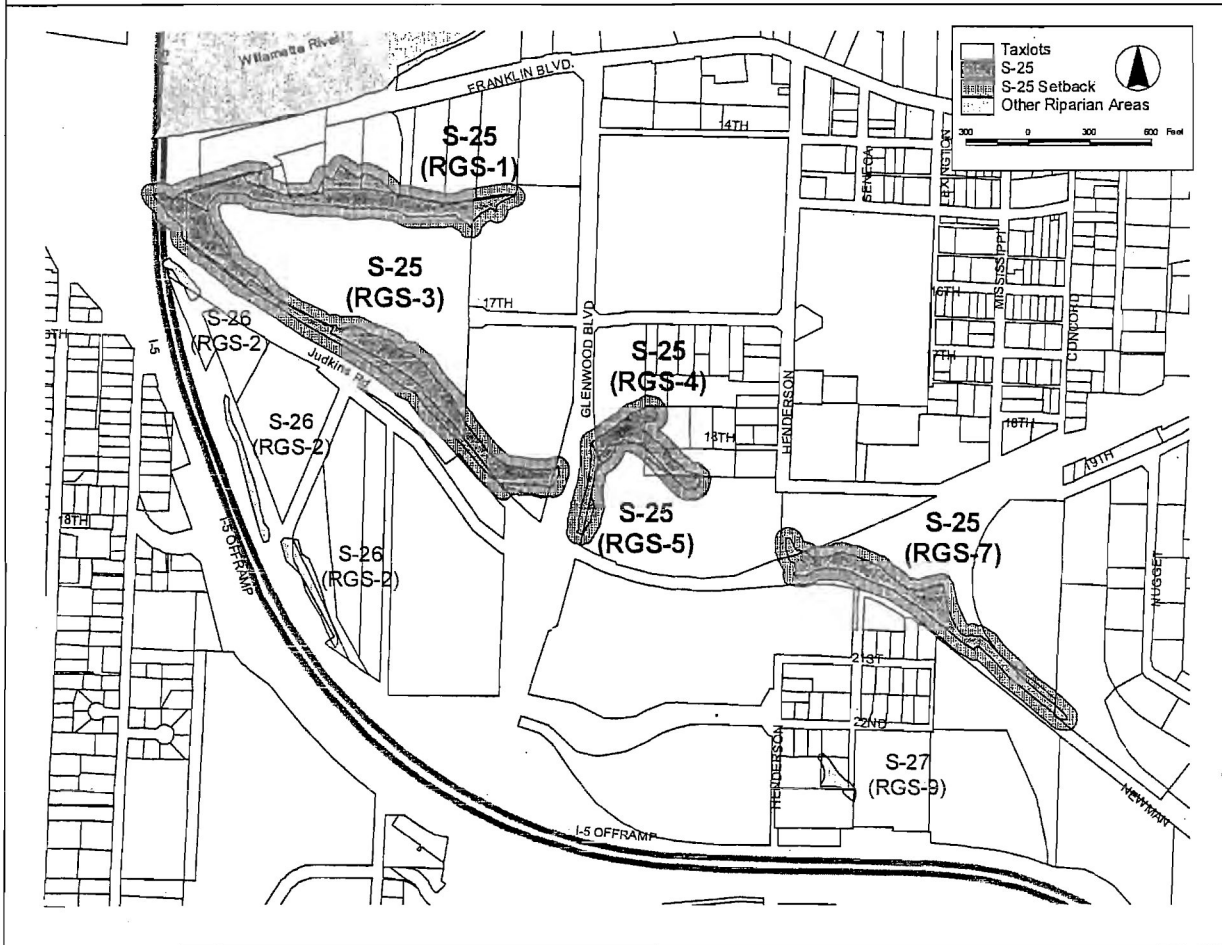
The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Neither the CIBL nor the RLS showed W-24 or its setbacks as inventoried land. Protecting W-24 will not cause a reduction in those inventories.

[Insert S-25 through S-28 at pg. 253]

<p>Site: <b>S-25</b> (Formerly E39) <b>(RGS-1,3,4,5, and 7)</b></p>	<p>Associated Wetlands: W-20, W-21, W-22 Moderate Quality Wetlands</p>	<p>Acres: 12.30</p>	<p>WHA Score: 46-47 <b>High Quality Resource Site</b></p>
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**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-25 is associated with the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. System. The Slough and North Channel are protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects S-25. A 339 ft. segment of S-25 is not protected by the 50-ft setback provided by the stormwater WQLW standards found in SDC Section 4.3-115. This unprotected segment of S-25 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117.



**Description:**

Site S-25 (formerly E-39) consists of segments of the Glenwood Slough—North Channel and a section of the Moon Mt. system near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area. S-25 is generally surrounded by industrial uses, railroad tracks and a highway.

The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.

The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (*Salix* spp.), black cottonwood (*Populus trichocarpa*), sedge (*Carex* spp.), rush (*Juncus* spp.), cattails (*Typha latifolia*), and reed canarygrass (*Phalaris arundinacea*). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).

No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.

**Observed Vegetation**

Woody Vegetation		Herbaceous Vegetation	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Festuca arundinacea</i>	Tall Fescue
<i>Salix sitchensis</i>	Sitka Willow	<i>Plantago lanceolata</i>	English Plantain
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Daucus carota</i>	Queen Anne's Lace
<i>Rubus discolor</i>	Himalayan blackberry	<i>Airx caryophylla</i>	Silver Hairgrass
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Lathyrus sp.</i>	Wild Pea
<i>Robinia pseudoacacia</i>	Black Locust	<i>Cirsium arvense</i>	Canada Thistle
<i>Rubus armeniacus</i>	Armenian Blackberry	<i>mixed grasses (unidentified)</i>	
<i>Acer macrophyllum</i>	Oregon Maple		

**Wetland Vegetation**

Trees/ Shrubs		Vines/ Herbs	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Mentha arvensis</i>	Field mint
<i>Salix sitchensis</i>	Sitka Willow	<i>Biden sp.</i>	Begger's tick.
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Juncus effusus</i>	Soft Rush
		<i>Carex leptopoda</i>	Short-Scale Sedge

**Soils**

<b>Soils—Mapped Series</b>	Chehalis silty clay loam
<b>Hydrologic Source</b>	Groundwater

**Summary of Riparian Functional Assessment**

Riparian ID	Reach Length	Stream/Pond Width	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
RGS-1	1,681 ft.	120 ft.	50 ft.	H	H	H	M
RGS-3	2,706 ft.	50-75 ft.	100 ft.	H	L-M	H	M-H
RGS-4	780 ft.	50-75 ft.	50-75 ft.	H	M	H	H
RGS-5	339 ft.	2-6 ft.	75 ft.	M	M	H	M
RGS-7	1,669 ft.	8-10 ft.	120 ft.	H	L	H	M
<b>Total Length: 7185 ft.</b>			<b>Modal Average</b>	<b>H</b>	<b>M</b>	<b>H</b>	<b>M</b>

**Resource and Impact Area Summary**

Resource Acreage:	12.30
Impact Area Acreage:	45.01
Combined Resource and Impact Area:	55.02
Vacant Acres within the Combined Area:	8.57
Parcels Affected (Including Impact Area):	32
Combined Parcel Acreage:	308.09

**Conflicting Uses by Acre and Zoning District**

SITE ID	LDR	LMI	PLO	*Right-of-Way	TOTAL ACRES
S-25	.17	7.71		4.42	7.88
S-25 Impact Area	1.09	28.23	1.01	14.68	30.33
Total	1.26	35.94	1.01	16.81	38.21

\*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and railroad right-of-ways.

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	LMI	PLO	TOTAL ACRES
S-25	0	.67	0	.67
S-25 Impact Area	0	6.89	1.01	7.90
Total	0	7.56	1.01	8.57

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in Section 4.3-115 of the Springfield Development Code? **Yes.**

S-25 includes the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. system. The Glenwood Slough and the North Channel are tributaries to a water quality limited watercourse (Willamette River) and are protected by a 50-foot setback and a site plan review requirement.

S-25 overlaps protected wetlands W-20, W-21, and W-22. The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-25. The Refinement Plan states, "Significant wetland areas in Glenwood shall be protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control," (Policy 1, pg. 92, Environmental Element).

#### Site Specific ESEE Analysis for S-25

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

With WHA scores ranging from 22 to 61 for five individual reaches of the stream, S-25 is rated as a high quality resource site. The Riparian Functional Assessment prepared by Pacific Habitat Services rated S-25's various reaches as well. The mode average of the assessment scores for S-25's Water Quality and Thermal Regulation Functions was "High." S-25's Flood Management and Wildlife Habitat functions average was "Medium."

Much of S-25 includes inventoried locally significant wetlands (W-20, W-21, and W-22). The water quality and hydrologic control functions of these wetland sites are impacted or degraded. The resource provides habitat for some wildlife species, although the fish habitat is degraded. Fully allowing conflicting uses would mean the loss of the riparian and wetland functions that S-25 provides.

**Social Consequences**

S-25 is located in an area that is heavily impacted by existing industrial and residential development. The stream is not easily accessible to the public and it is not located near a school. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. For these reasons it is not appropriate for educational or recreational uses.

**Economic Consequences**

Fully allowing conflicting uses would mean the loss of the riparian and wetland functions of the resource. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 7.56 acres of vacant industrial land within the combined resource and impact area boundaries.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-25 includes the Glenwood Slough, the Glenwood North Channel and a section of the Moon Mt. system. The Slough and the North Channel are protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the slough also protects S-25. A 339 ft. segment of S-25 is not protected by the 50-ft setback. This unprotected segment of S-25 should be covered by a 25-foot development setback and the protections afforded by SDC Section 4.3-117.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	PLO	LMI	TOTAL ACRES
S-25		.67	.67
*S-25 25/50-ft. Setback	.04	2.45	2.49
Total	.04	3.12	3.16

\*A 339-ft segment of S-25 falls outside of the 50-ft protection of the stormwater WQI.W program. This segment is protected by a 25-ft. setback.

About .67 acres of S-25 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 5 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the

essential functions of the riparian corridor could be preserved or enhanced. A 50-foot development setback is already required for the riparian area under SDC 4.3-115. No additional setback is proposed.

A 25-to-50-foot setback would affect 3.12 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-25 and its 25-50 foot setback area from future development effectively reduces the CIBL inventory by a total of 3.26 acres and the RLS by a total of 1.11 acres, for a total of 3.75 acres.

**Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories**

Site S-25 Zoning	Redevelopable	Vacant	Total Acres
LDR	.49		.49
LMI	2.15	1.11	3.26
<b>Total Acres</b>	<b>2.64</b>	<b>1.11</b>	<b>3.75</b>

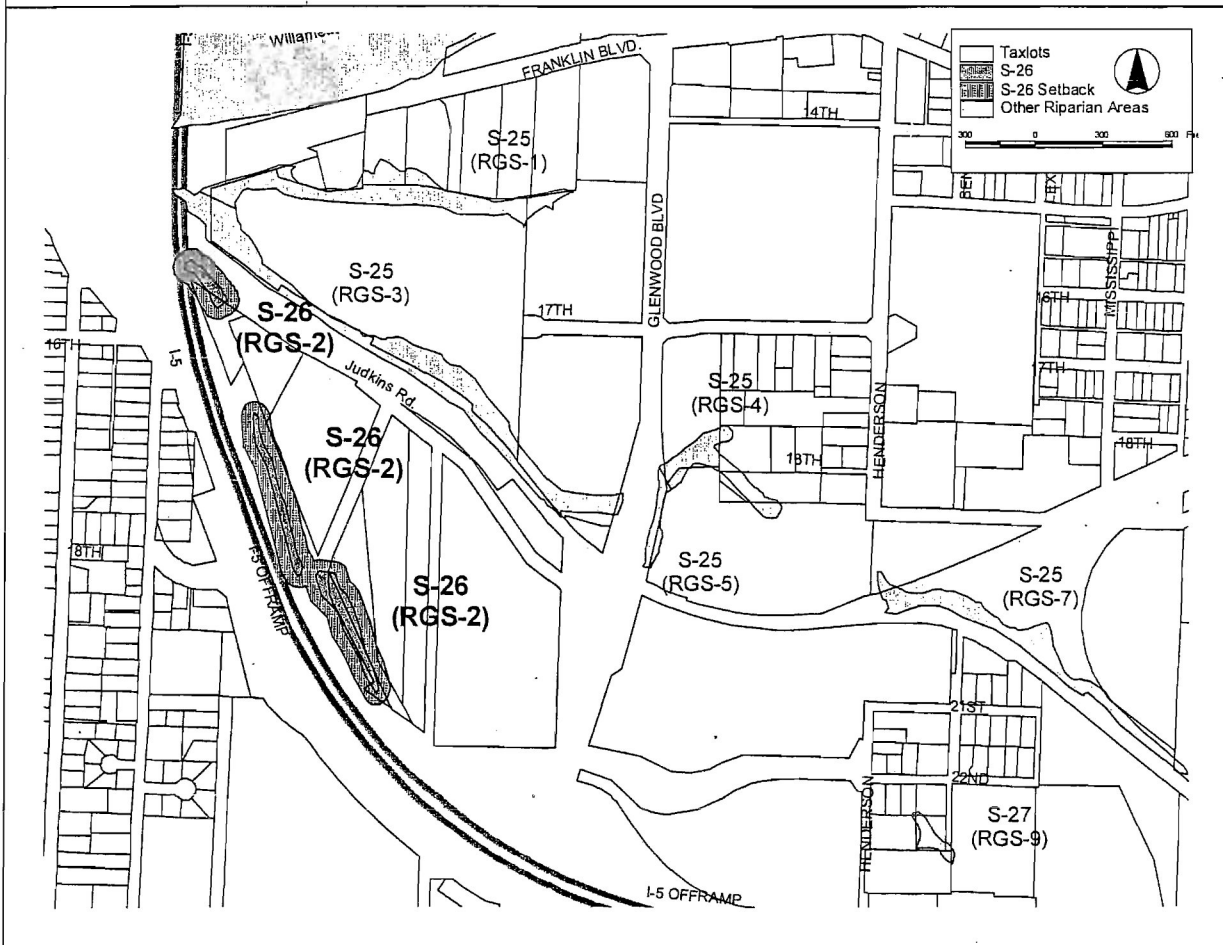
The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is already required under stormwater provisions of the Springfield Development Code, and thus 2.39 acres of the 3.75 acre impact of the setback is not attributed to this report.



<p>Site:</p> <p><b>S-26</b></p> <p><b>(RGS-2)</b></p> <p>Riverview/Augusta Channel</p>	<p>Associated Wetlands:</p> <p>W-23</p> <p>Moderate Quality Wetlands</p>	<p>Acres:</p> <p>1.56</p>	<p><b>WHA Score:</b></p> <p>17-57</p> <p><b>High Quality Resource Site</b></p>
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**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-26 is associated with the Riverview-Augusta Channel. The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26. Any portion of S-26 not protected by the Riverview-Augusta Channel 50-foot setback should be protected by a 25-foot setback under the standards and protections found in SDC 4.3-117. S-26 is adjacent to but not directly connected to a locally significant wetland (W-23).



**Description:**

Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge.

S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River. The left & right banks are similar but the average slope of the right bank is 10% and the impervious surface is between 10-25%. About 75% of both banks of S-26 are affected by development.

No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this Eugene drainage that connects to S-26 has cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fish-bearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.

**Observed Vegetation**

Woody Vegetation		Herbaceous Vegetation	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Festuca arundinacea</i>	Tall Fescue
<i>Salix sitchensis</i>	Sitka Willow	<i>Plantago lanceolata</i>	English Plantain
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Daucus carota</i>	Queen Anne's Lace
<i>Rubus discolor</i>	Himalayan blackberry	<i>Aira caryophyllea</i>	Silver Hairgrass
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Lathyrus sp.</i>	Wild Pea
<i>Robinia pseudoacacia</i>	Black Locust	<i>Cirsium arvense</i>	Canada Thistle
<i>Rubus armeniacus</i>	Armenian Blackberry	<i>mixed grasses (unidentified)</i>	
<i>Acer macrophyllum</i>	Oregon Maple	<i>Dipsacus sylvestris</i>	Common Teasel
<i>Salix lasiandra</i>	Pacific Willow	<i>Hypericum perforatum</i>	St. John's Wort
<i>Cytisus scoparius</i>	Scotch Broom	<i>Juncus effusus</i>	Common Rush
<i>Symphoricarpos albus</i>	Snowberry		

**Wetland Vegetation**

Trees/ Shrubs		Vines/ Herbs	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Mentha arvensis</i>	Field mint
<i>Salix sitchensis</i>	Sitka Willow	<i>Biden sp.</i>	Begger's tick.
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Juncus effusus</i>	Soft Rush
		<i>Carex leptopoda</i>	Short-Scale Sedge

**Soils**

<b>Soils—Mapped Series</b>	Chehalis silty clay loam
<b>Hydrologic Source</b>	Groundwater

**Summary of Riparian Functional Assessment**

Riparian ID	Reach Length	Stream Width	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
RGS-2	1,740	2-5 feet	40-75 ft.	M	M	H	M

**Resource and Impact Area Summary**

Resource Acreage:	1.56
Impact Area Acreage:	14.73
Combined Resource and Impact Area:	16.29
Vacant Acres within the Combined Area:	1.99
Parcels Affected (Including Impact Area):	8
Combined Parcel Acreage:	57.07

**Conflicting Uses by Acre and Zoning District**

SITE ID	LMI	*Right-of-Way	TOTAL ACRES
S-26	.57	.99	.57
S-26 Impact Area	5.12	9.61	5.12
Total	5.69	10.60	5.69

\*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and railroad right-of-ways.

**Conflicting Uses by Vacant Acre and Zoning District**

SITE ID	LMI	TOTAL ACRES
S-26	.52	.52
S-26 Impact Area	1.47	1.47
Total	1.99	1.99

**Existing Protections**

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? **Yes.**

S-26 is associated with the Riverview-Augusta Channel. The channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26.

### **Site Specific ESEE Analysis for S-26**

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

### **Environmental Consequences**

Although S-26 is highly disturbed, it achieved a WHA score that ranged between 17 for the northern segment to 57 for the southern segment. S-26 is rated overall as a high quality resource site, despite the low score for the northern segment. The northern segment has restoration potential and will likely receive attention as part of a larger riparian restoration project for the area disturbed by construction of the new Willamette I-5 Bridges.

The Riparian Functional Assessment conducted by Pacific Habitat Services indicated that the Water Quality, Flood Management and Wildlife Habitat functions were rated "Medium." The Thermal Regulation function was rated "High." Fully allowing additional conflicting uses would cause the loss of these functions.

### **Social Consequences**

S-26 is located in an area that is heavily impacted by existing industrial development. The stream is not easily accessible to the public nor is it near a school. For these reasons it is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site.

### **Economic Consequences**

Fully allowing conflicting uses would mean the loss of the water quality, flood management, thermal regulation and wildlife habitat functions of S-26. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 1.99 acres of vacant industrial land within the combined resource and impact area boundaries.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of industrial lands. The majority of small sized commercial and industrial parcels needed for future growth shall be met within the existing UGB on small vacant and or redeveloped parcels. Protecting S-26 would reduce the available vacant industrial land within the UGB to meet these needs. The cumulative effect of fully protecting all commercial and industrial land that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. S-26 is associated with the Riverview-Augusta Channel. The Riverview-Augusta Channel is protected by a 50-foot development setback described in SDC Section 4.3-115 and the site plan review standards described in SDC Section 5.17-100. This 50-foot setback protecting the channel also protects S-26. Any portion of S-26 not protected by the Riverview-Augusta Channel's 50-foot setback should be protected by a 25-foot setback under the standards and protections found in SDC 4.3-117.

If the setback afforded to S-26 by the existing Riverview-Augusta Channel protections is removed, a 25-foot setback should be applied to the stream under the standards and protections found in SDC 4.3-117.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LMI	TOTAL ACRES
S-26	.52	.52
S-26 50-ft. Setback	1.26	1.26
Total	1.78	1.78

About .52 acres of S-26 is classified as vacant by the Lane County Assessor's Office. The vacant acreage includes portions of 3 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the essential functions of the riparian corridor could be preserved or enhanced. A 50-foot development setback is already required for the riparian area under SDC Section 4.3-115. No additional setback is proposed by this study.

A 50-foot setback would affect 1.26 acres of vacant industrial land. The affect of the setback on buildable land could be reduced by aligning development such that side yards, stormwater swales and other required open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as "Vacant," or "Redevelopable." These classifications are not the same used by the Lane County Assessor's Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-26 and its 50 foot setback area from future development effectively reduces the CIBL inventory by a total of 1.3 acres.

**Impact of Recommended Protection on  
Commercial, Industrial and Residential Land Inventories**

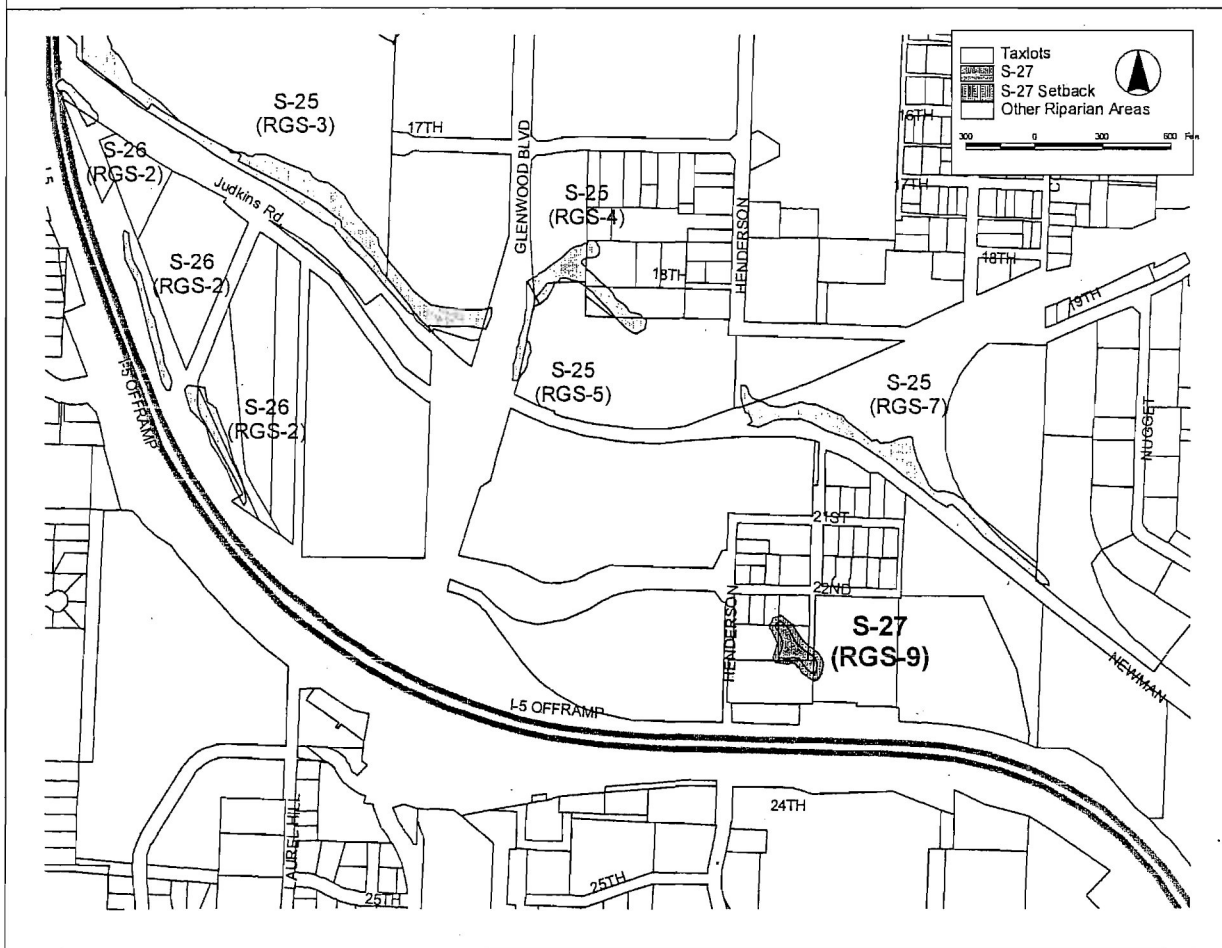
Site S-26 Zoning	Redevelopable	Vacant	Total Acres
LMI	0	1.3	1.3
<b>Total Acres</b>	<b>0</b>	<b>1.3</b>	<b>1.3</b>

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

A 50-foot development setback is required under stormwater provisions of the Springfield Development Code, and thus the 1.3 acre impact of protecting the resource and its setback is not attributed to this report.

Site: <b>S-27</b> <b>(RGS-9)</b>	Associated Wetlands: None	Acres: .33	WHA Score: 45 <b>High Quality Resource Site</b>
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**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback and apply standards and protections found in SDC section 4.3-117. S-27 is not covered by any other existing riparian or wetland protection.



**Description:**

Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with occasional daylighting

along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.

S-27 is a dense thicket, dominated by willow species. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they “could not see the bottom of the drainage due to a steep slope and *Salix* sp. thicket.”

No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fish-bearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.

**Observed Vegetation**

Woody Vegetation		Herbaceous Vegetation	
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Dispsacus species</i>	Teasel
<i>Acer species</i>	Maple	<i>Fallopia japonica</i>	Knotweed
<i>Alnus species</i>	Alder		
<i>Calocedrus decurrens</i>	Cedar		
<i>Corylus species</i>	Hazelnut		
<i>Salix lasiandra</i>	Pacific Willow		
<i>Rubus armeniacus/discolor</i>	Blackberry		
<i>Hedera helix</i>	English Ivy		

**Soils**

<b>Soils—Mapped Series</b>	Bellpine silty clay loam
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**Summary of Riparian Functional Assessment**

Riparian ID	Reach Length	Stream Width	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
RGS-9	274 ft.	40 feet	35 ft.	M	M	H	M

**Resource and Impact Area Summary**

Resource Acreage:	.33
Impact Area Acreage:	3.57
Combined Resource and Impact Area:	3.90
Vacant Acres within the Combined Area:	2.24
Parcels Affected (Including Impact Area):	9
Combined Parcel Acreage:	8.16



### Conflicting Uses by Acre and Zoning District

SITE ID	LDR	LMI	TOTAL ACRES
S-27	.26	.07	.33
S-27 Impact Area			3.57
Total			3.90

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	LMI	TOTAL ACRES
S-27	.31	.06	.37
S-27 Impact Area	.21	2.03	2.24
Total	.52	2.09	2.61

#### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? No.

#### Site Specific ESEE Analysis for S-27

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

#### Environmental Consequences

With a WHA score of 45, S-27 is rated as a high quality resource site. The Riparian Functional Assessment prepared by Pacific Habitat Services rated the Water Quality, Flood Management, and Wildlife Habitat as Medium. The Thermal Regulation function was rated as High. Fully allowing additional conflicting uses would cause the loss of these functions.

#### Social Consequences

S-27 is located in an area that is heavily impacted by existing industrial development. The stream is not easily accessible to the public nor is it near a school. For these reasons it is not appropriate for educational or recreational uses. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site.

#### Economic Consequences

Fully allowing conflicting uses would mean the loss of the Water Quality, Flood Management, Thermal Regulation and Wildlife Habitat functions of S-27. These functions could be mimicked

using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of 2.61 acres of vacant land within the combined resource and impact area boundaries. It would cause the loss of about 2.09 acres of industrial land and about .52 acres of low density residential land.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of industrial lands. The majority of small sized commercial and industrial parcels needed for future growth shall be met within the existing UGB on small vacant and or redeveloped parcels. Protecting S-27 would reduce the available vacant industrial land within the UGB to meet these needs. The cumulative effect of fully protecting all commercial and industrial land that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

The recently completed Springfield Residential Land and Housing Needs Study (2009) did not show the affected residential properties on its inventory of vacant residential lands that will be needed to accommodate future residential growth.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback from the resource and apply the standards and protections found in SDC Section 4.3-117.

The disturbed nature of the site and lack of open connectivity to the Glenwood Slough and the Willamette River reduces the likelihood that this is vital fish habitat. The site has other habitat values and the existing vegetation provides a valued thermal regulation function. The 25-foot development setback would not substantially reduce those functions and would allow some nearby development to meet industrial and residential needs.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LDR	LMI	TOTAL ACRES
S-27	.25	.06	.31
S-27 25-ft. Setback	.38	.22	.60
Total	.63	.28	.91

About .31 acres of S-27 is classified as vacant by the Lane County Assessor’s Office. The vacant acreage includes portions of 6 lots. Limiting conflicting uses would allow some development to occur within the riparian resource area where the developer could show how the essential functions of the riparian corridor could be preserved or enhanced.

A 25-foot setback would affect .22 acres of vacant industrial land and .38 acres of low density residential land. The affect of the setback on buildable land could be reduced by aligning development such that yards and other open space are within the setback. Stormwater management facilities required for development can be placed within the setback under SDC Section 4.3-115.

Employing low impact development practices within 150 feet of the riparian area could reduce the impact of nearby development on the resource. Some low impact development practices are already incorporated into the stormwater quality protection standards found in SDC Section 4.3-115.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-27 and its 25 foot setback area from future development effectively reduces the CIBL inventory by a total of .19 acres and the RLS by a total of .38 acres, for a total of .57 acres.

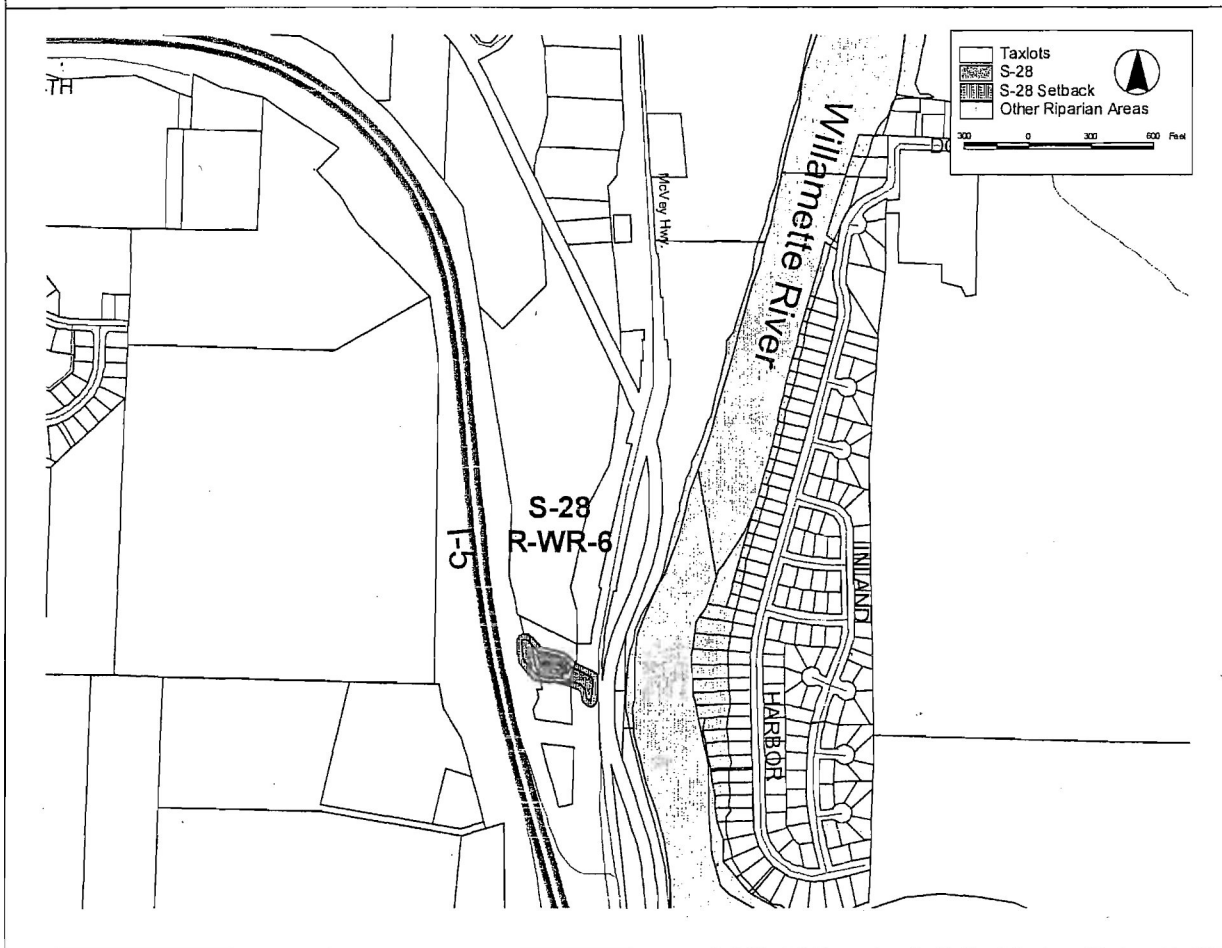
**Impact of Recommended Protection on Commercial, Industrial and Residential Land Inventories**

Site S-27 Zoning	Redevelopable	Vacant	Total Acres
LDR	.38	0	.38
LMI	.13	.06	.19
<b>Total Acres</b>	.51	.06	.57

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

Site:	Associated Wetlands:	Acres:	WHA Score:
<b>S-28</b> <b>(R-WR-6)</b>	W-24  Moderate Quality Wetlands	.73	61  <b>High Quality Resource Site</b>

**Goal 5 Recommendation:** Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback and apply standards and protections found in SDC section 4.3-117. S-28 is not covered by any other existing riparian or wetland protection.



**Description:**

S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

**Observed Vegetation**

Woody Vegetation		Herbaceous Vegetation	
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Festuca arundinacea</i>	Tall Fescue
<i>Pseudotsuga mensiesii</i>	Douglas Fir	<i>Equisetum arvense</i>	Field Horsetail
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Phalaris arundinacea</i>	Reed Canary Grass
<i>Rubus discolor</i>	Himalayan Blackberry		
<i>Populus trichocarpa</i>	Black Cottonwood		
<i>Acer macrophyllum</i>	Oregon Maple		
<i>Oemleria cerasiformis</i>	Indian Plum		
<i>Quercus Garryana</i>	White Oak		
<i>Hedera helix</i>	English Ivy		

Native and non-native vegetation were distributed throughout the reach and wetland. Reed Canary grass is starting to overtake the wetland area. There is a thick canopy with cottonwoods, maples and willows. Lots of Oak trees and Ash were visible just outside the area with a scattering in the site.

**Wetland Vegetation**

Dominant Wetland Vegetation			
Trees/ Shrubs		Vines/ Herbs	
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Phalaris arundinacea</i>	Reed Canary Grass
<i>Salix lasiandra</i>	Pacific Willow	<i>Oenanthe sarmentosa</i>	Water-Parsley
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Urtica dioica</i>	Stinging Nettles
		<i>Carex obnupta</i>	Slough Sedge
		<i>Equisetum arvense</i>	Field Horsetail

**Soils**

<b>Soils—Mapped Series</b>	Dixonville-Philomath-Hazelair complex
<b>Hydrologic Source</b>	Groundwater

### Summary of Riparian Functional Assessment

Riparian ID	Reach Length	Stream Width	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
R-WR-6	331 feet	2-3 feet	120 feet	H	H	H	M

### Resource and Impact Area Summary

Resource Acreage:	.73
Impact Area Acreage:	5.04
Combined Resource and Impact Area:	5.77
Vacant Acres within the Combined Area:	.39
Parcels Affected (Including Impact Area):	5
Combined Parcel Acreage:	36.35

### Conflicting Uses by Acre and Zoning District

SITE ID	LDR	PLO	*Right-of-Way	TOTAL ACRES
S-28	.41	0	.32	.41
S-28 Impact Area	1.24	.6	3.20	1.84
Total	1.65	.6	3.52	2.25

\*Right-of-way does not typically have a zoning designation. As such, the right-of-way acreage shown for the conflicting use acreage is not counted towards the total. The right-of-way acreage is shown here because a large portion of the resource and its impact area are within ODOT and railroad right-of-ways.

### Conflicting Uses by Vacant Acre and Zoning District

SITE ID	LDR	PLO	*Right-of-Way	TOTAL ACRES
S-28	0	0	0	0
S-28 Impact Area	0	.39	0	.39
Total	0	.39	0	.39

\*Right-of-Way does not typically have a zoning designation. As such, the Right-of-Way acreage shown for the conflicting use acreage is not counted towards the total.

### Existing Protections

Is the site protected by minimum development setbacks and site plan review standards described in SDC Sections 4.3-115 and 5.17-100? No.

The Glenwood Refinement Plan includes policies that give direction for environmental design affecting S-28. The Refinement Plan states, "Significant wetland areas in Glenwood shall be

protected from encroachment and degradation in order to retain their important functions and values related to fish and wildlife habitat, flood control, sediment, and erosion control, water quality control, and ground water pollution control,” (Policy 1, pg. 92, Environmental Element).

### **Site Specific ESEE Analysis for S-28**

This section discusses ESEE impacts that are specific to this particular site. For a broader discussion of the ESEE consequences of allowing, limiting or prohibiting conflicting uses on wetlands, see the General ESEE Analysis found in Section 8 of this report.

### **Environmental Consequences**

With a WHA score of 61, S-28 is rated as a high quality resource site. Much of S-28 includes inventoried a locally significant wetland (W24). The Riparian Functional Assessment prepared by Pacific Habitat Services rated the Water Quality, Flood Management, and Thermal Regulation functions as High. The Wildlife Habitat function was rated Medium.

The wetland’s water quality and hydrologic control functions are impacted or degraded. The resource provides habitat for some species, but the OFWAM analysis concludes that it does not provide a diverse wildlife habitat.

Fully allowing additional conflicting uses would cause the loss of these riparian and wetland functions.

### **Social Consequences**

S-28 is isolated and not easily accessible to the public. It is not near a school. The Willamalane Park and Recreation District Comprehensive Plan shows no anticipated park facilities or natural areas near the resource site. For these reasons it is not appropriate for educational or recreational uses.

### **Economic Consequences**

Fully allowing conflicting uses would mean the loss of the water quality, flood management, and thermal regulation and wildlife habitat functions that are provided by S-28. These functions could be mimicked using engineered facilities at a significant cost. Fully protecting the resource site would mean the loss of .39 acres of vacant Public Land and Open Space within the combined resource and impact area boundaries.

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 did not identify S-28 as providing needed commercial or industrial land. The Springfield Residential Land and Housing Needs Study (2009) did not show the affected residential properties on its inventory of vacant residential lands that will be needed to accommodate future residential growth.

**Energy Consequences**

None of note.

**Recommended Program for Protection**

Limit conflicting uses and employ low impact development practices when developing within 150 feet of the watercourse. Establish a 25-foot development setback from the resource and apply the standards and protections found in SDC Section 4.3-117.

The small stream width lack of open connectivity to the Willamette River reduces the likelihood that this is vital fish habitat. The site has other habitat values and the existing vegetation provides a valued thermal regulation function. The 25-foot development setback would not substantially reduce those functions and would allow some future redevelopment to meet residential needs.

**Impact of Protection Measures on Vacant Acreage and Buildable Land Inventory**

**Impact on Vacant Acreage by Zoning District**

SITE ID	LDR	PLO	TOTAL ACRES
S-28	0	0	0
S-28 25-ft. Setback	0	0	0
Total	0	0	0

None of the zoned acreage within the resource site or the 25-foot setback for S-28 is classified as vacant by the Lane County Assessor’s Office. Fully protecting the resource would restrict the redevelopment of about .35 acres of low density residential land for additional housing on the site.

**Reduction in the Buildable Land Inventory:**

The Commercial Industrial Buildable Lands Study (CIBL) that was completed in 2009 identified a shortage of commercial and industrial lands. The Springfield Residential Lands Study (RLS) that was also completed in 2009 identified a small surplus of residential lands. These inventories include some Glenwood sites and classified each as “Vacant,” or “Redevelopable.” These classifications are not the same used by the Lane County Assessor’s Office. These classifications stem from judgments made by ECONorthwest in collaboration with a steering committee that helped frame assumptions about what is redevelopable and vacant.

Protecting S-28 and its 25-foot setback area from future development effectively reduces the CIBL inventory by a total of .29 acres and the RLS by a total of .38 acres, for a total of .67 acres.



**Impact of Recommended Protection on  
Commercial, Industrial and Residential Land Inventories**

<b>Site S-28 Zoning</b>	<b>Redevelopable</b>	<b>Vacant</b>	<b>Total Acres</b>
LDR	.38	0	.38
LMI	.13	.16	.29
<b>Total Acres</b>	.51	.16	.67

The cumulative effect of fully protecting all commercial and industrial lands that are impacted by riparian or wetland resources could increase the need for UGB expansion to meet land needs.

Proposed Amendments to the Springfield Inventory of Natural Resource Sites [Insert at  
pg. 284]

Site	Listed LWI	Aeres	WHA Score	WHA Source	Area Map#
<del>E-39</del> <b>Glenwood Slough</b>	Yes	23.8	46-47	Ester Lev,	6, 7
<b>Description:</b>					
<p><del>Site E39 consists of several sloughs, wetlands, and riparian strips near or adjacent to Interstate 5 and the Southern Pacific Railroad tracks in the Glenwood area. Vegetation includes willows (<i>Salix</i> spp.), black cottonwood (<i>Populus trichocarpa</i>), sedge (<i>Carex</i> spp.), rush (<i>Juncus</i> spp.), cattails (<i>Typha latifolia</i>), and reed canary grass (<i>Phalaris arundinacea</i>). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but the site's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that a portion of this site is a regulated wetland.</del></p>					
Site	Listed LWI	Aeres	WHA Score	WHA Source	Area Map#
<b>S-25 (Formerly E39)</b> <b>(R-GS-1, 3, 4, 5, 7)</b>	Yes	12.30	46-47	Ester Lev,	6, 7
<b>Description:</b>					
<p>Site S-25 (formerly E-39) consists of segments of the Glenwood Slough near or adjacent to Interstate 5, Franklin Boulevard, Glenwood Boulevard and the Union Pacific Railroad tracks in the Glenwood area. S-25 is generally surrounded by industrial uses, railroad tracks and a highway.</p> <p>The western portion of S-25 wraps around the Glenwood solid waste transfer station. At its west end, the slough passes under the Willamette River I-5 overpass. This western portion has been channelized with cement sides.</p> <p>The portions of S-25 on either side of Glenwood Boulevard are more natural and contain significant riparian vegetation including willows (<i>Salix</i> spp.), black cottonwood (<i>Populus trichocarpa</i>), sedge (<i>Carex</i> spp.), rush (<i>Juncus</i> spp.), cattails (<i>Typha latifolia</i>), and reed canarygrass (<i>Phalaris arundinacea</i>). Interspersion with other natural areas is limited by I-5 and other adjacent roads, but S-25's proximity to the Willamette River may increase the number of wildlife species in the area. The Division of State Lands has determined that portions of this site are regulated wetlands (W-20, W-21, and W-22).</p> <p>The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust and Oregon Maple.</p> <p>No fish survey was conducted for S-25 and it is not shown on ODFW maps of fish-bearing streams. The proximity and open connectivity to the Willamette River also suggests that fish are present in the Slough.</p>					

Site	Listed LWI	Acres	WHA Score	WHA Source	Area Map#
S-26 (R-GS-2)	Yes	1.56	17-57	Washburn	6, 7
<b>Description:</b>					
<p>Site S-26 is a perennial stream that varies in width between 2-5 feet. It is bordered to the west by I-5. Much of the stream and the defined impact area are located within ODOT right-of-way adjacent to I-5 and beneath the Willamette I-5 Bridge. S-26 is segmented, with a 462-foot culvert dividing the northern and southern segments of the stream. The northern segment of S-26 daylights under the Willamette I-5 Bridge before continuing north to the Willamette River.</p> <p>The dominant riparian tree species include Oregon Ash, Sitka Willow, Red-Osier Dogwood, Black Cottonwood, Black Locust, Oregon Maple, and Pacific Willow.</p> <p>No known fish survey was been conducted for S-26. The stream is not shown on ODFW maps of fish-bearing streams. There is an unnamed perennial drainage that begins on the west side of I-5 (in Eugene) and is culverted under the freeway where it converges with the culverted portion of S-26. The Eugene drainage that connects to S-26 has been documented by ODFW as having cutthroat trout. The presence of cutthroat in the Eugene drainage suggests that S-26 is also fish-bearing. The proximity and connectivity to the Willamette River also suggests that fish are present in S-26.</p>					
Site	Listed LWI	Acres	WHA Score	WHA Source	Area Map#
S-27 (R-GS-9)	Yes	.33	45	Washburn	6, 7
<b>Description:</b>					
<p>Site S-27 is a perennial stream segment that conveys water from the Moon Mt. area south of I-5. The stream is largely culverted from I-5 to the Glenwood slough, with occasional daylighting along the watercourse. S-27 is one of those daylighted segments which opens into a 40 foot wide riparian feature. The stream segment is about 274 feet in length and is bounded to the north and west by industrial and residential development. Some land to the south and east is undeveloped, but the stream is culverted as it passes beneath that area.</p> <p>S-27 is a dense thicket, dominated by Pacific Willow, Black Cottonwood, Maple species, Alder species, and Hazelnut trees. At the time the stream was assessed (July 2009) the feature was sufficiently shrouded by vegetation that the consultants noted that they "could not see the bottom of the drainage due to a steep slope and Salix sp. thicket."</p> <p>No known fish survey was been conducted for S-27. It is not shown on ODFW maps of fish-bearing streams. The distance and lack of open connection to the Glenwood Slough and the Willamette River argue against this being classified as a fish-bearing stream.</p>					

Site	Listed LWI	Acres	WHA Score	WHA Source	Area Map#
<b>S-28</b> <b>(R-WR-6)</b>	Yes	.73	61	Washburn	6, 7
<p><b>Description:</b></p> <p>S-28 is a narrow stream that meanders through a wetland area that is vegetated by willow thickets and Reed Canary grass. It is sandwiched between the ODOT right-of-ways for the I-5 and McVay Hwy. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.</p> <p>The dominant riparian tree species include Oregon Ash, Douglas Fir, Red-Osier Dogwood, Black Cottonwood, Indian Plum, White Oak, and Oregon Maple.</p>					

Amendments to the Springfield Local Wetland Inventory Site Descriptions [Insert at pg. 303]

Site: <b>W20</b>	Type: PSS, PAB	Acres: 3.39	OFWAM: Locally Significant Wetland		
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**Description:**

Wetland W20 is 3.39 acres and classified as PSS/PAB. The wetland is adjacent to Glenwood Slough and the railroad tracks. Overstory dominant species include Oregon ash, Oregon white oak (*Quercus garryana*) and big leaf maple. Understory dominant was willow (*Salix* sp.). Herbaceous dominants were yellow flag iris (*Iris pseudoacorus*), spreading rush (*Juncus patens*) and marsh horsetail (*Equisetum arvense*). Soils were dark in color with mottles. Seasonal hydrology was indicated by the dominance of hydrophytic vegetation and presence of surface water in depressions. The wetland limits were determined where the vegetation changed and there were no longer indicators of hydrology.

Site: <b>W20</b>	Type: PSS, PUB	Acres: 3.73	OFWAM: Locally Significant Wetland		
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**Description:**

W-20 is 3.73 acres and is classified a Palustrine Shrub-Scrub wetland. The wetland is adjacent to Glenwood Slough and the railroad tracks. It is part of the Glenwood Slough. It flows northwest into W-21 prior to being culverted and flowing into the Willamette River. W-20 is bisected 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 W-20 was previously delineated (WD96-0375).

The dominant wetland vegetation includes Oregon Ash, Sitka Willow, Red-Osier Dogwood, Field Mint, Begger's Tick, Soft Rush and Short Scale Sedge.

Soil types include: Chehalis silty clay loam.

Site: <b>W21</b>	Type: PSS	Acres: .47	OFWAM: Locally Significant Wetland		
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**Description:**

Wetland W-21 is .47 acres and is classified as a Palustrine Shrub-Scrub (PSS) wetland. The wetland is located under and east of the Interstate 5 Bridge just south of Franklin Blvd. W-21

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. W-21 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 and is a judged locally significant wetland because of its hydrologic connection to the Willamette River. It is also connected to W22 and W23.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red-Osier Dogwood, Slough Sedge, and Creeping Buttercup.

Soil types include: Chehalis silty clay loam, Pengra-Urban land complex.

Site: <b>W22</b>	Type: PFO	Acres: 2.53	OFWAM: Locally Significant Wetland		
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**Description:**

Wetland W-22 is 2.53 acres and is classified as a Palustrine Forested wetlands (PFO). W-22 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 W-22 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

The dominant wetland vegetation includes Oregon Ash, Pacific Willow, Black Cottonwood, Red Alder, Clustered Wild Rose, Red-Osier Dogwood, Slough Sedge, Nipplewort and Soft Rush.

Soil types include Chehalis silty clay loam.

Site: <b>W23</b>	Type: PEM	Acres: .87	OFWAM: Locally Significant Wetland		
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**Description:**

Wetland W-23 is .87 acres and is classified as Palustrine Emergent (PEM) wetland. W-23 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 flows into a channel that drains to the northwest into the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

The dominant wetland vegetation includes Black Cottonwood, Wild Mint, Begger's Tick, Soft Rush, Sawbeak Sedge, Soft Brome, Common Velvet Grass, English Plantain, Tall Fescue, and Bluegrass species.

Soils types include: Dixonville-Philomath-Hazelair Complex					
Site: <b>W24</b>	Type: PFO	Acres: .51	OFWAM: Locally Significant Wetland		
<p><b>Description:</b></p> <p>W-24 .51 acres and is classified as a Palustrine Forested wetland (PFO). W-24 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 McVay Hwy. and the railroad and out to the Willamette River. W-24 is located between I-5 and McVay Hwy. with residential land uses to the north and south.</p> <p>The dominant wetland vegetation includes Black Cottonwood, Pacific Willow, Red-Osier Dogwood, Reed Canary Grass, Water-Parsley, Stinging Nettles, Slough Sedge and Field Horsetail.</p> <p>Soil types include: Dixonville-Philomath-Hazelair Complex.</p>					
Site: <b>W25</b>	Type: PFO	Acres: 4.31	OFWAM: Does Not Meet Significance Criteria		
<p><b>Description:</b></p> <p>W-25 is a depression 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 commercial 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 the Glenwood Slough (W-20).</p> <p>The dominant wetland vegetation includes Black Cottonwood, Nootka Rose, Pacific Willow, Red-Osier Dogwood, Slender Rush, Slough Sedge, Wild Mint, Reed Canary Grass, Water-Parsley, Deadly Nightshade, Creeping Buttercup, and Field Horsetail.</p> <p>Soil Types include: Chehalis silty clay loam.</p>					
Site: <b>W26</b>	Type: PEM	Acres: .86	OFWAM: Does Not Meet Significance Criteria		
<p><b>Description:</b></p> <p>W-26 is a mosaic 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.</p>					

Deep tire ruts bare evidence of seasonally wet conditions.

The dominant wetland vegetation includes Black Cottonwood, Nootka Rose, Willow species, Slender Rush, Colonial Bentgrass, Coast Tarweed, Tall Fescue, Hedgehog Grass, Common Velvet Grass, Meadow Foxtail, Lowland Cudweed, Hyssop Loosestrife, and Narrow-leafed Flax.

Soil types include Urban land-Hazelair-Dixonville complex.

The tables below summarize the size and classification of the wetland areas within Springfield's Urban Growth Boundary.

#### McKenzie River Basin Wetlands

Site Number	OFWAM Significance	Acres	USFWS Classification(s)
M1		4.94	RLP
M2		3.12	PEM
M3		2.73	PEM/PFO
M4	Locally Significant Wetlands Special Interest for Protection	5.02	PEM
M5	Locally Significant Wetlands	9.13	PFO/PSS/PEM
M6		4.05	PEM/PSS
M7		0.2	PEM
M8*		0.2	PSS
M10*		2.72	RIN
M11*		1.01	POW
M12		1.22	PEM
M14	Locally Significant Wetlands	33.45	PEM/PFO
M15		6.41	PEM
M16	Locally Significant Wetlands	8.44	PFO/POW/RLP/PEM
M17		3.15	PEM
M18*		40.72	POW/PSS
M19		0.37	PFO
M20	Locally Significant Wetlands	0.52	RLP
M21		0.39	PEM
M22		0.1	PEM
M23		0.19	PEM
M24		0.51	PEM
M25		24.0	PEM
M26	Locally Significant Wetlands	1.85	PFO/PEM/PSS
M27		8.28	PEM/PFO
M28	Special Interest for Protection- Mitigation Site	1.51	PEM
M29	Locally Significant Wetlands Special Interest for Protection	1.08	PFO/PEM
M30		6.49	PFO/PEM/POW



Site Number	OFWAM Significance	Acres	USFWS Classification(s)
M31		8.06	POW
M32		3.39	PEM
M33		13.75	POW/PSS/RLP
M34		0.8	PFO
M35		4.91	PEM
M36		0.75	PEM
M37		0.4	PEM
M38		0.08	PEM/PFO
M39*		1.88	PEM
M40		16.51	RLP
		222.33	

#### Willamette River Basin Wetlands

Site Number	OFWAM Significance	Acres	USFWS Classification(s)
W1*		4.14	RLP
W2	Locally Significant Wetlands, Special Interest for Protection	0.90	PEM
W3		1.27	PFO/PEM/POW
W4	Locally Significant Wetlands	0.97	PFO/PEM
W5		5.6	POW/PFO/PEM
W6		5.63	PFO
W7*		36.02	POW
W8*		1.22	POW
W9		0.22	PEM
W11		0.67	PSS
W12	Locally Significant Wetlands	1.42	PFO
W10		2.25	PSS
W13		2.24	PFO
W14		0.97	PEM
W15		0.79	PFO
W16	Locally Significant Wetlands	1.46	PFO
W17		17.21	RLP
W18 A-C	Locally Significant Wetlands	131.99	PEM/PFO
**W-19	Locally Significant Wetlands	41.65	POW, PFO
W-20	Locally Significant Wetlands	3.73	PSS/PUB
W-21	Locally Significant Wetlands	.47	PSS
W-22	Locally Significant Wetlands	2.53	PFO
W-23	Locally Significant Wetlands	.87	PEM
W-24	Locally Significant Wetlands	.51	PFO
W-25		4.31	PFO
W-26		.86	PEM
		214.97	
		269.90	

\*\*W-19 was inadvertently left off of this table in the original Springfield Local Wetland Inventory report. Wetlands W-20 through W-26 are the revised resource sites in the Glenwood area.

# Springfield Natural Resources Study Glenwood Update--Staff Report



**Project Name:** Springfield Natural Resources Study: Glenwood Update

**Project Proposal:** To amend the “Springfield Local Wetland Inventory,” the “Springfield Inventory of Natural Resource Sites,” and the “Springfield Natural Resources Study” to add newly identified sites and to update the boundaries for previously inventoried Glenwood sites. In most cases the newly identified wetland and riparian sites are already protected under existing provisions of the Springfield Natural Resources Study, the Springfield Stormwater Management Program or the Glenwood Refinement Plan. The proposed protective setbacks for the newly identified sites are the same as those applied to wetland and riparian sites within the city’s jurisdiction.

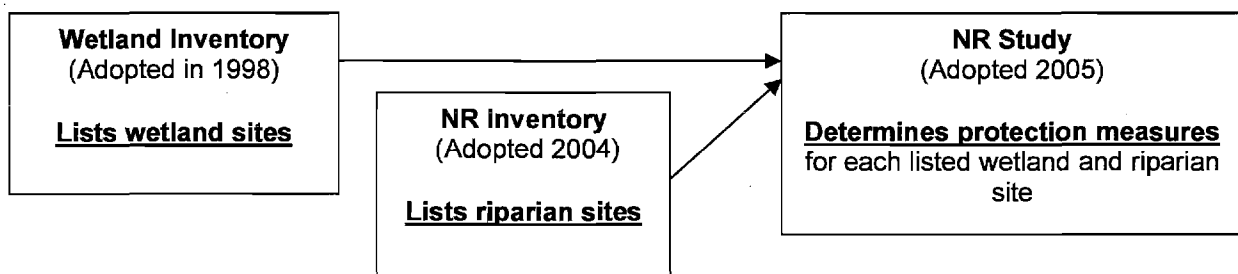
**Case Number:** LRP2010-00002

**Attachments:**

- Exhibit A: Proposed Amendments to the Springfield Local Wetland Inventory
- Exhibit B: Proposed Amendments to the Springfield Inventory of Natural Resource Sites
- Exhibit C: Proposed Amendments to the Springfield Natural Resources Study
- Exhibit D: *Local Wetlands and Riparian Corridor Assessment for the Glenwood Area of Springfield*, Pacific Habitat Services, December 2009
- Exhibit E: *Glenwood Natural Resource Wildlife Habitat Assessment 2010*, Springfield Environmental Services Division

## I. Executive Summary

In 2005, the Springfield Natural Resources Study (**NR Study**) was adopted by the City Council to comply with the mandate of Statewide Planning Goal 5. The NR Study addresses the protection of locally significant wetland and riparian resources that were adopted as part of the Springfield Local Wetland Inventory (**Wetland Inventory**) in 1998 and the Springfield Inventory of Natural Resources (**NR Inventory**) that was adopted by in 2004. The NR Study, Wetland Inventory and the NR Inventory are Springfield-specific refinement plans that supplement the Metro Plan (Metro Plan pg. I-5).



In 2009, Lane Council of Governments (LCOG) was contracted to coordinate the completion a new wetland and riparian inventory for the Glenwood area in preparation for an update to the Glenwood Refinement Plan. LCOG and the consulting firm, Pacific Habitat Services have completed the inventory work. **Through this work, three new riparian sites were identified in Glenwood and are proposed for addition to the NR Inventory. Four new wetland sites were also identified and are proposed for addition to the Wetland Inventory.**

The three riparian sites were determined to be locally significant using criteria adopted by the City and County in 2004. The four wetland sites were determined to be “locally significant” by application of the Oregon Freshwater Wetland Assessment Methodology (OFWAM), a state mandated assessment tool. This new riparian and wetland information is the basis for the proposed amendments to update the NR Study.

**The focus of the NR Study and the recommended protections for riparian and wetland areas is on “locally significant” sites.** There were two additional wetland sites (W-25 and W-26) identified in Glenwood that failed the significance test. The final authority for allowing development of wetland and riparian areas rests with the US Army Corps of Engineers and the Oregon Department of State Lands. These agencies are more likely to allow non-significant wetlands to be filled and developed than those which pass the OFWAM significance test.

Adding the new Glenwood wetland and riparian information to the NR Inventory, Wetland Inventory and the NR Study requires the city to follow a refinement plan amendment procedure as described in Chapter IV of the Metro Plan and in Section 5.6-100 of the Springfield Development Code (SDC). This report addresses the criteria for approving refinement plan amendments found in SDC Section 5.6-115.

The tables and maps below show the new Glenwood riparian and wetland sites as well as updated information for the existing sites. This information and additional data for each site is proposed for insertion into the Wetland and NR Inventories and into the NR Study. The tables provide summary information and the existing or recommended protection (setback) for each one.

**The approach recommended by staff is to assign the same protections to the new Glenwood sites as those used recommended by the 2005 NR Study for similar sites.** Many of the Glenwood sites are already protected by 50-foot setbacks provided by the City’s stormwater management program that was adopted in 2002. Sites not protected by the stormwater program tend to be smaller and are recommended for 25-foot setbacks. This is consistent with the protections applied to Springfield’s wetlands and riparian sites in 2005.

The amendments proposed by this action include the following:

- Amendment of the Springfield Local Wetland Inventory (Wetland Inventory) to include the new Glenwood wetland sites and to add updated information concerning the existing Glenwood wetland site that is identified as W-20.

- Amendment of the Springfield Inventory of Natural Resources (NR Inventory) to include the new Glenwood riparian sites and to add updated information about the existing Glenwood sites identified as E-39 (Glenwood Slough). The designation E-39 is proposed to be changed to S-25. The E-39 designation is a hold over from Eugene’s jurisdiction over Glenwood.
- Amendment of the Springfield Natural Resources Study (NR Study) to include “insert sheets” that provide an ESEE analysis and a recommendation for protection for each of the Glenwood sites, new and existing. The inserts add new information developed by Pacific Habitat Services (PHS) as part of their contracted work. The ESEE analysis is a comparison of the Economic, Social, Environmental and Energy impacts of allowing development to impact each wetland or riparian site.

Table 1 shows the acreage of the wetland and riparian sites that are the focus of these amendments. The sites cover a total of 23.03 acres. The acreage totals 58.54 acres when the existing and recommended new setbacks are added.

**Table 1. Acreage Affected by Glenwood Wetland and Riparian Amendments**

Site ID	Site Acres	Existing and Recommended New Setbacks	Site Acres Including Setbacks
S-25	12.30	Existing 50-ft.	28.38
S-26 (New)	1.56	Existing 50-ft.	5.79
S-27 (New)	.33	Recommended 25-ft.	.76
S-28 (New)	.73	Recommended 25-ft.	1.35
W-20	3.73	Existing 50-ft.	8.66
W-21 (New)	.47	Existing 50-ft.	1.71
W-22 (New)	2.53	Existing 50-ft.	6.30
W-23 (New)	.87	Existing 50-ft.	4.62
W-24 (New)	.51	Recommended 25-ft.	.97
<b>Total Acres</b>	<b>23.03</b>	<b>Total Acres</b>	<b>58.54</b>
<b>Unduplicated Acres</b>	<b>14.92</b>	<b>Unduplicated Acres</b>	<b>36.28</b>

Many of the resource sites are located within or adjacent to right-of-ways for Franklin Blvd., I-5 and the Union Pacific Railroad in Glenwood. These right-of-ways (ROWs) are not buildable lands and protection of these areas does not affect the supply of buildable land in Glenwood.

Table 2 shows that 24.47 acres of the land affected by these amendments are within ROWs and 34.07 acres of affected land are outside of ROWs. **Table 2 also shows that only about 10.87 acres of affected land outside of ROWs is vacant or redevelopable.** Redevelopable in this case is land classified by the Lane County Assessor as “Tract Land.”

**Table 2. Affected Acreage Outside of Right-of-Ways**

Site ID	Site Acres Including Setbacks	Acres within ROWs	Acres Outside of ROW	Affected Developed Parcel Acres	Affected Vacant or Redevelopable Parcel Acres
S-25	28.38	11.78	16.60	12.85	3.75
S-26 (New)	5.79	4.1	1.69	.39	1.30
S-27 (New)	.76	.02	.74	.07	.67
S-28 (New)	1.35	.71	.64	0	.64
W-20	8.66	2.18	6.48	5.31	1.17
W-21 (New)	1.71	.84	.87	.87	0
W-22 (New)	6.30	.37	5.93	3.67	2.26
W-23 (New)	4.62	4.09	.53	.04	.49
W-24 (New)	.97	.38	.59	0	.59
<b>Total Acres</b>	<b>58.54</b>	<b>24.47</b>	<b>34.07</b>	<b>23.20</b>	<b>10.87</b>
<b>Unduplicated Acres</b>	<b>36.28</b>	<b>16.61</b>	<b>19.67</b>	<b>13.31</b>	<b>6.36</b>

Most of the affected acreage in Glenwood is already protected by the City's stormwater management standards (SDC Section 4.3-115) that were adopted in 2002. Table 3 shows that only about 3.30 acres of vacant and redevelopable land are proposed for protection by setbacks that are not already enforced by the stormwater management standards. The setback protections are not retroactive and do not require the removal of existing development that may be located within the proposed setbacks. Future development will be governed by the setbacks if they are approved.

**Table 3. Impact on Vacant and Redevelopable Acreage Not Protected By Existing Stormwater Management Setbacks**

Site ID	Site Acres Including Setbacks	Recommended and Existing Setbacks	Vacant and Redevelopable Acres Affected by Recommended Setbacks			
			Residential	Commercial	Industrial	Total Acres
S-25	28.38	*Existing 50-ft.	0	0	1.36	1.36
S-26 (New)	5.79	Existing 50-ft.	0	0	0	0
S-27 (New)	.76	Recommended 25-ft.	.38	0	.19	.57
S-28 (New)	1.35	Recommended 25-ft.	.38	0	.29	.67
W-20	8.66	Existing 50-ft.	0	0	0	0
W-21 (New)	1.71	Existing 50-ft.	0	0	0	0
W-22 (New)	6.30	Existing 50-ft.	0	0	0	0

Site ID	Site Acres Including Setbacks	Recommended and Existing Setbacks	Vacant and Redevelopable Acres Affected by Recommended Setbacks			
			Residential	Commercial	Industrial	Total Acres
W-23 (New)	4.62	*Existing 50-ft.	0	0	.68	.68
W-24 (New)	.97	Recommended 25-ft.	.02	0	0	.02
<b>Total Acres</b>	<b>58.54</b>	<b>Total Acres</b>	<b>0.78</b>	<b>0</b>	<b>2.52</b>	<b>3.30</b>
<b>Unduplicated Acres</b>	<b>36.28</b>	<b>Unduplicated Acres</b>	<b>.76</b>	<b>0</b>	<b>1.84</b>	<b>2.60</b>

\* A small portion of this site is outside of the 50-foot setback and is recommended for protection by a 25-foot setback.

The proposed amendments as well as the report developed by PHS are attached to this report. The numbering system used by PHS to identify the Glenwood wetland and riparian sites in their report is different than the city numbering system. The maps presented as part of the amendment show the PHS identifiers in parenthesis on the maps to allow the reader to reference the PHS report.

**Based on the findings presented in this report, staff believes there is an adequate factual basis for the Planning Commissions, the Springfield City Council and the Lane County Board of Commissioners to conclude that the proposed Glenwood additions to the Wetland Inventory, the NR Inventory and to the NR Study meet the criteria for approving refinement plan amendments found in Section 5.6-110 of the Springfield Development Code.**

The diagrams below show the location of the Glenwood riparian and wetland sites that are proposed for inclusion in the NR Inventory, Wetland Inventory and the NR Study by these amendments.

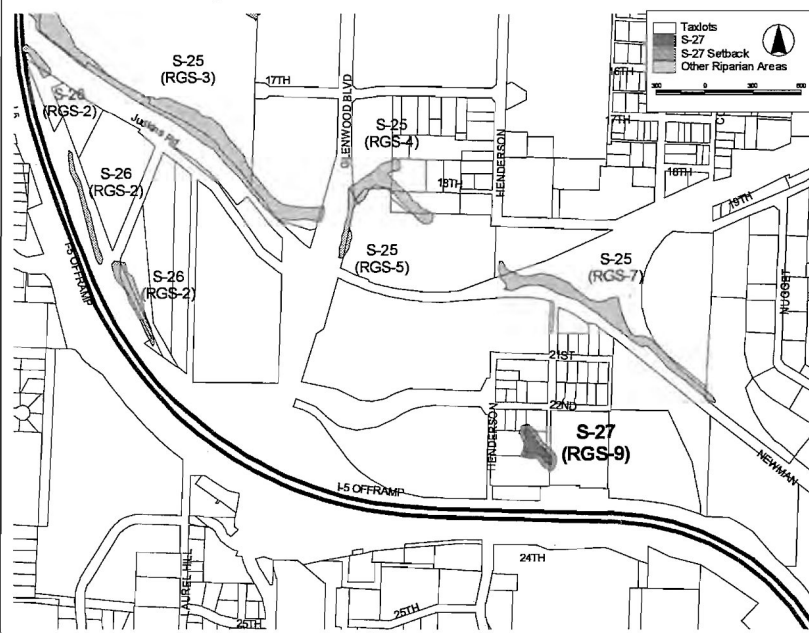
### Glenwood Riparian Sites

<p><b>Site ID</b></p> <p><b>S-25</b> (Formerly E-39) 12.30 Acres</p>		<p><b>Setback Protection</b></p> <p>Existing 50-ft. setback</p>
<p><b>Site ID</b></p> <p><b>S-26</b> (New) 1.56 Acres</p>		<p><b>Setback Protection</b></p> <p>Existing 50-ft. setback</p>



Site ID

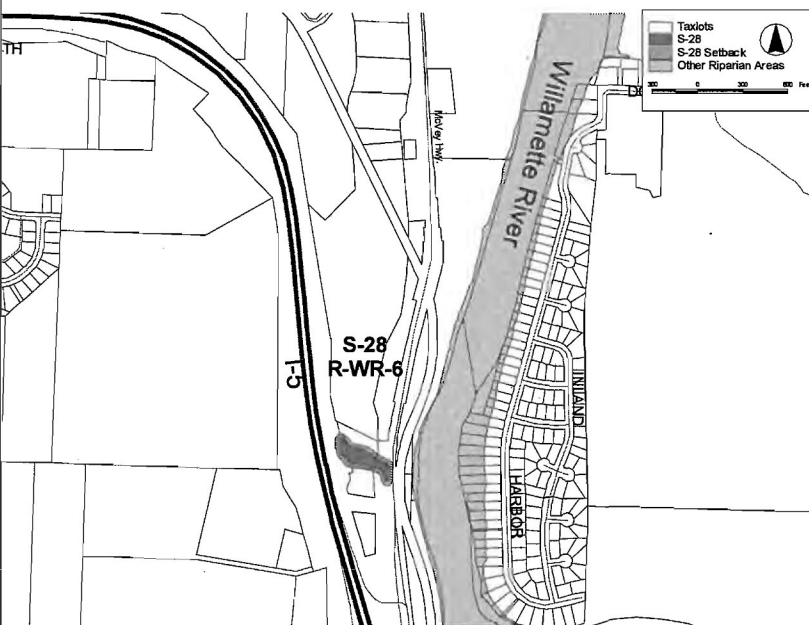
**S-27**  
**(New)**  
.33 Acres



**Recommended**  
**25-ft. setback**

Site ID

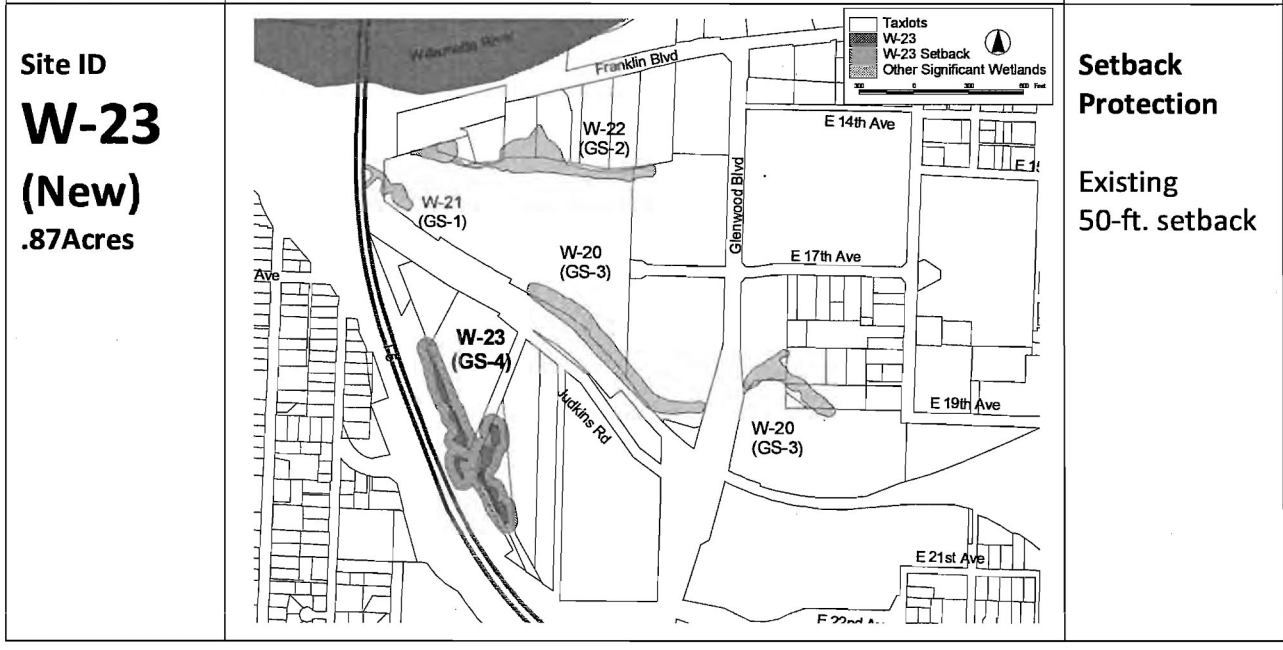
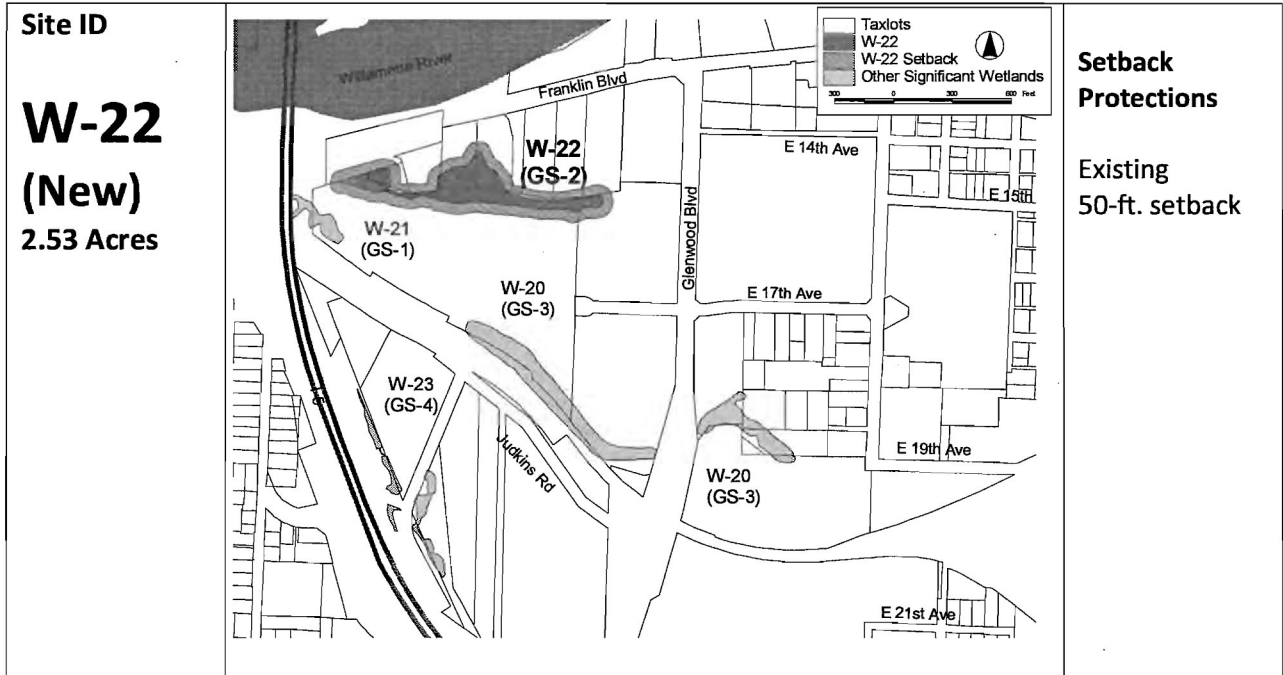
**S-28**  
**(New)**  
.73 Acres

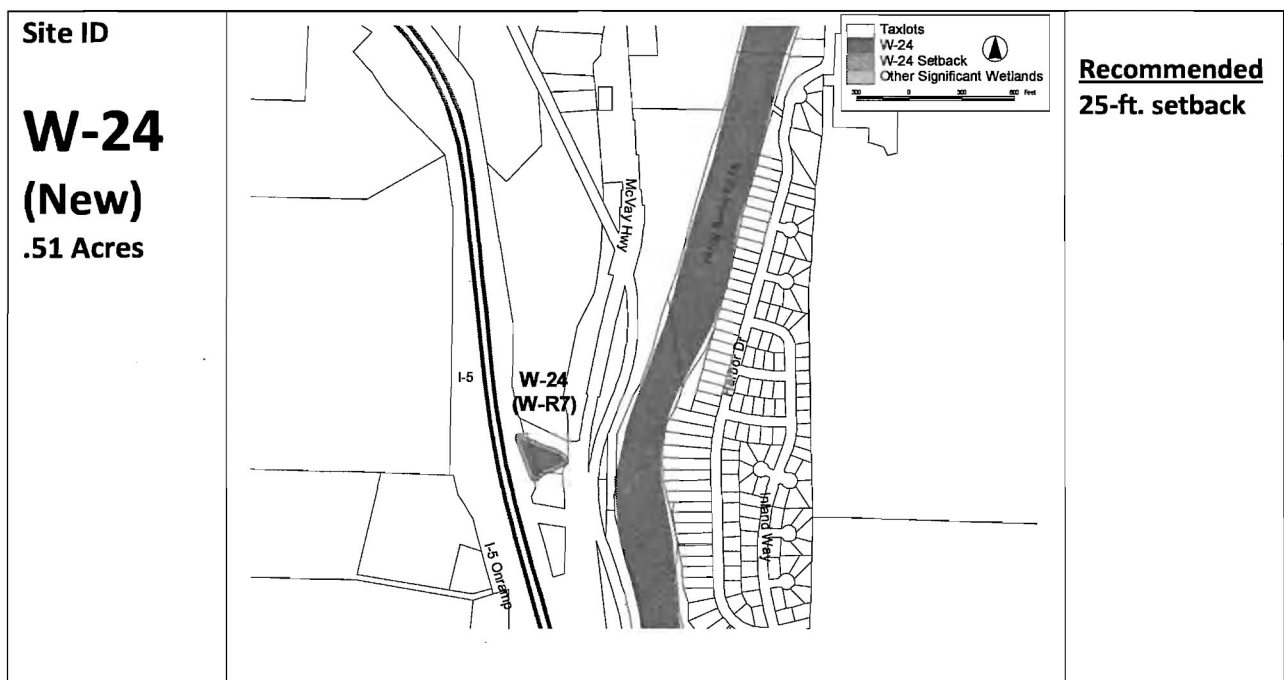


**Recommended**  
**25-ft. setback**

**Glenwood Wetland Sites**

<p><b>Site ID</b></p> <p><b>W-20</b></p> <p><b>3.73 Acres</b></p>		<p><b>Setback Protections</b></p> <p>Existing 50-ft. setback</p>
<p><b>Site ID</b></p> <p><b>W-21</b></p> <p><b>(New)</b></p> <p><b>.47 Acres</b></p>		<p><b>Setback Protections</b></p> <p>Existing 50-ft. setback</p>





## II. Background

In 1998, Council approved the Springfield Local Wetland Inventory (Wetland Inventory). The inventory lists all known Springfield wetlands and uses state criteria to identify which ones are “locally significant.”

In 2004, Council adopted the Springfield Inventory of Natural Resource Sites (NR Inventory) which listed riparian areas and applied local criteria for identifying locally significant riparian sites. In the adopting ordinance for the NR Inventory, the Wetland Inventory was incorporated into the NR Inventory.

In 2005, the Council adopted the Springfield Natural Resources Study (NR Study) which created a plan for protecting wetlands and riparian areas. Council chose to use the “standard process” for determining how best to protect Springfield’s resources as described in OAR 660-23-090 and 100. The standard process allows cities to exercise more flexibility in protecting resource sites, but requires site by site analysis of the impacts that might exist on each site. The standard process leads to a decision about how to protect resource sites in a way that weighs the Economic, Social, Environmental, and Energy (ESEE) consequences of the protection measures.

The NR Study is a 300-page document that contains the ESEE analysis required by OAR 660-23-090 for the “standard process” and recommends a program for protecting sites on the NR and Wetland Inventories. The NR Study has served to protect the city’s wetland and riparian resources to date.

Under the standard process, cities are required to make a decision to 1) prohibit conflicting uses (development); 2) limit conflicting uses; or 3) allow conflicting uses. A decision to prohibit conflicting uses would fully protect resource sites, in many cases not even allowing passive recreational trails or paths. Limiting conflicting uses allows some development, but seeks to protect the most important functions and values of each resource site. A decision to allow conflicting uses would provide no protection for resource site.

Based on the ESEE analysis conducted for each site on the Wetland Inventory and the NR Inventory, this NR Study proposed a protection program based on a decision to “limit conflicting uses.” Keep in mind that this study only addressed “locally significant” wetlands and riparian corridors that are listed on the NR and Wetland Inventories. The focus on significant wetlands and riparian sites is mandated by state planning rules. There are several lower quality wetlands and watercourses which were not protected by the policies adopted in the NR Study. These sites that were not protected by the study are still under the jurisdiction of the Oregon Department of State Lands and or the Corps of Engineers. These agencies continue to be the sole authority for issuing permits to impact wetlands and streams. The City’s natural resource protections are supplemental to the authority of these agencies.

To implement a “limited” protection program, the NR Study took the following approach:

1. It supported the existing protections implemented through Springfield’s Stormwater Quality Management Program. The adopted Goal 5 limited protection program deferred to existing stormwater management policies detailed in Section 4.3-115 of the Springfield Development Code (SDC) and in particular those provisions which support the City’s response to state and federal regulations concerning surface and subsurface discharging stormwater management systems. Sites protected by the Stormwater Management Program were not recommended for additional protection.
2. It established 25-foot development setbacks from inventoried wetlands and riparian resource sites that are not already protected by stormwater policies. The 50 and 75 foot setbacks established by the Stormwater Quality Management Program would be retained.
3. Protection policies were applied to new development. Developed properties were not required to retroactively comply with the adopted policies. The provisions of SDC Section 5.8-100—Non-Conforming Uses, provide “grandfather” protections to existing development. Expansion of existing development is allowed where such expansion is outside of the resource area.
4. Site plan review was required for all commercial, industrial and multi-family residential development within 150-feet of resource sites. SDC Sections 4.3-115 and 4.3-117 describe wetland and riparian protections that are applied in the site plan review process to help reduce the impact of development. This requirement coincides with the defined 150-foot impact area recommended by this study and the 150-foot site plan review area already required for many of Springfield’s resource areas by the Stormwater Quality Management

Program. Construction of a single-family home within an existing subdivision would not require site plan review.

5. The adopted protection program primarily affects vacant land and future development. Existing uses and structures within the proposed 25-foot setbacks are allowed to continue. Expansion of such uses is permitted outside the setback. Development within the 50 and 75-foot setbacks established under Springfield's Stormwater Quality Management Program would be subject to the policies of that program.
6. Where the proposed 25-foot setback renders a property unbuildable for the purposes for which it was zoned, a hardship variance may be requested to assist the owner to achieve a viable development design. Such a hardship variance is required under state administrative rules (OAR 660-023-0090 (8) (d) and 660-023-0100(4) (b) (d)).

The proposed amendments are designed to insert the new Glenwood wetland and riparian information into the existing Wetland and NR Inventories and to add the required conflicting use and ESEE analysis to the NR Study to support the recommended protection for the sites.

### **III. Procedural Requirements**

The Wetland Inventory, the NR Inventory and the NR Study were products of the state mandated periodic review process that Eugene, Springfield and Lane County jointly undertook in the 1990's. Periodic review was concluded in 2005. The Wetland and NR Inventories and the NR Study were Springfield-specific products that were adopted as "refinement plans" to the Metro Plan.

Procedural requirements for refinement plan and Metro Plan amendments are described in Chapter IV of the Plan. The amendment procedures for refinement plans and the Metro Plan are also described in Sections 5.2-115, 5.4-135 and 5.4-140 of the Springfield Development Code (SDC).

**Finding #1.** Metro Plan Chapter IV, Policy 3 and SDC Section 5.14-115 include definitions for two types of amendments to the Metro Plan. Section 5.14-115 (C.) describes a Type II amendment as one "which is not otherwise a Type I plan amendment and which changes the Plan Diagram; or is a site specific Plan Text amendment."

**Finding #2.** The proposed amendments are restricted to specific sites within the Glenwood area. The amendments do not change the Urban Growth Boundary and do not require a Goal exception. Each site is within Springfield's planning jurisdiction. The proposed amendments fit the definition of a Type II amendment as described in the Metro Plan Chapter IV and the Springfield Code.

**Finding #3.** This amendment was initiated by the Director as allowed by SDC Section 5.6-105 on November 9, 2010.

**Finding #4.** The substance of the proposed Glenwood amendments was presented in an Open House held on January 11, 2010. Property owners and residents within 300 feet of the Glenwood riparian and wetland sites were sent mailed notice of the Open House. Maps showing the identified Glenwood wetland and riparian sites were presented and potential protections were discussed.

**Finding #5.** Prior to formal initiation of the amendment process, on February 25, 2010, owners and residents within 300 feet of the newly identified riparian and wetland sites in Glenwood were invited to an Open House to hear the findings of the Glenwood Wetland and Riparian Corridor Study that was completed by Lane Council of Governments. The study identified the wetlands and riparian areas that are the subject of the proposed amendments. The discussion included potential protection measures that might be applied to the new sites and their impact on property owners.

**Finding #6.** A Landowner Wetland Notification letter was mailed to affected Glenwood property owners and residents alerting them to the presence of wetlands on their properties on August 17, 2010 (as per instructions provided by the Oregon Department of State Lands). The letter informed owners and residents that hearings would be held in the future concerning the protections to be applied to the identified wetlands in the area.

**Finding #7.** A Notice of Proposed Amendment was filed with the Oregon Department of Land Conservation and Development on November 19, 2010, more than 45 days in advance of the first evidentiary hearing concerning the amendments as required by state planning rules.

**Finding #8.** SDC 5.14-135 (1) states that to become effective, "Metro Plan Type II amendment inside the city limits shall be approved by the Home City [Springfield]."

**Finding #9.** SDC 5.14-135 (2) states that to become effective, "a Metro Plan Type II amendment between the city limits and the Plan Boundary shall be approved by the Home City and Lane County."

**Finding #10.** The wetland and riparian sites that are the subject of the proposed amendments are located both inside and outside of the Springfield city limits. All of the subject sites are located within the Metro Plan Boundary. The proposed Type II amendments shall require the approval of both the City of Springfield and Lane County for all of the amendments to be approved.

**Finding #11.** Mailed notice of public hearings associated with a Metro Plan amendment must be sent to property owners and residents within 300 feet of the subject sites (SDC Section 5.2-115 (A), and Section 5.14-140).

**Finding #12.** Mailed notice of public hearings was sent out on December 30, 2010 to property owners and residents within 300 feet of the Glenwood wetland and riparian sites. The mailing

allowed more than 20 days notice before the first public hearing as required by Section 5.2-115 A of the SDC.

**Finding #13.** SDC Section 5.2-115 (B) requires that proposed land use actions be advertised in a newspaper of general circulation, providing information about the legislative action and the time, place and location of the hearing.

**Finding #14.** Notice of the public hearings concerning the proposed amendments was published on January 2, 2011 in the Register Guard, advertising both the hearing before the Springfield Commission on January 19, 2011 and the Joint Elected Officials of Springfield and Lane County on February 7, 2011. The content of the notice followed the direction given in SDC Section 5.2-115 B.

#### **IV. Decision Criteria and Findings**

SDC Section 5.6-110 describes the criteria to be used in approving a refinement plan amendment. It states that in reaching a decision, the Planning Commission and the City Council must adopt findings which demonstrate conformance with "1) *the Metro Plan*; 2) *applicable State statutes*; and to 3) *applicable State-wide Planning Goals and Administrative Rules*."

##### ***Criterion #1 "Conformance with the Metro Plan"***

##### **Findings**

**Finding #15.** Metro Plan Chapter III—Environmental Resources Element, Policy C.8 states, "Local governments shall develop plans and programs which carefully manage development on hillsides and in water bodies, and restrict development in wetlands in order to prevent erosion and protect the scenic quality, surface water and groundwater quality, forest values, vegetation, and wildlife values of those areas."

**Finding #16.** The NR Study that was approved in 2005 is a plan developed for the purpose identifying and protecting locally significant wetlands and riparian corridors. The NR Study was acknowledged by the Oregon Department of Land Conservation and Development in 2006. The inventories and protection plan adopted by the NR Study were based on those recommended by the model ordinances found in the Oregon Department of State Lands' publications: *The Oregon Wetlands Planning Guidebook* and *The Urban Riparian Inventory and Assessment Guide*.

**Finding #17.** The proposed amendments are intended to add protected resources sites in the Glenwood area to the existing Wetland Inventory, NR Inventory and NR Study. The recommended protections for the Glenwood sites conform to the protections offered other sites in Springfield by the NR Study.

**Finding #18.** Metro Plan Chapter III—Environmental Resources Element, Policy C.9 states, "Each city shall complete a separate study to meet its requirements under the Goal 5 Rule for



wetlands, riparian corridors, and wildlife habitat within the UGB. Lane County and the respective city jointly will adopt the inventory and protection measures for the area outside the city limits and inside the UGB.”

**Finding #19.** The NR Study is a Springfield-specific study that was approved in 2005 and acknowledged by DLCD as meeting the requirements of Statewide Planning Goal 5. The proposed amendments are intended to add new Glenwood wetland and riparian sites to the NR Study and to provide the required ESEE analysis on which to base a program for protecting those sites.

**Finding #20.** Metro Plan Chapter III—Environmental Resources Element, Policy C.10 states, “Local governments shall encourage further study (by specialists) of endangered and threatened plant and wildlife species in the metropolitan area.”

**Finding #21.** Pacific Habitat Services conducted the Glenwood wetland and riparian inventories and analysis. PHS inventoried wetland and riparian plants near the Glenwood sites and consulted with the Oregon Department of Fish and Wildlife (ODFW) concerning fish habitat and which streams might be fish-bearing, in preparing their report.

**Finding #22.** The NR Study consulted with the Oregon Natural Heritage Program and with the ODFW to identify threatened and endangered plant and wildlife species in Springfield and in Glenwood. This information was used to help craft protection measures for wetland and riparian sites.

**Finding #23.** Metro Plan Chapter III—Environmental Resources Element, Policy C.11 states, “Local governments shall protect endangered and threatened plant and wildlife species, as recognized on a legally adopted statewide list, after notice and opportunity for public input.”

**Finding #24.** The proposed amendments provide protections for those streams and wetland areas in Glenwood that are consistent with the safe-harbor protections applied by the state to fish-bearing streams. Public comment was solicited through the course of the Glenwood wetland and riparian study. This public input included written notice that was sent on December 30, 2010 to property owners and residents living within 300-feet of the Glenwood resource sites. The notice identified the Glenwood wetlands and riparian sites that were being considered for inclusion on the Wetland Inventory and the NR Inventory.

**Finding #25.** On February 25, 2010, owners and residents within 300 feet of the newly identified riparian and wetland sites in Glenwood were invited to an Open House to hear the findings of the Glenwood Wetland and Riparian Corridor Study that was completed by Lane Council of Governments. The study identified the wetlands and riparian areas that are the subject of the proposed amendments. The discussion included potential protection measures that might be applied to the new sites and their impact on property owners.

**Finding #26.** An Open House was held at the Springfield City Hall on January 11, 2011 to discuss the Glenwood natural resource update project. Invitations to the Open House were included in the mailed notice that was sent to property owners and residents living within 300-feet of identified wetland and riparian sites in Glenwood.

**Finding #27.** Public hearings concerning the proposed amendments were scheduled before the Springfield Planning Commission and the joint hearing before the Springfield City Council and Lane County Board of Commissioners on January 19, 2011, and February 7, 2011 respectively. Mailed and published notice of the hearings was provided to solicit public input.

**Finding #28.** Metro Plan Chapter III—Environmental Resources Element, Policy C12 states, “Property owners may pursue efforts to protect natural vegetation and wildlife habitat areas on their land to conserve these areas, e.g., through conservation easements, public acquisition, donation, land trusts, etc.; and local governments are encouraged to assist in these efforts.”

**Finding #29.** The notice provided to property owners and the Open House presentation was intended to raise the awareness of the Glenwood wetland and riparian resources. No city policy known to staff prevents property owners from protecting wetland or riparian sites on their land.

**Finding #30.** Metro Plan Chapter III—Environmental Resources Element, Policy C.13 states, “Wetland, riparian corridor, or wildlife habitat sites inside the UGB identified after adoption of the applicable Goal 5 inventory of significant sites, that have not been previously considered for inclusion in the inventory, shall be addressed in the following manner:

- a. The jurisdiction within which the natural resource is located shall study the site according to the requirements in the Goal 5 administrative rule.
- b. Upon the completion of the study, the affected jurisdiction shall determine whether the identified natural resource is significant according to the adopted significance criteria of the affected jurisdiction.
- c. If the newly identified site is determined significant, the affected jurisdiction shall complete the Goal 5 requirements for the site, which includes adoption of protection measures for sites identified for protection.
- d. The affected jurisdiction will notify affected property owners and interested parties throughout the process.”

**Finding #31.** The Wildlife Habitat Assessment (WHA) criteria for riparian significance were applied to the proposed new riparian sites. This is the same criteria were approved by the Springfield City Council (Ordinance 6085) and used for all other Springfield riparian sites that are included in the original 2005 NR Study.

**Finding #32.** The criteria for wetland significance are determined by the Oregon Department of State Lands. These criteria were applied by PHS to each of the Glenwood wetland sites as part of their report. Locally significant, non-significant and probable wetlands were all inventoried. The proposed amendments include the same ESEE analysis and program for protection that was applied to each of Springfield's other wetland resource sites.

**Finding #33.** Springfield Ordinance 6150 adopted the NR Study and the program for protection prescribed for each of Springfield's inventoried wetland and riparian sites. The proposed amendments include the same ESEE analysis and program for protection that was applied to each of Springfield's other riparian resource sites.

**Finding #34.** Findings #24 through #27 document the citizen outreach and public notice that was part of preparing the proposed amendments.

### **Conclusion**

The proposed amendments are consistent with the Metro Plan in that they are an addition to the same inventory and analysis as the existing NR Study that was adopted in 2005 and approved by the Oregon Department of Land Conservation and Development as meeting Goal 5 requirements.

### ***"Conformance with Applicable State Statutes"***

#### **Findings**

**Finding #35.** ORS 197.175(2)(a) states that, " each city and county in this state shall: (a) Prepare, adopt, amend and revise comprehensive plans in compliance with [Statewide Planning] goals approved by the commission; (b) Enact land use regulations to implement their comprehensive plans"

**Finding #36.** The NR Study was prepared in response to Statewide Planning Goal 5. The Study contains analysis that supports a program decision for protecting riparian and wetland resource sites as well as specific protection measures that will be adopted to implement that decision. The proposed amendments include an ESEE analysis and a recommended program for protecting each of the Glenwood wetland and riparian sites.

### **Conclusion**

The NR Study conforms to applicable state statutes.

***“Conformance with Statewide Planning Goals and Rules and Administrative Rules”***

**Findings**

**Goal 1 – Citizen Involvement.** Goal 1 calls for "the opportunity for citizens to be involved in all phases of the planning process."

**Finding #37.** Findings #24 through #27 document the citizen outreach and public notice that was part of preparing the proposed amendments.

**Goal 2 – Land Use Planning.** Goal 2 outlines the basic procedures of Oregon's statewide planning program. It says that land use decisions are to be made in accordance with a comprehensive plan, and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted.

**Finding #38.** The Eugene-Springfield Metropolitan Area General Plan (Metro Plan) is the acknowledged comprehensive plan that guides land use planning in Springfield. Findings #15-#24 document the consistency of the proposed amendments with the Metro Plan. The amendments, if adopted will afford the identified Glenwood wetland and riparian sites the protection approved by Ordinance #6150 which implements the City's program for protecting wetland and riparian sites.

**Goal 3 – Agricultural Land.** Goal 3 defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning.

**Finding #39.** This goal does not apply within adopted, acknowledged urban growth boundaries. The City of Springfield does not have any agricultural zoning districts. These amendments do not apply outside the urban growth boundary and, because of limitations on commercial and industrial development without full urban services, generally do not apply outside the city limits. All land in the City's urban transition area carries City zoning. An exception to this goal was taken in 1982 when the comprehensive plan was acknowledged.

**Goal 4 – Forest Land.** This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

**Finding #40.** This goal does not apply within adopted, acknowledged urban growth boundaries. The City of Springfield does not have any forest zoning districts. These amendments do not apply outside the urban growth boundary and, because of limitations on commercial and industrial development without full urban services, generally do not apply outside the city limits. All land in the City's urban transition area carries City zoning. An exception to this goal was taken in 1982 when the comprehensive plan was acknowledged.

**Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources.** Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated.

**Finding #41.** In 1998, the City of Springfield adopted, and the Oregon Division of State Lands (DSL) acknowledged, the Springfield Local Wetland Inventory (Wetland Inventory). DSL funded the application of the Oregon Freshwater Wetlands Methodology (OFWAM) to the Wetland Inventory and identified those wetland sites that qualified as “locally significant wetlands. Identifying the locally significant wetlands completed the first step in the Goal 5 planning process for wetlands.

**Finding #42.** In 2004 the City of Springfield adopted the Springfield Inventory of Natural Resource Sites (NR Inventory). The NR Inventory used the Wildlife Habitat Assessment (WHA) methodology to identify “locally significant” riparian areas. This methodology was developed in conjunction with technical staff from the City of Beaverton, Portland Audubon Society, EPA, Corps of Engineers, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife and the Wetlands Conservancy. It has been used in Washington County, Gresham and in the entire Portland metropolitan area, including the Willamette Greenway.

The adoption of the NR Inventory completed the first step in the Goal 5 planning process for riparian areas.

**Finding #43.** In 2005 the Springfield Natural Resources Study (NR Study) was adopted. The Study concluded the Goal 5 planning process for both riparian and wetland areas by conducting the required ESEE analysis and adopting a program for protecting the identified sites on the NR Inventory and the Wetland Inventory. Many of the riparian and wetland sites overlapped and were listed on both inventories. The ESEE analysis and the development of a program for protecting both resource types were combined in the NR Study. The combined approach allowed coordination of the protections recommended for those resources that overlap. In many places statistical information for wetlands and riparian areas are broken out separately to provide the reader with information specific to each resource type.

**Finding #44.** Pacific Habitat Services (PHS) was hired in 2009 to conduct a new inventory of wetland and riparian areas within the boundary of the Glenwood Refinement Plan in preparation of the update of that plan.

**Finding #45.** PHS completed its inventory work and submitted a report, “*Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield,*” that identified three new riparian sites and four new wetland sites in the Glenwood area that were not part of the Wetland Inventory or the NR Inventory.

**Finding #46.** The PHS report was approved by the Oregon Department of State Lands (DSL) in April 2010. The report identified “locally significant” wetlands in Glenwood using state mandated criteria.

**Finding #47.** The PHS report provided information that allowed the Springfield Environmental Services staff to administer the WHA tool to identify which of the new riparian met the criteria to be classified locally significant riparian sites.

**Finding #48.** The proposed amendments add newly identified sites to the NR and Wetland Inventories and to the NR Study. The amendments include the inventory descriptions and ESEE analysis to complete the “standard process” for determining appropriate resource protections for locally significant sites under OAR 660-023-040.

OAR 660-023-0040 describes the ESEE analysis and decision making process. The NR Study includes the analysis and conclusions required by the process prescribed in the administrative rule. The rule states:

*“(1) Local governments shall develop a program to achieve Goal 5 for all significant resource sites based on an analysis of the economic, social, environmental, and energy (ESEE) consequences that could result from a decision to allow, limit, or prohibit a conflicting use. This rule describes four steps to be followed in conducting an ESEE analysis, as set out in detail in sections (2) through (5) of this rule. Local governments are not required to follow these steps sequentially, and some steps anticipate a return to a previous step. However, findings shall demonstrate that requirements under each of the steps have been met, regardless of the sequence followed by the local government. The ESEE analysis need not be lengthy or complex, but should enable reviewers to gain a clear understanding of the conflicts and the consequences to be expected. The steps in the standard ESEE process are as follows:*

- (a) Identify conflicting uses;*
- (b) Determine the impact area;*
- (c) Analyze the ESEE consequences; and*
- (d) Develop a program to achieve Goal 5.”*

#### Identify Conflicting Uses

**Finding #49.** The existing NR Study includes chapters that document the steps listed above and provides sufficient information to support a program decision for each resource site on the NR Inventory and Wetland Inventory. The “Conflicting Use Analysis” assesses the potential development conflicts that exist with each of the resource sites. A generic conflicting use analysis describes the common conflicts that residential, commercial and industrial land uses

may have with wetland and riparian resources. The Study also provides a specific breakdown of the potential conflicting land uses that affect each specific site.

**Finding #50.** The proposed amendments include a conflicting use analysis for each of the Glenwood wetland and riparian sites that follows the format of the existing NR Study. The amendments will become “insert sheets” that will add to the list of site specific analysis already found in the NR Study.

*Determine the Impact Area*

**Finding #51.** The NR Study establishes a scientific foundation for recommending a 150-foot impact area that was used in the conflicting use analysis.

**Finding #52.** The proposed amendments to the NR Study utilize a 150-foot impact area for use in conducting the required conflicting use analysis.

*Analyze the ESEE Consequences*

**Finding #53.** The ESEE analysis, like the conflicting use analysis includes both a generic component and a site-specific component. The analysis considered the economic, social, environmental and energy consequences of prohibiting, limiting and allowing conflicting land uses to impact wetland and riparian resource sites.

**Finding #54.** The proposed amendments to the NR Study include a site specific analysis of the ESEE consequences of prohibiting, limiting and allowing conflicting land uses to impact wetland and riparian resource sites identified in Glenwood.

*Develop a program to achieve Goal 5*

**Finding #55.** The NR Study concludes each site-specific analysis with a recommendation for protection. In each case, a recommendation to limit conflicting uses was chosen, based on the information developed by the ESEE analysis. A specific set of protection policies were adopted (Ordinance 6150) with the NR Study. The policies were based on the model ordinance that is included in the Wetland Planning Handbook published by the Department of State Lands.

**Finding #56.** The proposed amendments to the NR Study include a site-specific analysis with a recommendation for protection of each Glenwood wetland and riparian resource. In each case, a recommendation to “limit conflicting uses” was chosen, based on the information developed by the ESEE analysis. A specific set of protection policies are also recommended for each Glenwood site that are similar to those applied by the NR Study for other Springfield sites. The protective setbacks range between 25 and 75 feet, depending upon the rate of flow and presence of fish in the streams. These protections parallel the safe harbor setbacks established by the state.

**Finding #57.** In its report, Pacific Habitat Services used the “Urban Riparian Inventory Assessment and Assessment Guide” (URIAG) for analyzing the Glenwood riparian sites. This approach recommends riparian widths based on the “site potential tree height” which would have established riparian widths ranging between 25 and 120 feet for the Glenwood sites. Setbacks are often suggested to match the riparian widths.

**Finding #58.** Pacific Habitat concluded in its report: “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 [emphasis added]” (*Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield*; Pacific Habitat Services, December 2009, pg. 23)

**Goal 6 – Air, Water and Land Resources Quality.** This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

**Finding #59.** Compliance with Statewide Planning Goal 5 processes for wetlands, riparian corridors unavoidably involves state and federal regulations for addressing clean air, clean water, safe drinking water, endangered species and other environmental policies.

The ESEE analysis and recommended protections support and enhance provisions of the Springfield Development Code that address the requirements of state and federal regulations including the Clean Water Act, Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Oregon Forest Practices Act, Oregon Endangered Species Rules, and the Oregon Wetlands Regulatory Program.

These established state and federal policies for environmental protection provided the regulatory framework within which the NR Study was developed, but the Goal 5 process was not intended to create detailed protective policy that specifically addresses Goal 6 issues.

**Finding #60.** The City of Springfield has already taken action to revise its Development Code to respond to National Pollutant Discharge Elimination System (NPDES) Phase II, the Clean Water Act, the Drinking Water Protection Act, and is in the process of devising a response to the Endangered Species Act for listed species in our area. The proposed amendments to not change this response to these federal regulations.

**Goal 7 – Areas Subject to Natural Disasters and Hazards.** Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply “appropriate safeguards” (floodplain zoning, for example) when planning for development there.



**Finding #61.** All sites within Springfield that are subject to these hazards (floodplain, erosion, landslides, earthquakes, weak foundation soils) are inventoried through a variety of sources. The proposed amendments do not remove or exempt compliance with other Code standards that may apply to development.

**Goal 8 – Recreational Needs.** This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them.

**Finding #62.** Willamalane Park and Recreation District is the entity responsible for park planning, development and maintenance in the urban transition area as well as the city limits. The NR Study used Willamalane’s Park and Recreation Plan (March 2004) to inform the ESEE process and in particular the analysis of the social impacts of allowing conflicting uses to impact wetlands and riparian areas that were identified by the comprehensive plan as future park facilities. Some decisions to limit conflicting uses were based on the desire to preserve the ability of Willamalane to establish low impact recreational facilities near protected resource sites that were part of the Study.

**Finding #63.** The proposed amendments take into account the Willamalane Park and Recreation Plan in assessing the social element of the ESEE analysis for the Glenwood sites. None of the proposed new wetland or riparian sites are included in Willamalane’s Park and Recreation Plan.

**Goal 9 – Economic Development.** Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

**Finding #64.** The recommended protection measures in the original 2005 NR Study affected the combined Eugene-Springfield inventory of commercial and industrial lands. At the conclusion of each site-specific ESEE analysis, GIS was used to estimate the amount of land that would be removed from these inventories. The amount of acreage protected from development was subtracted from the surplus of buildable land cited in the Springfield Commercial Lands Study (2000) and the Metropolitan Industrial Lands Special Study (March 1991).

1. The Study indicated that about 11.56 acres would be removed from the commercial land supply. That supply is already estimated to be 158 acres short of the estimated demand for commercial land through 2015.

2. The Study estimated that about 71.40 acres would be removed from the industrial land supply by the proposed protection program. There would be a remaining surplus of between 1583 and 2105 acres of industrial land in the Eugene-Springfield area if the protections were implemented.

**Finding #65.** HB 3337 mandated the establishment of separate inventories of available residential land for Eugene and Springfield. The cities of Eugene and Springfield have since prepared separate inventories of residential, commercial and industrial buildable lands. The Springfield Commercial Industrial Buildable Land Study (CIBL) was adopted in 2009. The Springfield Residential Lands Study (RLS) was also adopted in 2009.

**Finding #66.** The proposed amendments include recommended protection measures for the Glenwood sites that will have a minor affect on the CIBL and RLS inventories. At the conclusion of each site-specific ESEE analysis, GIS was used to estimate the amount of land that would be removed from the commercial and industrial lands inventories. The estimate was based on vacant residential, commercial and industrially zoned lands.

Table 1 shows the acreage of the wetland and riparian sites that are the focus of these amendments. The sites cover a total of 23.03 acres. The acreage totals 58.54 acres when the existing and recommended new setbacks are added.

**Table 1. Acreage Affected by Glenwood Wetland and Riparian Amendments**

Site ID	Site Acres	Existing and Recommended New Setbacks	Site Acres Including Setbacks
S-25	12.30	Existing 50-ft.	28.38
S-26 (New)	1.56	Existing 50-ft.	5.79
S-27 (New)	.33	25-ft.	.76
S-28 (New)	.73	25-ft.	1.35
W-20	3.73	Existing 50-ft.	8.66
W-21 (New)	.47	Existing 50-ft.	1.71
W-22 (New)	2.53	Existing 50-ft.	6.30
W-23 (New)	.87	Existing 50-ft.	4.62
W-24 (New)	.51	25-ft.	.97
<b>Total Acres</b>	<b>23.03</b>	<b>Total Acres</b>	<b>58.54</b>

Many of the resource sites are located within or adjacent to right-of-ways for Franklin Blvd., I-5 or the Union Pacific Railroad in Glenwood. These right-of-ways (ROWs) are not buildable lands and protection of these areas does not affect the supply of buildable land in Glenwood.

Table 2 shows that 24.47 acres of the land affected by these amendments are within ROWs and 34.07 acres of affected land are outside of ROWs. **Table 2 also shows that only about 10.87**

acres of affected land outside of ROWs is vacant or redevelopable. Redevelopable in this case is land classified by the Lane County Assessor as "Tract Land."

**Table 2. Affected Acreage Outside of Right-of-Ways**

Site ID	Site Acres Including Setbacks	Acres within ROWs	Acres Outside of ROW	Affected Developed Parcel Acres	Affected Vacant or Redevelopable Parcel Acres
S-25	28.38	11.78	16.60	12.85	3.75
S-26 (New)	5.79	4.1	1.69	.39	1.30
S-27 (New)	.76	.02	.74	.07	.67
S-28 (New)	1.35	.71	.64	0	.64
W-20	8.66	2.18	6.48	5.31	1.17
W-21 (New)	1.71	.84	.87	.87	0
W-22 (New)	6.30	.37	5.93	3.67	2.26
W-23 (New)	4.62	4.09	.53	.04	.49
W-24 (New)	.97	.38	.59	0	.59
	<b>58.54</b>	<b>24.47</b>	<b>34.07</b>	<b>23.20</b>	<b>10.87</b>

Most of the affected acreage in Glenwood is already protected by the City's stormwater management standards (SDC Section 4.3-115) that were adopted in 2002. **Table 3 shows that only about 3.30 acres of vacant and redevelopable land are proposed for protection by setbacks that are not already enforced by the stormwater management standards.** The setback protections are not retroactive and do not require the removal of existing development that may be located within the proposed setbacks. Future development will be governed by the setbacks if they are approved.

**Table 3. Impact on Vacant and Redevelopable Acreage Not Protected By Existing Stormwater Management Setbacks**

Site ID	Site Acres Including Setbacks	Recommended and Existing Setbacks	Vacant and Redevelopable Acres Affected by Recommended Setbacks			
			Residential	Commercial	Industrial	Total Acres
S-25	28.38	*Existing 50-ft.	0	0	1.36	1.36
S-26 (New)	5.79	Existing 50-ft.	0	0	0	0
S-27 (New)	.76	Recommended 25-ft.	.38	0	.19	.57
S-28 (New)	1.35	Recommended 25-ft.	.38	0	.29	.67

Site ID	Site Acres Including Setbacks	Recommended and Existing Setbacks	Vacant and Redevelopable Acres Affected by Recommended Setbacks			
			Residential	Commercial	Industrial	Total Acres
W-20	8.66	Existing 50-ft.	0	0	0	0
W-21 (New)	1.71	Existing 50-ft.	0	0	0	0
W-22 (New)	6.30	Existing 50-ft.	0	0	0	0
W-23 (New)	4.62	*Existing 50-ft.	0	0	.68	.68
W-24 (New)	.97	Recommended 25-ft.	.02	0	0	.02
<b>Total Acres</b>	<b>58.54</b>	<b>Total Acres</b>	<b>0.78</b>	<b>0</b>	<b>2.52</b>	<b>3.30</b>

\* A small portion of this site is outside of the 50-foot setback and is recommended for protection by a 25-foot setback.

**Goal 10 – Housing.** This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

**Finding #67.** The recommended protections for the Glenwood sites will have a negligible affect the inventory of residential lands. Table 3 shows the recommended protections will affect about 1.04 acres of vacant residential land that is not already protected by stormwater setbacks adopted in 2002.

**Goal 11 – Public Facilities and Services.** Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection.

**Finding #68.** The Eugene-Springfield Metropolitan Public Services and Facilities Plan (PFSP) is a refinement plan of the Metro Plan that guides the provision of public infrastructure, including water, sewer, storm water management, and electricity. Some of the inventoried Glenwood riparian and wetland resource sites are also public stormwater facilities. The Glenwood Slough and 19<sup>th</sup> Street Channel, and the Riverview/Augusta Channel (S-26) are important stormwater facilities that are listed in the PFSP. The recommended protection policies will preserve and support existing stormwater protection policies that are applied to riparian and wetland sites that are on the Water Quality Limited Watercourse list. In addition, wetlands and riparian areas that are not protected under the stormwater policies will receive protection.

**Finding #69.** The proposed Glenwood protection measures allow for the development and maintenance of public infrastructure. As such the protection policies will not have a negative effect on Goal 11 public facilities and services. Other public services such as police and fire protection are not likely to be impacted by the approval of the protection policies.

**Goal 12 – Transportation.** The goal aims to provide "a safe, convenient and economic transportation system."

**Finding #70.** The protection policies recommended by the 2005 NR Study did not directly impact the approved transportation system plan for the Springfield area, TransPlan. Development standards that may be approved in the future as part of a Low Impact Development Design Handbook recommended by the NR Study may have an impact on street design standards. Some communities have chosen to allow narrower streets in hillside residential areas to reduce the amount of impervious surface areas. Those same narrow street designs are being championed as an effective measure for traffic calming.

**Finding #71.** The proposed amendments add to and update the wetland and riparian inventories to include newly identified Glenwood sites. No new protection policy initiatives are recommended that are not already part of the 2005 NR Study.

**Goal 13 – Energy Conservation.** Goal 13 declares that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

**Finding #72.** The ESEE analysis considered the likely energy consequences of allowing conflicting uses to impact resource areas for the Glenwood sites. Approval of the recommended protection measures is not likely to have a direct impact on efforts to conserve energy. As such this goal is not applicable to evaluation of proposed Glenwood amendments.

**Goal 14 – Urbanization.** This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs.

OAR 660-23-070 requires communities to conduct a buildable lands inventory that assesses the impact of the natural resource inventory and the protective policies applied to sites on the inventory of buildable land. Where there is a demonstrable impact, the rule requires the City to make adjustments to recover the buildable land that is lost.

**Finding #73.** The proposed new amendments will have a negligible affect on the inventory of buildable lands. Table 3 shows that about 3.30 acres of vacant land will be affected by the Glenwood amendments and the proposed protection for the identified new wetland and riparian sites. Keep in mind that many of the Glenwood sites are already protected by existing stormwater management policies. The estimated impact in terms of acres lost from the residential, commercial and industrial inventories is discussed above under Goals 9 and 10. The findings of the Study indicate that the impact on residential lands would not exceed the

available surplus. The supply of industrial lands is already insufficient to meet projected demands, and the findings of this study indicate that the protections may further exacerbate the shortage, but to a negligible degree.

**Goal 15 – Willamette River Greenway.** Goal 15 sets forth procedures for administering the 300 miles of greenway that protects the Willamette River.

**Finding #74.** That portion of the Willamette River that flows through the Springfield/Glenwood area is an inventoried resource site (site WA/WB). The Willamette is already protected with under provisions of Springfield’s Stormwater Quality Management Program and as such is not recommended for further protection by the proposed Glenwood amendments. Adoption of the proposed Glenwood amendments and protection measures do not change the City’s existing standards for protection with respect to the Willamette River Greenway.

**Goals 16 through 19 – Estuarine Resources, Coastal Shorelands, Beaches and Dunes, and Ocean Resources.**

**Finding #75.** There are no coastal, ocean, estuarine, or beach and dune resources within the City’s jurisdiction. These goals do not apply in Springfield.

## **Conclusion**

The findings shown above demonstrate that the proposed Glenwood amendments to the Springfield Local Wetland Inventory, the Springfield Inventory of Natural Resources Sites, and the Springfield Natural Resources Study and the recommended protection policies to achieve Goal 5 are in substantial conformance with Oregon’s Statewide Planning Goals.

## **V. Conclusion and Recommendation of Staff**

Based on the findings of this report, the proposed Glenwood amendments to the Springfield Local Wetland Inventory, the Springfield Inventory of Natural Resources Sites, and the Springfield Natural Resources Study and the recommended protection policies for the Glenwood Sites meet the criteria for approving refinement plan amendments that is found in SDC Section 5.6-110.

## **VI. Attachments**

- Exhibit A: Proposed Amendments to the Springfield Local Wetland Inventory
- Exhibit B: Proposed Amendments to the Springfield Inventory of Natural Resource Sites
- Exhibit C: Proposed Amendments to the Springfield Natural Resources Study
- Exhibit D: *Local Wetlands and Riparian Corridor Assessment for the Glenwood Area of Springfield*, Pacific Habitat Services, December 2009
- Exhibit E: *Glenwood Natural Resource Wildlife Habitat Assessment 2010*, Springfield Environmental Services Division

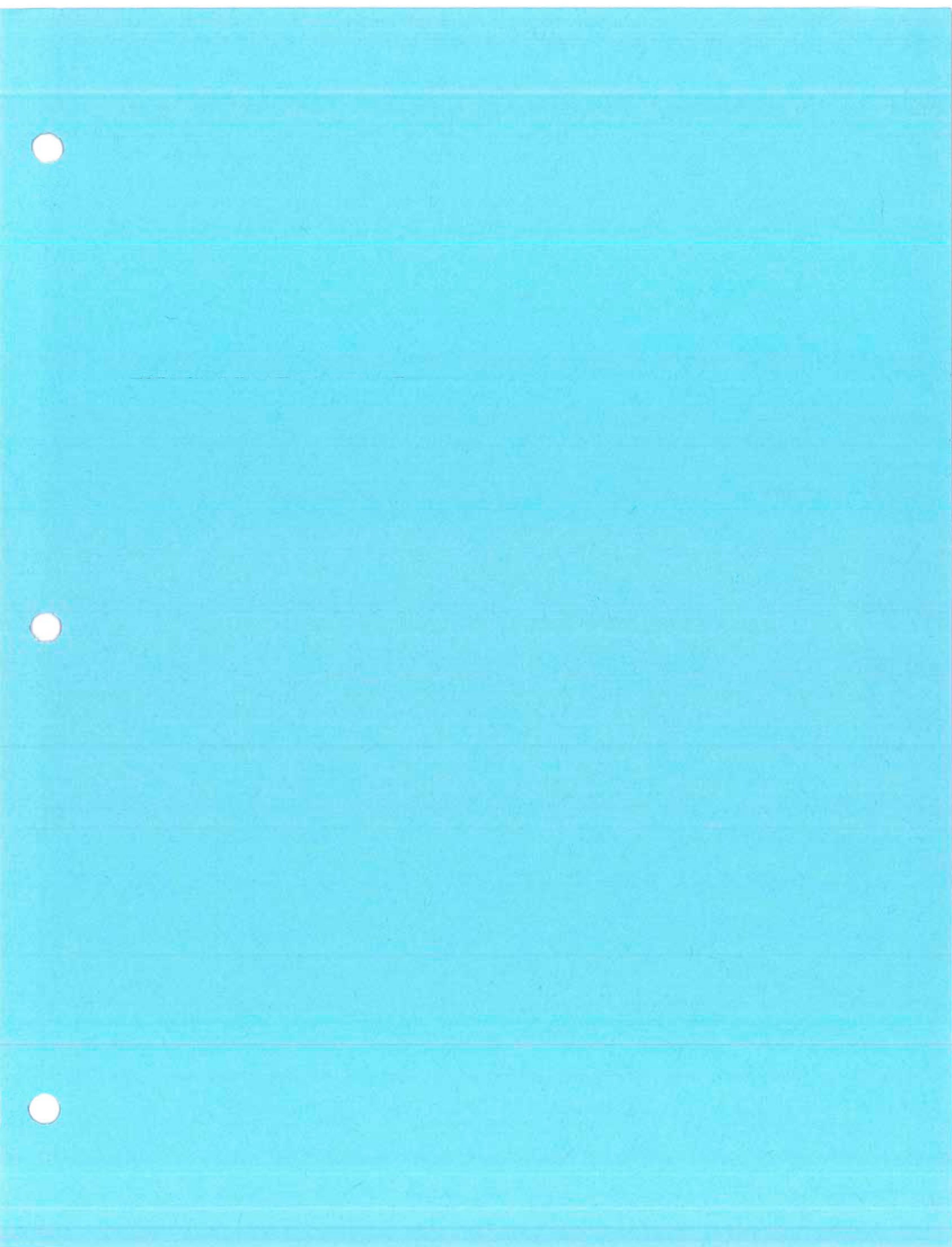


EXHIBIT E-1

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

**Prepared for**

**City of Springfield  
Springfield, Oregon 97477**

**Prepared by**

**Pacific Habitat Services, Inc.  
Wilsonville, Oregon**

**February 10, 2010**



Attachment 1-151



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

**Prepared for**

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225 5<sup>th</sup> Street  
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**February 2010**

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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
<b>Total Project Acreage</b>	<b>677</b>

## 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
<b>Total Project Acreage</b>	<b>677</b>	<b>13.27</b>	<b>0.2</b>

### 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%
<b>Total</b>	<b>13.27</b>	<b>100%</b>

**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
<b>TOTAL</b>	<b>7.35</b>	<b>0.95</b>	<b>1.73</b>	<b>3.24</b>	<b>13.27</b>

## 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**

<b>Wildlife Habitat</b>	<ol style="list-style-type: none"> <li>1. <i>Wetland provides diverse wildlife habitat</i></li> <li>2. <i>Wetland provides habitat for some wildlife species</i></li> <li>3. <i>Wetland does not provide wildlife habitat</i></li> </ol>
<b>Fish Habitat</b>	<ol style="list-style-type: none"> <li>1. <i>Wetland's fish habitat function is intact</i></li> <li>2. <i>Wetland's fish habitat function is impacted or degraded</i></li> <li>3. <i>Wetland's fish habitat function is lost or not present</i></li> </ol>
<b>Water Quality</b>	<ol style="list-style-type: none"> <li>1. <i>Wetland's water-quality function is intact</i></li> <li>2. <i>Wetland's water-quality function is impacted or degraded</i></li> <li>3. <i>Wetland's water-quality function is lost or not present</i></li> </ol>
<b>Hydrologic Control</b>	<ol style="list-style-type: none"> <li>1. <i>Wetland's hydrologic control function is intact</i></li> <li>2. <i>Wetland's hydrologic control function is impacted or degraded</i></li> <li>3. <i>Wetland's hydrologic control function is lost or not present</i></li> </ol>
<b>Education</b>	<ol style="list-style-type: none"> <li>1. Wetland has educational uses</li> <li>2. Wetland has potential for educational use</li> <li>3. Wetland is not appropriate for educational use</li> </ol>
<b>Recreation</b>	<ol style="list-style-type: none"> <li>1. Wetland provides recreational opportunities</li> <li>2. Wetland has the potential to provide recreational activities</li> <li>3. Wetland is not appropriate for or does not provide recreational opportunities</li> </ol>

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**

<p><b>Exclusions:</b> A wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".</p>
<p>1 Is this wetland artificially created entirely from upland and:</p> <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining storm water</li> <li>b. is used for active surface mining or as a log pond</li> <li>c. is a ditch without a free and open connection to natural waters of the state</li> <li>d. is less than 1 acre and created unintentionally from irrigation or construction</li> <li>e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard</li> </ul> <p>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)</p>
<p><b>Mandatory Locally Significant Wetland Criteria:</b> A wetland is locally significant if "Yes" is the answer to any of the criteria below.</p>
<p>1 Does the wetland provide <i>diverse wildlife habitat</i>?</p> <p>2 Is the wetland's <i>fish habitat function intact</i>?</p> <p>3 Is the wetland's <i>water quality function intact</i>?</p> <p>4 Is the wetland's <i>hydrologic control function intact</i>?</p> <p>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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i>?</p> <p>6 Does the wetland contain a rare plant community?</p> <p>7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?</p> <p>8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i>?</p>
<p><b>Optional Locally Significant Wetland Criteria:</b> Local governments may identify a wetland as significant if "Yes" is the answer to the criteria below</p>
<p>1 Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i>.</p> <p>2 Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i>?</p>

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	<i>Fraxinus latifolia</i>	75
Black cottonwood	<i>Populus trichocarpa</i>	120
Douglas fir	<i>Pseudotsuga menziesii</i>	120
Big leaf maple	<i>Acer macrophyllum</i>	90
Pacific Willow	<i>Salix lasiandra</i>	35
Sitka Willow	<i>Salix sitchensis</i>	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.

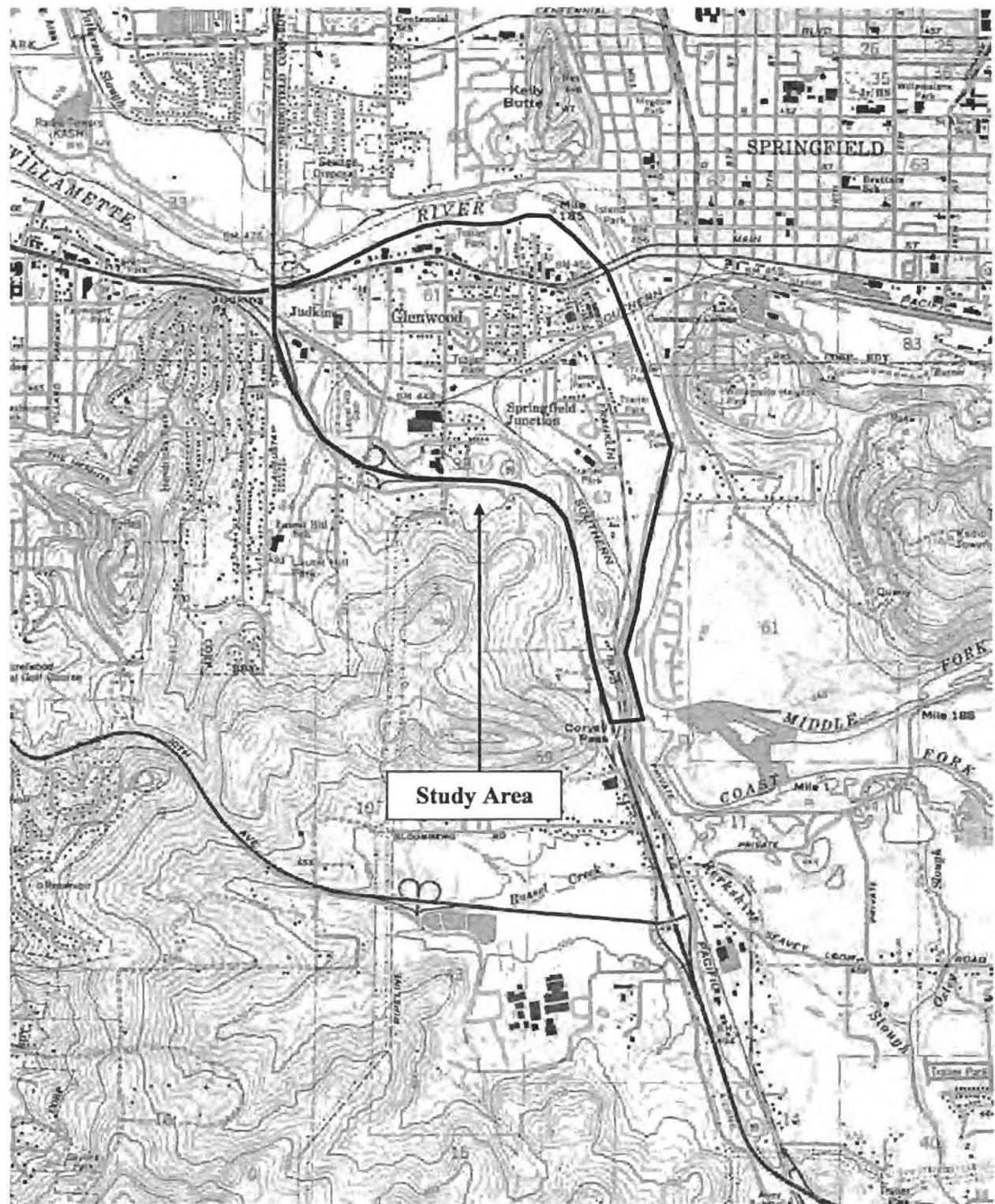
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- U.S.G.S. *7.5-minute topographic quadrangle*, 1967, photorevised 1986 Provisional Edition. Springfield, OR, 1:24,000.

# Appendix A

## Figures and Sheets





9/29/09

4495

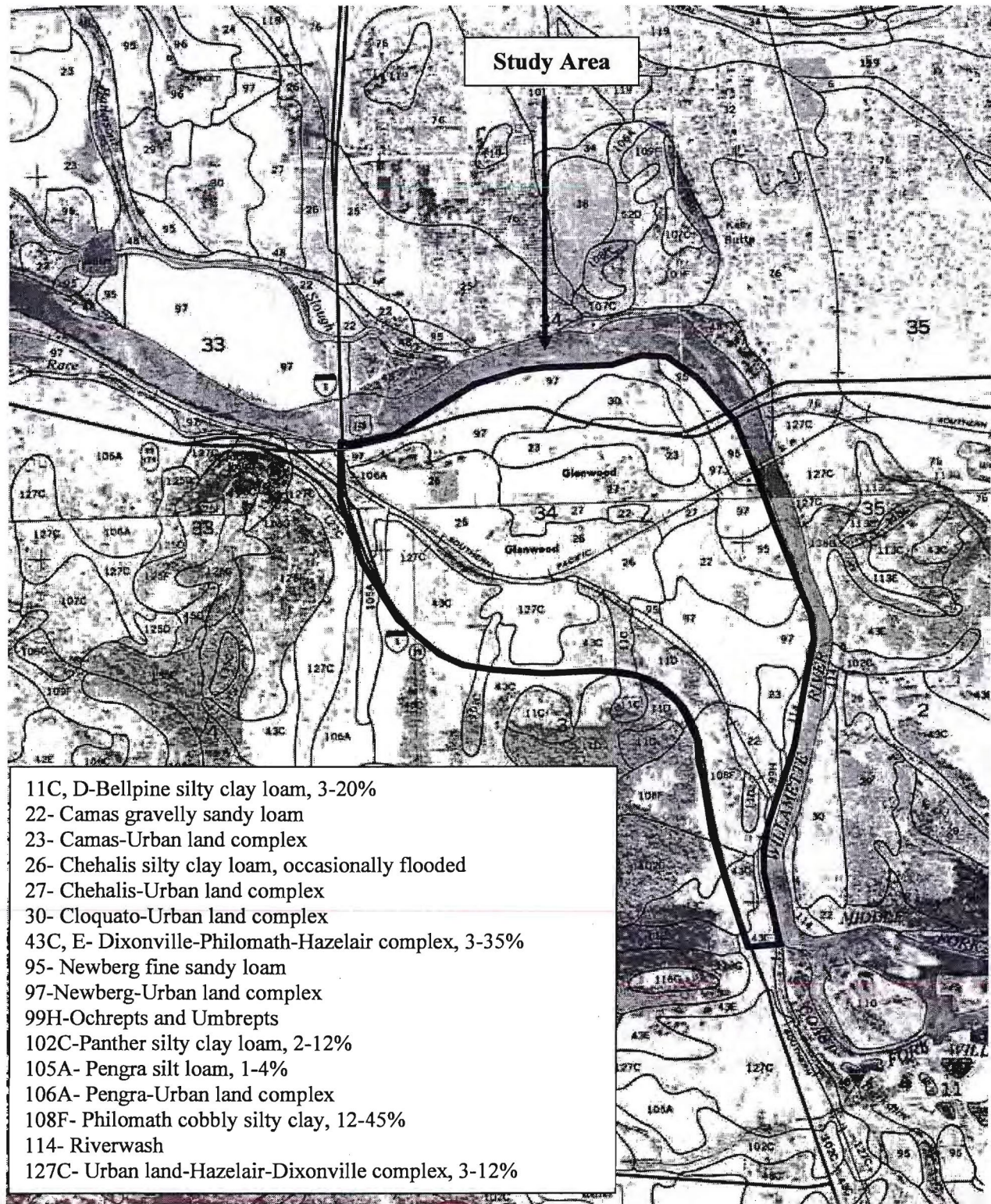
Location and general topography for the Glenwood LWI project in Springfield, Oregon (USGS Eugene East, OR quadrangle, 1967, photorevised 1986).

FIGURE  
1



Pacific Habitat Services, Inc.





9/29/09

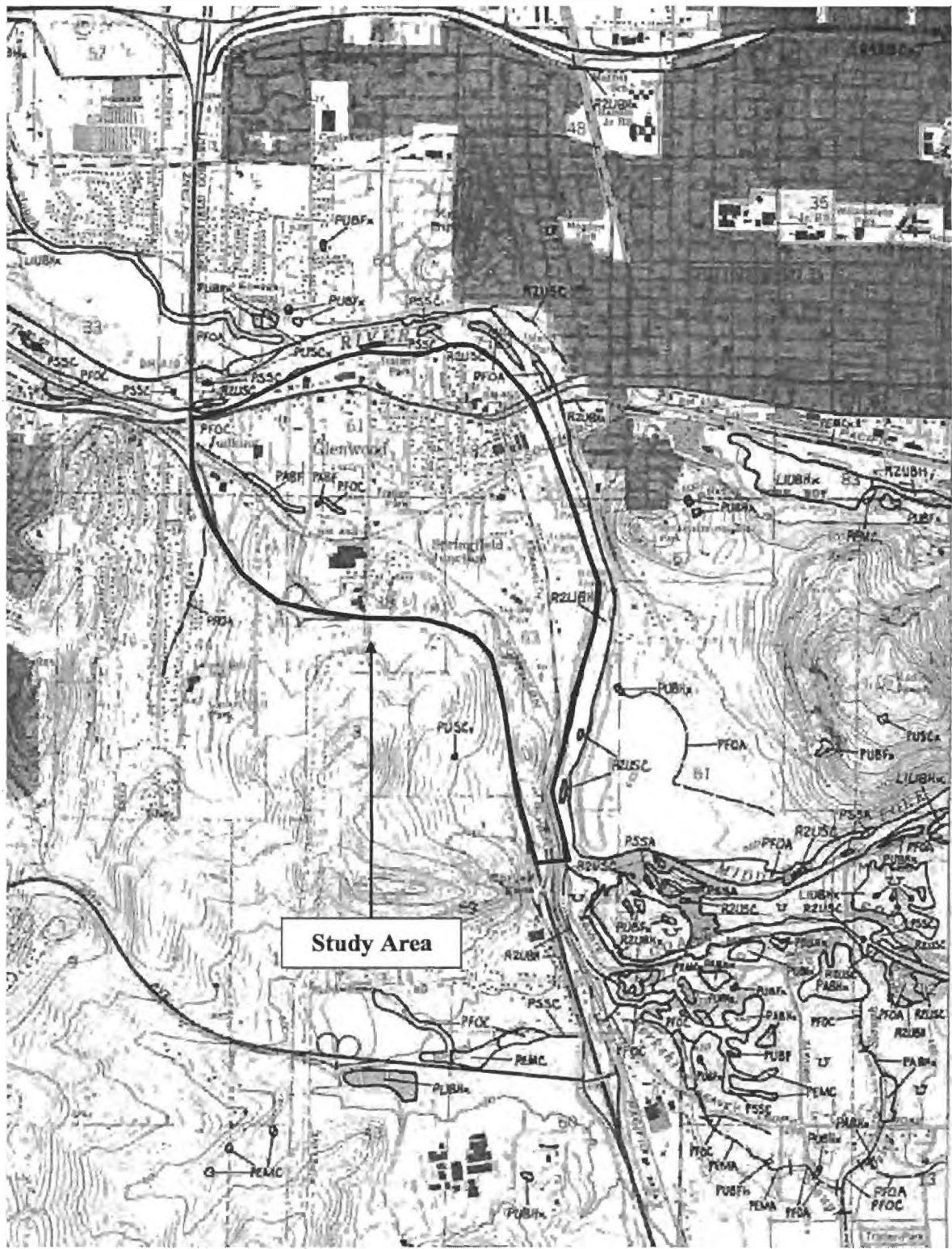
4495

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



— Pacific Habitat Services, Inc. —



9/29/09

4495

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

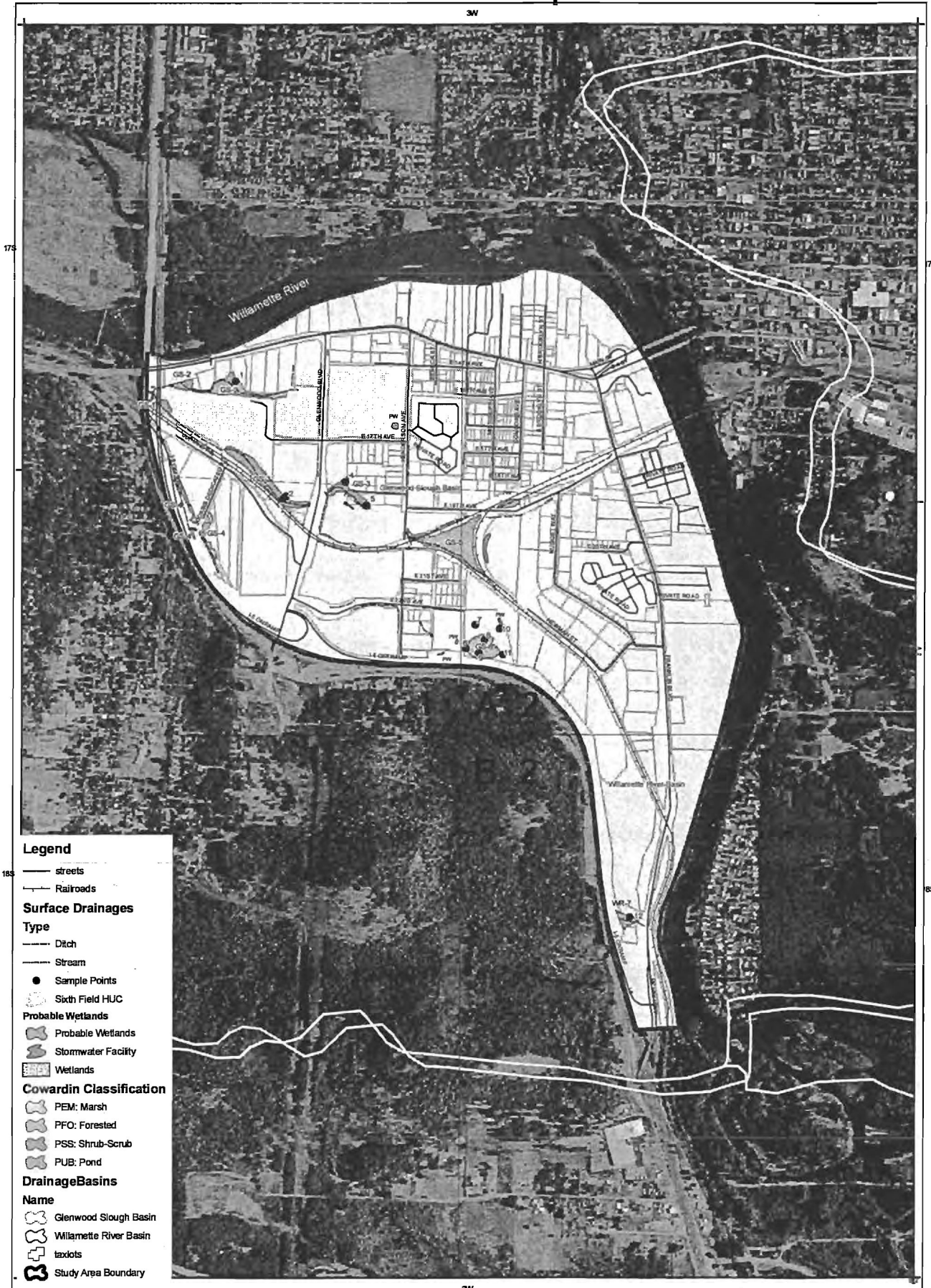
FIGURE  
3



— Pacific Habitat Services, Inc. —

# Glenwood LWI Map Index

EXHIBIT E-36



- 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
  - Drainage Basins**
  - 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

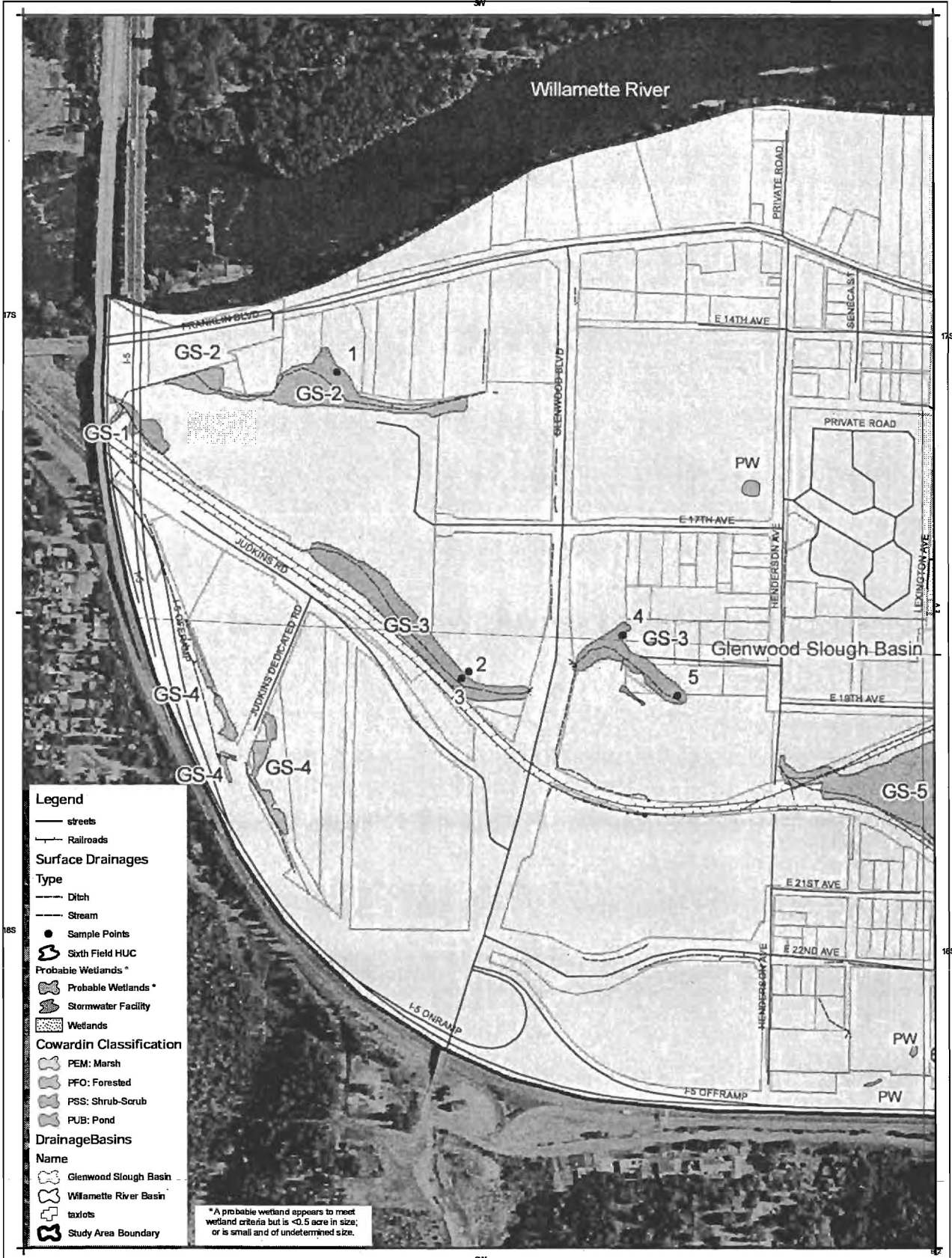


Date of Final Map preparation: 2/4/10

0 250 500 1,000 Feet

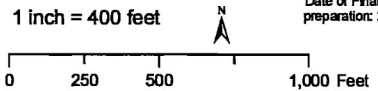
Attachment 1-186

# Glenwood LWI Map (A-1)

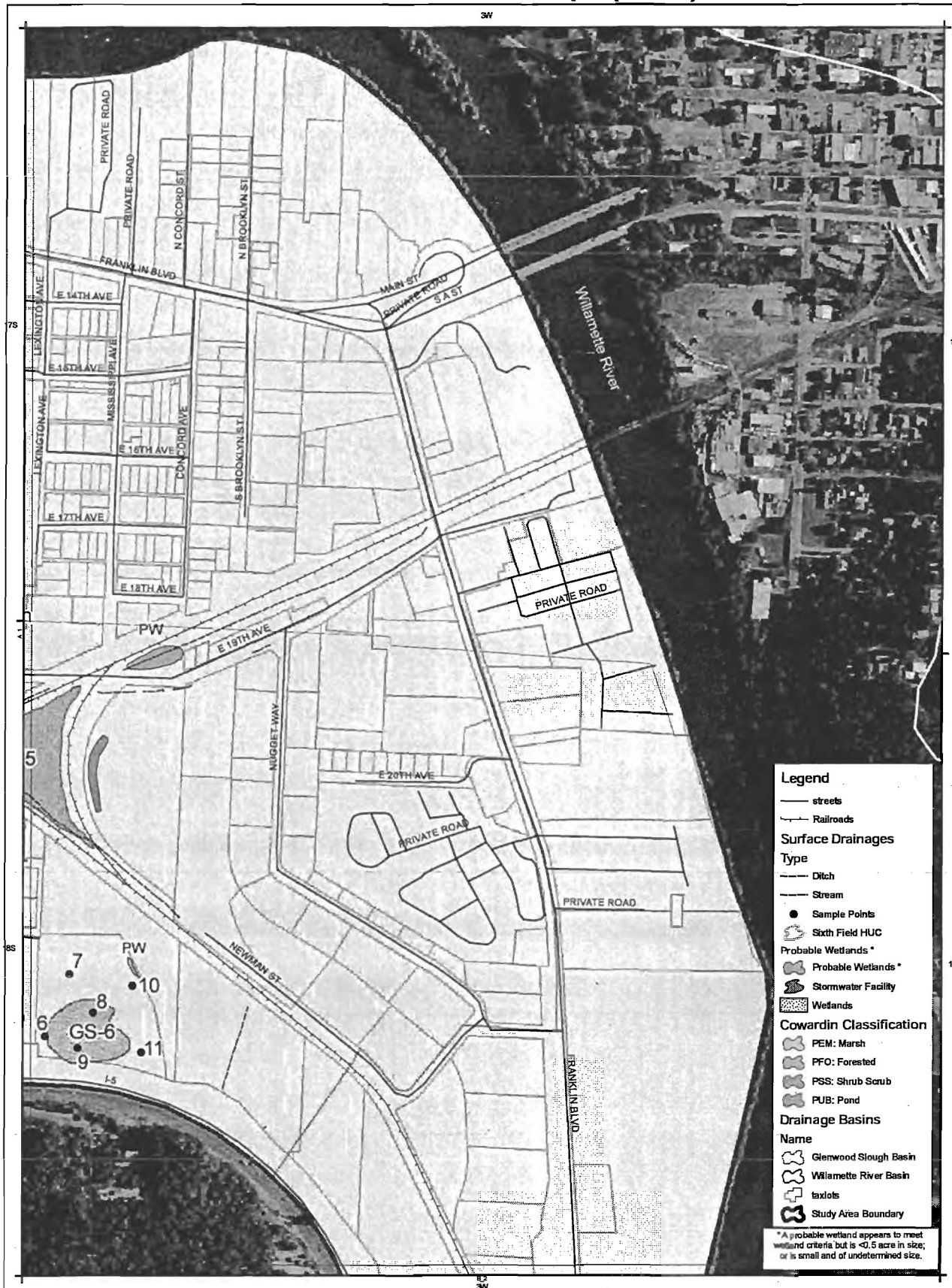


## Sheet 2 - Glenwood Area of Springfield Local Wetlands Inventory

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.

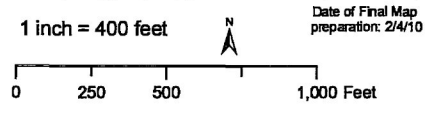


# Glenwood LWI Map (A-2)

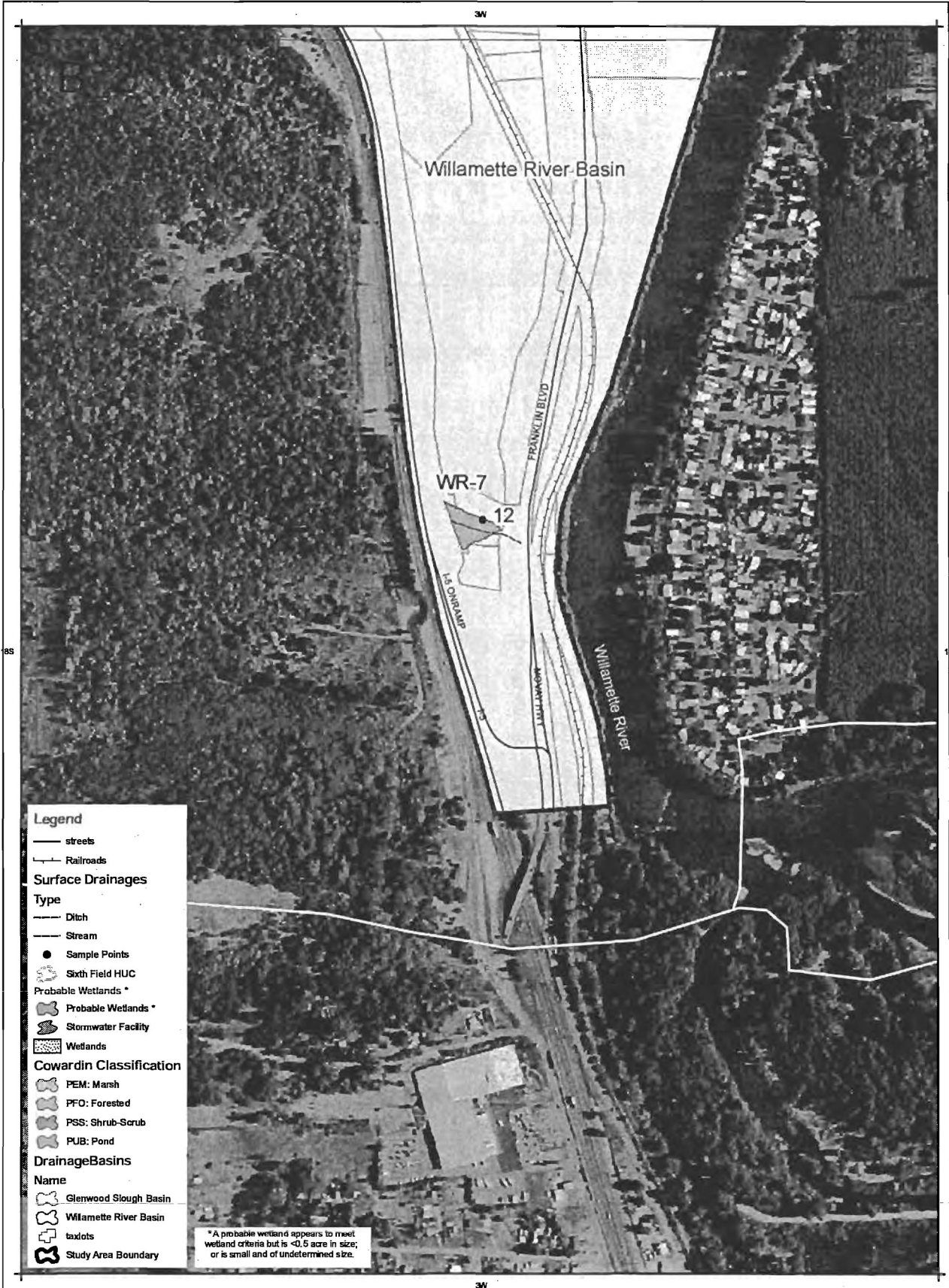


## Sheet 3 - Glenwood Area of Springfield Local Wetlands Inventory

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.



# Glenwood LWI Map (B-2)

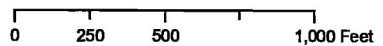


## Sheet 4 - Glenwood Area of Springfield Local Wetlands Inventory

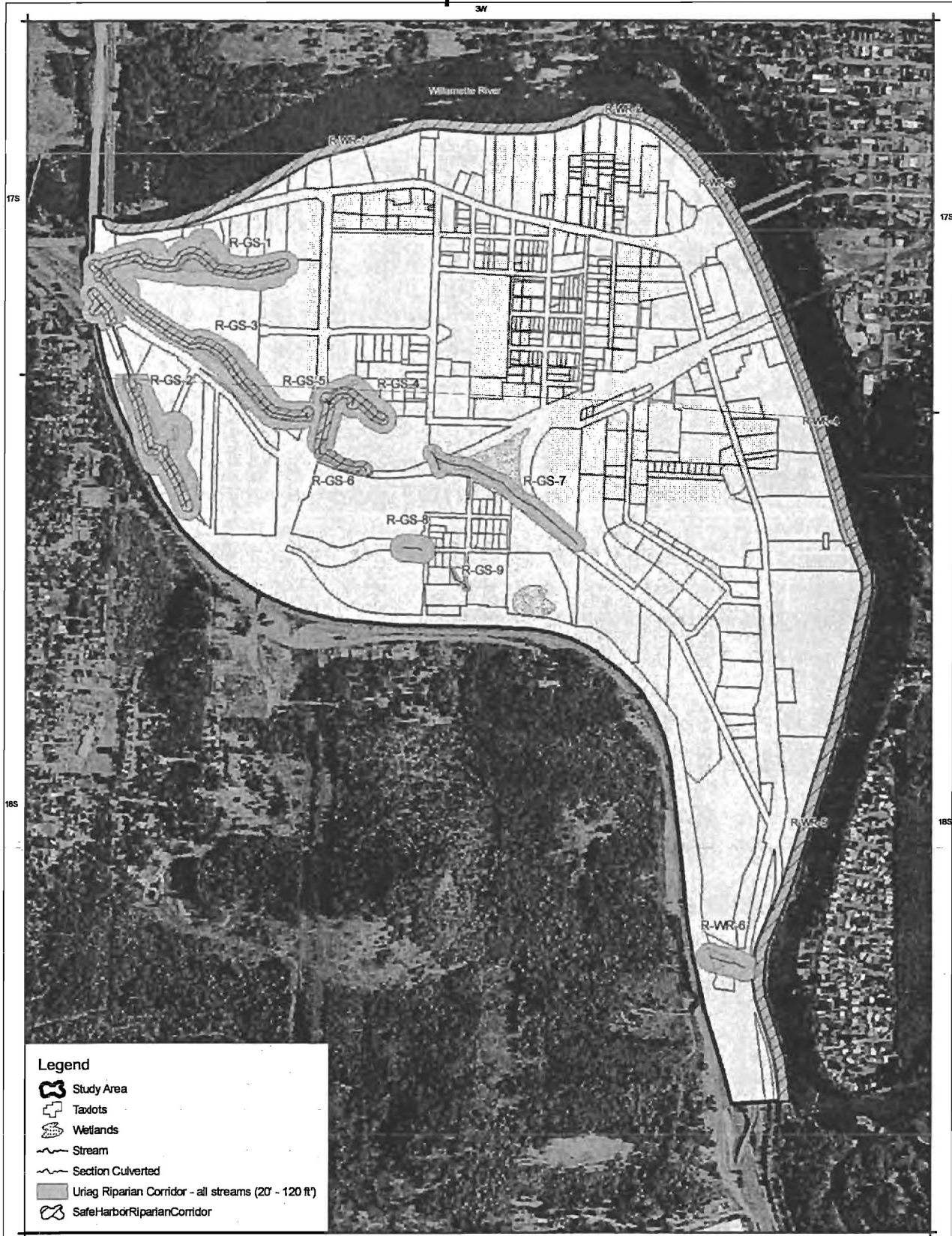
Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current 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

Date of Final Map preparation: 2/4/10



# Glenwood Riparian Corridors



**Legend**

- Study Area
- Taxlots
- Wetlands
- Stream
- Section Culverted
- Urban Riparian Corridor - all streams (20' - 120 ft')
- Safe Harbor Riparian Corridor

**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

# Appendix B

## Wetland Characterization Sheets





# Wetland Characterization Sheet



**Project Name:** Glenwood Area of Springfield LWI

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

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

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

**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 arundinacea*, *Plantago lanceolata*, *Lathyrus latifolius*, *Daucus carota*, *Cirsium arvense*, *Dipsacus sylvestris*, unidentified mixed grasses

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		



# Wetland Characterization Sheet

**Project Name: Glenwood Area of Springfield LWI**

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

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

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

**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

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		



# Wetland Characterization Sheet

**Project Name: Glenwood Area of Springfield LWI**

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

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

Dominant Wetland Vegetation			
TREES / SHRUBS		VINES / HERBS	
<i>Salix sitchensis</i>	Sitka Willow	<i>Mentha arvensis</i>	Field Mint
<i>Fraxinus latifolia</i>	Oregon Ash	<i>Juncus effusus</i>	Soft Rush
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Carex leptopoda</i>	Short-Scale Sedge
		<i>Bidens sp.</i>	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 bisected 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*

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		



# Wetland Characterization Sheet

**Project Name: Glenwood Area of Springfield LWI**

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

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

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

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		

# Wetland Characterization Sheet



**Project Name:** Glenwood Area of Springfield LWI

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

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

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

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		



# Wetland Characterization Sheet

**Project Name: Glenwood Area of Springfield LWI**

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

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

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

**Comments:**  
 GS-6 is a mosaic 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*

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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	DGP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope		

# Wetland Characterization Sheet



**Project Name: Glenwood Area of Springfield LWI**

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

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

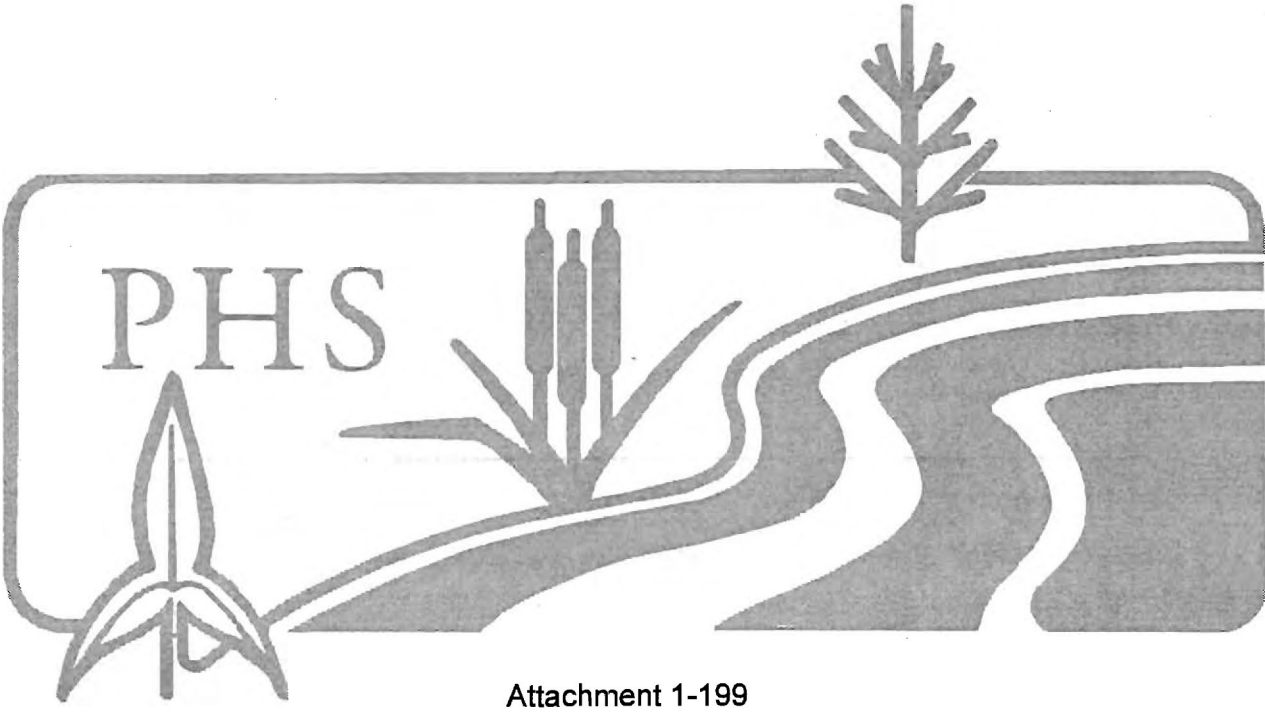
Dominant Wetland Vegetation			
TREES / SHRUBS		VINES / HERBS	
<i>Populus trichocarpa</i>	Black Cottonwood	<i>Phalaris arundinacea</i>	Reed Canary Grass
<i>Salix lasiandra</i>	Pacific Willow	<i>Oenanthе sarmentosa</i>	Water-Parsley
<i>Cornus stolonifera</i>	Red-Osier Dogwood	<i>Urtica dioica</i>	Stinging nettles
		<i>Carex obnupta</i>	Slough Sedge
		<i>Equisetum arvense</i>	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*

<b>COWARDIN CODES:</b>	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
<b>HGM CODES:</b>	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		

# Appendix C

## Wetland Determination Data Forms





WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region EXHIBIT E-50

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): LRR A 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 <u>X</u> No _____	Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: <u>30</u> )	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 <u>Fraxinus latifolia</u>	<u>40</u>	<u>X</u>	<u>FACW</u>	Number of Dominant Species	
2 <u>Populus trichocarpa</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC:	<u>3</u> (A)
3 _____				Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
4 _____				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>75%</u> (A/B)
	<u>65</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
Sapling/Shrub Stratum (plot size: _____)				Total % Cover of	Multiply by:
1 _____				OBL Species	x 1 = <u>0</u>
2 _____				FACW species	x 2 = <u>0</u>
3 _____				FAG Species	x 3 = <u>0</u>
4 _____				FACU Species	x 4 = <u>0</u>
5 _____				UPL Species	x 5 = <u>0</u>
	<u>0</u>	= Total Cover		Column Totals	<u>0</u> (A) <u>0</u> (B)
Herb Stratum (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Lapsana communis</u>	<u>2</u>	<u>X</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Fraxinus latifolia</u>	<u>5</u>	<u>X</u>	<u>FACW</u>	<u>X</u> Dominance Test is >50%	
3 _____				Prevalence Index is ≤ 3.0 <sup>1</sup>	
4 _____				Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____				Wetland Non-Vascular Plants <sup>1</sup>	
6 _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8 _____				<b>Hydrophytic Vegetation Present?</b>	Yes <u>X</u> No _____
	<u>7</u>	= Total Cover		Remarks:	
Woody Vine Stratum (plot size: _____)				Other vegetation: <u>Juncus effusus, Carex obnupta, Bidens sp., Rosa pisocarpa.</u>	
1 _____				Attachment 1-200	
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>50</u>					

SOIL

PHS # 4495

Sampling Point: 1

EXHIBIT E-51

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- 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<sup>3</sup>:

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

<sup>3</sup>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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes  No  Depth (inches):

Water Table Present? Yes  No  Depth (inches):

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

Wetland Hydrology Present? Yes  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 E-52**

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 <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (plot size: <u>30</u> )				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1	<u>Corylus cornuta</u>	<u>15</u>	<u>X</u>		<u>FACU</u>
2	_____	_____	_____		_____
3	_____	_____	_____		_____
4	_____	_____	_____		_____
	<u>15</u>	= Total Cover			
<b>Sapling/Shrub Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>Symphoricarpos albus</u>	<u>10</u>	_____		<u>FACU</u>
2	<u>Rubus discolor</u>	<u>15</u>	<u>X</u>		<u>FACU</u>
3	<u>Cornus stolonifera</u>	<u>25</u>	<u>X</u>		<u>FACW</u>
4	<u>Rubus ursinus</u>	<u>5</u>	_____		<u>FACU</u>
	<u>55</u>	= Total Cover			
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) _____ Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
1	<u>Echinocystis lobata</u>	<u>5</u>	<u>X</u>		<u>FACU</u>
2	<u>Tolmiea menziesii</u>	<u>2</u>	_____		<u>FAC</u>
3	<u>Dipsacus sylvestris</u>	<u>5</u>	<u>X</u>		<u>FAC</u>
4	<u>Fraxinus latifolia</u>	<u>5</u>	<u>X</u>		<u>FACW</u>
5	_____	_____	_____		_____
6	_____	_____	_____		_____
7	_____	_____	_____		_____
	<u>17</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)					
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>15</u>					
Remarks:					

SOIL

PHS # 4495

Sampling Point: 2

EXHIBIT E-53

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>

Wetland Hydrology Present? Yes No X

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

None

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region EXHIBIT E-54

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): LRR A 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 <u>X</u> No _____	Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: <u>30</u> )	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Salix sitchensis</u>	<u>90</u>	<u>X</u>	<u>FACW</u>	
2 <u>Fraxinus latifolia</u>	<u>10</u>		<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3 _____				Percent of Dominant Species That are OBL, FACW, or FAC: <u>67%</u> (A/B)
4 _____				
	<u>100</u>	= Total Cover		Prevalence Index Worksheet:
Sapling/Shrub Stratum (plot size: <u>5</u> )				
1 <u>Cornus stolonifera</u>	<u>25</u>	<u>X</u>	<u>FACW</u>	Total % Cover of _____ Multiply by: _____
2 _____				OBL Species _____ x 1 = <u>0</u>
3 _____				FACW species _____ x 2 = <u>0</u>
4 _____				FAC Species _____ x 3 = <u>0</u>
5 _____				FACU Species _____ x 4 = <u>0</u>
	<u>25</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>
Herb Stratum (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)
1 <u>Unidentified forb</u>	<u>10</u>	<u>X</u>	<u>NL</u>	Prevalence Index = B/A = <u>#DIV/0!</u>
2 _____				Hydrophytic Vegetation Indicators:
3 _____				
4 _____				<u>X</u> Dominance Test is >50%
5 _____				Prevalence Index is ≤ 3.0 <sup>1</sup>
6 _____				Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
7 _____				Wetland Non-Vascular Plants <sup>1</sup>
8 _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	<u>10</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (plot size: _____)				
1 _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2 _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>90</u>				
Remarks:				
Lack of herb cover apparently due to dense canopy and ponding until at least early summer.				

SOIL

PHS # 4495

Sampling Point: 3

EXHIBIT E-55

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	15

Wetland Hydrology Present? Yes  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** **EXHIBIT E-56**

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): LRR A 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 <u>X</u>	No _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b>	
1	_____	_____	_____		Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)
2	_____	_____	_____		Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3	_____	_____	_____		Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
4	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____		Total % Cover of
2	_____	_____	_____		OBL Species _____ x 1 = <u>0</u>
3	_____	_____	_____		FACW species _____ x 2 = <u>0</u>
4	_____	_____	_____		FAC Species _____ x 3 = <u>0</u>
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
	<u>0</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>Mentha arvensis</u>	<u>27</u>	<u>X</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>Juncus effusus</u>	<u>3</u>	_____		<u>X</u> Dominance Test is >50%
3	<u>Carex leptopoda</u>	<u>5</u>	_____		Prevalence Index is ≤ 3.0 <sup>1</sup>
4	<u>Bidens sp.</u>	<u>5</u>	_____		Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
5	_____	_____	_____		Wetland Non-Vascular Plants <sup>1</sup>
6	_____	_____	_____		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7	_____	_____	_____		
8	_____	_____	_____		
	<u>40</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)					
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>60</u>					
Remarks:					

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

SOIL

PHS # 4495

Sampling Point: 4

EXHIBIT E-57

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="checkbox"/> 4
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="checkbox"/> 0

Wetland Hydrology Present? Yes  No

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

None

Remarks:



PHS # 4495  
Region E-58

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

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): LRR A 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 <u>X</u>	No _____	Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks:			

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: <u>30</u> )				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>67%</u> (A/B)
1	<u>25</u>	<u>X</u>	<u>FAC</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>25</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: <u>5</u> )				
1	<u>30</u>	<u>X</u>	<u>FACU</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>30</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
1	<u>65</u>	<u>X</u>	<u>FACW</u>	
2	<u>5</u>	_____	<u>(FACW-UPL)</u>	
3	<u>5</u>	_____	<u>FACU</u>	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>75</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>% Bare Ground in Herb Stratum</b> <u>0</u>				
Remarks:				

**Hydrophytic Vegetation Indicators:**

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

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

SOIL

PHS # 4495

Sampling Point: 5

EXHIBIT E-59

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	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						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes  No

Remarks:

Recently scraped- apparently young soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	

Wetland Hydrology Present? Yes  No

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

None

Remarks:

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

PHS # 4495

EXHIBIT E-60

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): LRR A 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 <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species	
4 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>5</u> )				Total % Cover of _____ Multiply by:	
1 <u>Quercus garryana</u>	<u>10</u>	<u>X</u>	<u>UPL</u>	OBL Species _____	x 1 = <u>0</u>
2 <u>Cytisus scoparius</u>	<u>10</u>	<u>X</u>	<u>UPL</u>	FACW species _____	x 2 = <u>0</u>
3 <u>Crataegus monogyna</u>	<u>5</u>	_____	<u>FACU</u>	FAC Species _____	x 3 = <u>0</u>
4 <u>Rubus ursinus</u>	<u>5</u>	_____	<u>FACU</u>	FACU Species _____	x 4 = <u>0</u>
5 _____	_____	_____	_____	UPL Species _____	x 5 = <u>0</u>
	<u>30</u>	= Total Cover		Column Totals	<u>0</u> (A) <u>0</u> (B)
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Festuca arundinacea</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Bromus mollis</u>	<u>3</u>	_____	<u>UPL</u>	_____ Dominance Test is >50%	
3 <u>Agrostis tenuis</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	_____ Prevalence Index is ≤ 3.0 <sup>1</sup>	
4 _____	_____	_____	_____	_____ Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Wetland Non-Vascular Plants <sup>1</sup>	
6 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7 _____	_____	_____	_____	_____	
8 _____	_____	_____	_____	_____	
	<u>78</u>	= Total Cover		_____	
<b>Woody Vine Stratum</b> (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1 _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b>	
2 _____	_____	_____	_____	Yes _____ No <u>X</u>	
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:					

SOIL

PHS # 4495

Sampling Point: 6

EXHIBIT E-61

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- 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<sup>3</sup>:

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

<sup>3</sup>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? Yes No X Depth (inches):  
(includes capillary fringe)

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** EXHIBIT E-62

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): LRR A 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 <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>20%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: <u>5</u> )				
1	<u>5</u>	<u>X</u>	<u>FACU</u>	
2	<u>5</u>	<u>X</u>	<u>UPL</u>	
3	<u>3</u>	<u>X</u>	<u>FACU</u>	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>13</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				
1	<u>30</u>	<u>X</u>	<u>UPL</u>	
2	<u>10</u>	_____	<u>UPL</u>	
3	<u>50</u>	<u>X</u>	<u>FACW</u>	
4	<u>5</u>	_____	<u>FAC</u>	
5	<u>5</u>	_____	<u>FAC</u>	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>100</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>% Bare Ground in Herb Stratum</b> <u>0</u>				
<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>				
<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) _____ Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>				
Remarks:				

SOIL

PHS # 4495

Sampling Point: 7  
EXHIBIT E-63

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

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

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**  
Type: None  
Depth (inches): \_\_\_\_\_  
Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

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

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

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  
None

Remarks:

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

PHS # 4495

EXHIBIT E-64

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): LRR A 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 <u>X</u>	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> 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	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>40%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤ 3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) _____ Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
1	<u>15</u>	<u>X</u>	<u>UPL</u>	
2	<u>15</u>	<u>X</u>	<u>UPL</u>	
3	<u>20</u>	<u>X</u>	<u>FACW</u>	
4	<u>15</u>	<u>X</u>	<u>UPL</u>	
5	<u>15</u>	<u>X</u>	<u>FAC</u>	
6	<u>10</u>	_____	<u>FAC</u>	
7	<u>10</u>	_____	<u>NI</u>	
8	_____	_____	_____	
	<u>100</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				

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

SOIL

PHS # 4495

Sampling Point: 8

EXHIBIT E-65

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 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)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes  No  Depth (inches):

Water Table Present? Yes  No  Depth (inches):

Saturation Present? Yes  No  Depth (inches):

(includes capillary fringe)

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** EXHIBIT E-66

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: Belpine 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	<u>X</u>	No		Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes	<u>X</u>	No		
Wetland Hydrology Present?	Yes	<u>X</u>	No		

Remarks:  
**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
<b>Tree Stratum</b> (plot size: _____)			
1			
2			
3			
4			
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: _____)			
1			
2			
3			
4			
5			
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Agrostis alba</u>	<u>20</u>	<u>X</u> <b>FAC</b>
2	<u>Juncus effusus</u>	<u>20</u>	<u>X</u> <b>FACW</b>
3	<u>Cynosurus echinatus</u>	<u>10</u>	<b>UPL</b>
4	<u>Linum bienne</u>	<u>15</u>	<b>UPL</b>
5	<u>Agrostis tenuis</u>	<u>2</u>	<b>FAC</b>
6	<u>Geranium molle</u>	<u>3</u>	<b>UPL</b>
7	<u>moss</u>	<u>30</u>	<u>X</u> <b>NL</b>
8	<u>Holcus lanatus</u>	<u>20</u>	<u>X</u> <b>FAC</b>
		<u>120</u>	= Total Cover
<b>Woody Vine Stratum</b> (plot size: _____)			
1			
2			
	<u>0</u>	= Total Cover	
<b>% Bare Ground in Herb Stratum</b> <u>0</u>			

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

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

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ Dominance Test is >50%

\_\_\_\_\_ Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ Wetland Non-Vascular Plants<sup>1</sup>

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

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

Attachment 1-216

SOIL

PHS # 4495

Sampling Point: 9

EXHIBIT E-67

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input checked="" type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 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)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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 E-68**

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): LRR A Lat: 44.03716 Long: -123.03245 Datum: DD  
 Soil Map Unit Name: Belpine 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 <u>X</u> No _____	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks:	

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: <u>5</u> )				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
1	<u>Lactuca serriola</u>	<u>3</u>	<u>FACU</u>	
2	<u>Holcus lanatus</u>	<u>2</u>	<u>FAC</u>	
3	<u>Alopecurus pratensis</u>	<u>2</u>	<u>FACW</u>	
4	<u>Juncus tenuis</u>	<u>100</u>	<u>X</u> <u>FACW</u>	
5	<u>Festuca arundinacea</u>	<u>3</u>	<u>FAC</u>	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>110</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% Prevalence Index is ≤ 3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____				

Remarks:  
 Other vegetation adjacent: Rosa nutkana, Fraxinus latifolia sapling, Dipsaucus sylvestris, Cytisus scoparius, Galium aparine, Crataegus monogyna.  
 Attachment 1-218

SOIL

PHS # 4495

Sampling Point: 10

EXHIBIT E-69

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/2	100					Silt Loam	
3-5	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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- 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<sup>3</sup>:

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

<sup>3</sup>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)
- 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? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

None

Remarks:

PHS # 4495  
Region E-70

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

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 <u>X</u> No _____	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks:	

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: _____ OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1	<u>40</u>	<u>X</u>	<u>FACW</u>	
2	<u>2</u>	_____	<u>UPL</u>	
3	<u>5</u>	_____	<u>UPL</u>	
4	<u>5</u>	_____	<u>FACU</u>	
5	<u>3</u>	_____	<u>FACU</u>	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>55</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

PHS # 4495

Sampling Point: 11

EXHIBIT E-71

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)(except MLRA 1)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 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)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present?

Yes \_\_\_\_\_ No X

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

None

Remarks:

PHS # 4495  
Region E-72

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

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 <u>X</u> No _____	Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: <u>30</u> )				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	<u>60</u>	<u>X</u>	<u>FACW</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>60</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% Prevalence Index is ≤ 3.0 <sup>1</sup> Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1	<u>60</u>	<u>X</u>	<u>FACW</u>	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	
3	<u>3</u>	_____	<u>UPL</u>	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>93</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

PHS # 4495

Sampling Point: 12

EXHIBIT E-73

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

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

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input checked="" type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes  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)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes  No  Depth (inches):

Water Table Present? Yes  No  Depth (inches):

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

Wetland Hydrology Present? Yes  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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-1
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PSS
<b>Date(s) of field work:</b>	10/7/2009	<b>Approx. Area (acres):</b>	0.47
<b>Onsite Assessment?:</b>	Yes	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

<b>Wildlife Habitat</b>	Wetland provides habitat for some wildlife species
<b>Fish Habitat</b>	Wetland's fish habitat function is impacted or degraded
<b>Water Quality</b>	Wetland's water-quality function is impacted or degraded
<b>Hydrologic Control</b>	Wetland's hydrologic control is impacted or degraded
<b>Sensitivity to Impact</b>	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:

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

## Oregon Freshwater Wetland Assessment Methodology Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-1
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	0.47
<b>Date:</b>	10/7/2009	<b>Wetland Type(s):</b>	PSS
<b>Result:</b>	<b>Wetland provides habitat for some wildlife species</b>		
<b>Rationale:</b>	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%	
<b>Result:</b>	<b>Wetland's fish habitat function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's water-quality function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's hydrologic control is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland has potential for educational use</b>		
<b>Rationale:</b>	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		
<b>Result:</b>	<b>Wetland provides recreational opportunities</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is not aesthetically pleasing</i>		
<b>Rationale:</b>	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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-2
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PFO
<b>Date(s) of field work:</b>	7/27/2009	<b>Approx. Area (acres):</b>	2.53
<b>Onsite Assessment?:</b>	Partial	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

<b>Wildlife Habitat</b>	Wetland provides habitat for some wildlife species
<b>Fish Habitat</b>	Wetland's fish habitat function is impacted or degraded
<b>Water Quality</b>	Wetland's water-quality function is impacted or degraded
<b>Hydrologic Control</b>	Wetland's hydrologic control is impacted or degraded
<b>Sensitivity to Impact</b>	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:

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

# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-2
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	2.53
<b>Date:</b>	7/27/2009	<b>Wetland Types(s):</b>	PFO
<b>Result:</b>	<b>Wetland provides habitat for some wildlife species</b>		
<b>Rationale:</b>	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%	
<b>Result:</b>	<b>Wetland's fish habitat function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's water-quality function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's hydrologic control is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland site is not appropriate for educational use</b>		
<b>Rationale:</b>	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		
<b>Result:</b>	<b>Wetland provides recreational opportunities</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is not aesthetically pleasing</i>		
<b>Rationale:</b>	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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	<b>GS-3</b>
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PSS/PUB
<b>Date(s) of field work:</b>	8/12/2009	<b>Approx. Area (acres):</b>	3.72
<b>Onsite Assessment?:</b>	Yes	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

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

### 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:

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

# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-3
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	3.72
<b>Date:</b>	8/12/2009	<b>Wetland Types(s):</b>	PSS/PUB
<b>Result:</b>	<b>Wetland provides habitat for some wildlife species</b>		
<b>Rationale:</b>	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%	
<b>Result:</b>	<b>Wetland's fish habitat function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's water-quality function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's hydrologic control is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland site is not appropriate for educational use</b>		
<b>Rationale:</b>	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		
<b>Result:</b>	<b>Wetland is not appropriate or does not provide rec. opportunities</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is not aesthetically pleasing</i>		
<b>Rationale:</b>	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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-4
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PEM
<b>Date(s) of field work:</b>	7/28/2009	<b>Approx. Area (acres):</b>	0.87
<b>Onsite Assessment?:</b>	Offsite	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

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

### 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:

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



# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-4
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	0.87
<b>Date:</b>	7/28/2009	<b>Wetland Types(s):</b>	PEM
<b>Result:</b>	<b>Wetland provides habitat for some wildlife species</b>		
<b>Rationale:</b>	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%	
<b>Result:</b>	<b>Fish habitat was not assessed for this wetland</b>		
<b>Rationale:</b>			
<b>Result:</b>	<b>Wetland's water-quality function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's hydrologic control is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland has potential for educational use</b>		
<b>Rationale:</b>	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		
<b>Result:</b>	<b>Wetland is not appropriate or does not provide rec. opportunities</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is not aesthetically pleasing</i>		
<b>Rationale:</b>	One Cowardin class is visible	Wetland surrounded by development	
	>50% of wetland can be seen	Unpleasant 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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-5
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PFO
<b>Date(s) of field work:</b>	8/12/2009	<b>Approx. Area (acres):</b>	4.31
<b>Onsite Assessment?:</b>	Offsite	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

<b>Wildlife Habitat</b>	Wetland provides habitat for some wildlife species
<b>Fish Habitat</b>	Fish habitat was not assessed for this wetland
<b>Water Quality</b>	Wetland's water-quality function is impacted or degraded
<b>Hydrologic Control</b>	Wetland's hydrologic control is impacted or degraded
<b>Sensitivity to Impact</b>	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:

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

# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-5
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	4.31
<b>Date:</b>	8/12/2009	<b>Wetland Types(s):</b>	PFO
<b>Result:</b>	Wetland provides habitat for some wildlife species		
<b>Rationale:</b>	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%	
<b>Result:</b>	Fish habitat was not assessed for this wetland		
<b>Rationale:</b>			
<b>Result:</b>	Wetland's water-quality function is impacted or degraded		
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland's hydrologic control is impacted or degraded		
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland is potentially sensitive to future impacts		
<b>Rationale:</b>		Adjacent land is mostly developed	
	Water not taken out	Adjacent zoning is primarily development	
	No adjacent Water Quality Limited streams	Dominated by woody vegetation	
<b>Result:</b>	Wetland has moderate potential for enhancement		
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland site is not appropriate for educational use		
<b>Rationale:</b>	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		
<b>Result:</b>	Wetland is not appropriate or does not provide rec. opportunities		
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland is not aesthetically pleasing		
<b>Rationale:</b>	One Cowardin class is visible	Wetland surrounded by landscaped areas	
	Less than 25% of wetland can be seen	Unpleasant 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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-6
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PEM
<b>Date(s) of field work:</b>	7/28/2009	<b>Approx. Area (acres):</b>	0.86
<b>Onsite Assessment?:</b>	Yes	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

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

### 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:

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

# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	GS-6
<b>Location:</b>	Glenwood, Oregon	<b>Approx. Area (acres):</b>	0.86
<b>Date:</b>	7/28/2009	<b>Wetland Types(s):</b>	PEM
<b>Result:</b>	<b>Wetland provides habitat for some wildlife species</b>		
<b>Rationale:</b>	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%	
<b>Result:</b>	<b>Fish habitat was not assessed for this wetland</b>		
<b>Rationale:</b>			
<b>Result:</b>	<b>Wetland's water-quality function is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland's hydrologic control is impacted or degraded</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>		
<b>Rationale:</b>		Adjacent land is mostly developed	
	Water not taken out	Adjacent zoning is primarily development	
	No adjacent Water Quality Limited streams	Herbaceous vegetation, no ponding	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>		
<b>Rationale:</b>	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	
<b>Result:</b>	<b>Wetland site is not appropriate for educational use</b>		
<b>Rationale:</b>	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		
<b>Result:</b>	<b>Wetland has the potential to provide recreational activities</b>		
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is considered to be pleasing</i>		
<b>Rationale:</b>	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.

<b>Project Name:</b>	Glenwood Area of Springfield LWI	<b>Wetland:</b>	WR-7
<b>Project Location:</b>	Glenwood, Oregon	<b>Wetland Type(s):</b>	PFO
<b>Date(s) of field work:</b>	9/15/2009	<b>Approx. Area (acres):</b>	0.51
<b>Onsite Assessment?:</b>	Yes	<b>Investigator(s):</b>	ME/SE
<b>Wetland Location:</b>	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:

<b>Wildlife Habitat</b>	Wetland provides habitat for some wildlife species
<b>Fish Habitat</b>	Fish habitat was not assessed for this wetland
<b>Water Quality</b>	Wetland's water-quality function is impacted or degraded
<b>Hydrologic Control</b>	Wetland's hydrologic control is impacted or degraded
<b>Sensitivity to Impact</b>	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:

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

# Oregon Freshwater Wetland Assessment Methodology

## Functions and Conditions Summary Sheet



<b>Project:</b>	Glenwood Area of Springfield LWI		<b>Wetland:</b>	WR-7
<b>Location:</b>	Glenwood, Oregon		<b>Approx. Area (acres):</b>	0.51
<b>Date:</b>	9/15/2009		<b>Wetland Type(s):</b>	PFO
<b>Result:</b>	Wetland provides habitat for some wildlife species			
<b>Rationale:</b>	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%	
<b>Result:</b>	Fish habitat was not assessed for this wetland			
<b>Rationale:</b>				
<b>Result:</b>	Wetland's water-quality function is impacted or degraded			
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland's hydrologic control is impacted or degraded			
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is potentially sensitive to future impacts</i>			
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland has high enhancement potential</i>			
<b>Rationale:</b>	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	
<b>Result:</b>	Wetland site is not appropriate for educational use			
<b>Rationale:</b>	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			
<b>Result:</b>	Wetland is not appropriate or does not provide rec. opportunities			
<b>Rationale:</b>	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	
<b>Result:</b>	<i>Wetland is not aesthetically pleasing</i>			
<b>Rationale:</b>	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".

<b>1</b> Is this wetland artificially created entirely from upland and: <ul style="list-style-type: none"> <li><b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater</li> <li><b>b.</b> is used for active surface mining or as a log pond</li> <li><b>c.</b> is a ditch without a free and open connection to natural waters of the state</li> <li><b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction</li> <li><b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard</li> </ul>		No
		No
		No
		No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>		<b>No</b>

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?		No
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?		No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?		No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?		No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	Yes	
<b>6</b> Does the wetland contain a rare plant community?		No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?	Yes	
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>	<b>Yes</b>	

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .		No
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?		No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>		<b>No</b>

**Locally Significant Wetland**

## Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)



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

**Exclusions :** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:		
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater		No
<b>b.</b> is used for active surface mining or as a log pond		No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state		No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction		No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>		<b>No</b>

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?		
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?		No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?		No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?		No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	Yes	
<b>6</b> Does the wetland contain a rare plant community?		No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?	Yes	
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>	<b>Yes</b>	

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .		
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?		No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>		<b>No</b>

**Locally Significant Wetland**

**Locally Significant Wetlands Criteria**

ORS 197.279 (3)(b)



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

**Exclusions :** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:		
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater		No
<b>b.</b> is used for active surface mining or as a log pond		No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state		No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction		No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>		No

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?		No
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?		No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?		No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?		No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	Yes	
<b>6</b> Does the wetland contain a rare plant community?		No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?	Yes	
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>		Yes

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .		No
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?		No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>		No

**Locally Significant Wetland**

**Locally Significant Wetlands Criteria**

ORS 197.279 (3)(b)



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

**Exclusions :** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:		
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater		No
<b>b.</b> is used for active surface mining or as a log pond		No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state		No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction		No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>		<b>No</b>

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?		No
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?		No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?		No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?		No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	Yes	
<b>6</b> Does the wetland contain a rare plant community?		No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?		No
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>		<b>Yes</b>

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .		No
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?		No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>		<b>No</b>

**Locally Significant Wetland**

**Locally Significant Wetlands Criteria**  
**ORS 197.279 (3)(b)**



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

**Exclusions:** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:		
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater		No
<b>b.</b> is used for active surface mining or as a log pond		No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state		No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction		No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>		No

**Mandatory Locally Significant Wetland Criteria:** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?		No
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?		No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?		No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?		No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?		No
<b>6</b> Does the wetland contain a rare plant community?		No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?		No
<b>Mandatory Locally Significant Wetland criteria satisfied?</b>		No

**Optional Locally Significant Wetland Criteria:** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .		No
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?		No
<b>Optional Locally Significant Wetland criteria satisfied?</b>		No

**Does not satisfy the criteria, Not a Locally Significant Wetland**

## Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)



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

**Exclusions :** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:	
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater	No
<b>b.</b> is used for active surface mining or as a log pond	No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state	No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction	No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard	No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>	<b>No</b>

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?	
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?	No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?	No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?	No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	No
<b>6</b> Does the wetland contain a rare plant community?	No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?	No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?	No
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>	<b>No</b>

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .	
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?	No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>	<b>No</b>

**Does not satisfy the criteria, Not a Locally Significant Wetland**

## Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)



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

**Exclusions :** This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".

<b>1</b> Is this wetland artificially created entirely from upland and:	
<b>a.</b> created for the purpose of controlling, storing, or maintaining stormwater	No
<b>b.</b> is used for active surface mining or as a log pond	No
<b>c.</b> is a ditch without a free and open connection to natural waters of the state	No
<b>d.</b> is less than 1 acre and created unintentionally from irrigation or construction	No
<b>e.</b> created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard	No
<b>2</b> 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
<b>Exclusion criteria satisfied?</b>	<b>No</b>

**Mandatory Locally Significant Wetland Criteria :** This wetland is locally significant if "Yes" is the answer to any of the criteria below.

<b>1</b> Does the wetland provide <i>diverse wildlife habitat</i> ?	
<b>2</b> Is the wetland's <i>fish habitat function intact</i> ?	No
<b>3</b> Is the wetland's <i>water quality function intact</i> ?	No
<b>4</b> Is the wetland's <i>hydrologic control function intact</i> ?	No
<b>5</b> 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) <u>and</u> is the wetland's <i>water quality function intact, or impacted or degraded</i> ?	Yes
<b>6</b> Does the wetland contain a rare plant community?	No
<b>7</b> Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?	No
<b>8</b> Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids <u>and</u> is the wetland's <i>fish habitat function intact, or impacted or degraded</i> ?	No
<b>Mandatory Locally Significant Wetland criteria satisfied ?</b>	<b>Yes</b>

**Optional Locally Significant Wetland Criteria :** local governments may identify a wetland as significant if "Yes" is the answer to the criteria below

<b>1</b> Does the wetland represent a locally unique native plant community <u>and</u> provides <i>diverse wildlife habitat or habitat for some species</i> <u>or</u> has a <i>intact, or impacted or degraded fish habitat function</i> <u>or</u> has a <i>intact, or impacted or degraded water quality function</i> <u>or</u> has a <i>intact, or impacted or degraded hydrologic control function</i> .	
<b>2</b> Is the wetland publicly owned and used by a school or organization <u>and</u> does the wetland provide <i>educational uses</i> ?	No
<b>Optional Locally Significant Wetland criteria satisfied ?</b>	<b>No</b>

**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 Attachment 1-248	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	A
Q-19	B	Q-26	B	Q-33	A		
Q-20		Q-27	A	Q-34	C		
1	A	Q-28	C	Q-35	C		
2	A						
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	A
Q-19	B	Q-26	A	Q-33	B		
Q-20		Q-27	A	Q-34	C		
1	A	Q-28	C	Q-35	B		
2	A						
3	A						
4	C						
5	-						

# Wetland Characterization -- Field Form



Project Name: Glenwood LWI

Wetland Code: 68-3

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	A
Q-19	B	Q-26	B				
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	A
Q-19	B	Q-26	C	Q-33			
Q-20		Q-27	A	Q-34			
1	A	Q-28	C	Q-35			
2	A						
3	A						
4	C						
5	-						

# Wetland Characterization -- Field Form



Project Name: Glenwood LWI

Wetland Code: 6S-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-39		
4	C	4	A		Q-40	B	
5	A <small>railroad tracks</small>	Q-22	A	Q-30			
Q-16	C	Q-23	A	Q-31			
Q-17	C	Q-24	C	Q-32			
Q-18	C	Q-25	N/A	Lakes and Ponds			
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: 6B-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	A	
Q-19	B	Q-26	A	Q-33			
Q-20		Q-27	A	Q-34			
1	C	Q-28	C	Q-35			
2	A						
3	A						
4	A						
5	-						



# Appendix G

## Riparian Data Forms





# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>West of I-5, south of Franklin Blvd.</u>	
Date: <u>7/28/2009</u>		Riparian Code: <u>R-GS-1</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>1,681 feet</u>	
Investigators: <u>SE - ME</u>		Hydrologic Basin: <u>Glenwood Slough</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>120</u> feet	
	Lake/Pond: <input type="checkbox"/>	Width: _____ feet	
	Wetland: <input checked="" type="checkbox"/>	Width: <u>50</u> feet	
LWI Wetland Code: <u>GS-2</u>			
Water present year-round:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Are salmonids present in the adjacent water resource?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Is the water resource listed for temperature on DEQ's 303(d) list:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Within FEMA-mapped 100-year floodplain: Yes  No

Mapped soil series: Chehalis silty clay loam

Adjacent Land Uses? (Check as many as needed)

- |  |  |
|--|--|
| Agriculture: <input type="checkbox"/>                  | Roads: <input checked="" type="checkbox"/> |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input type="checkbox"/>      |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>         |

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

1 meter = 3.2 feet

**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

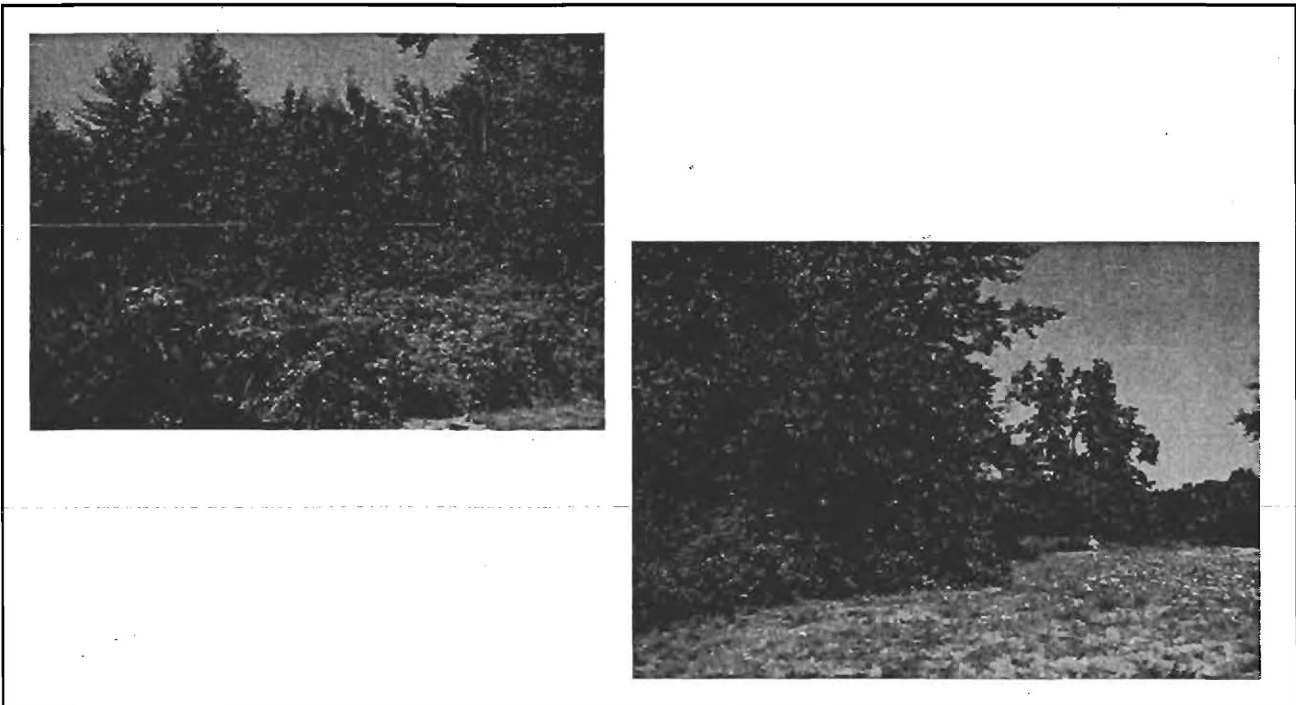
**Dominant tree species:** Populus trichocarpa (see other side for list of species)

**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
<b>R-GS-1</b>

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b>	
a. Less than 10:1 (10%) ..... 3 pts	
b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts	<u>2</u>
c. Greater than 5:1 (20%) ..... 1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>	
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	<u>3</u>
c. Bare ground ..... 1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>	
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	<u>3</u>
c. Bare ground ..... 1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>	
a. Less than 10% ..... 3 pts	
b. Between 10% and 25% ..... 2 pts	<u>2</u>
c. Greater than 25% ..... 1 pt	
<b>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.</b>	
a. Low, slight, moderate ..... 2 pts	<u>2</u>
b. High, severe, very high ..... 1 pt	
<b>Total Points:</b>	<b><u>12</u></b>

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**

## FLOOD MANAGEMENT

RIPARIAN CODE
<b>R-GS-1</b>

	Score
<p><b>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?</b></p> <p>a. Yes ..... 3 pts</p> <p>b. No ..... 1 pt</p>	<p><b>3</b></p> <hr/>
<p><b>7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?</b></p> <p>a. Yes ..... 3 pts</p> <p>b. No or no flood prone area present ..... 1 pt</p>	<p><b>3</b></p> <hr/>
<p><b>8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?</b></p> <p>a. No ..... 3 pts</p> <p>b. Yes ..... 1 pt</p>	<p><b>3</b></p> <hr/>
<b>Total Points:</b>	<p><b>9</b></p> <hr/>

**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
<b>R-GS-1</b>

## THERMAL REGULATION

9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?

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

Score

3

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
- c. Bare ground ..... 1 pt

3

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

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

2

**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

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b> a. More than 2 layers ..... 3 pts b. 2 layers ..... 2 pts c. 1 layer, or unvegetated ..... 1 pt	<b>3</b>
<b>13. What is the dominant vegetation layer in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<b>3</b>
<b>14. Does woody vegetation hang over the edge of the water?</b> a. Yes ..... 2 pts b. No ..... 1 pt	<b>2</b>
<b>15. Is large woody debris present within the riparian area?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<b>3</b>
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b> a. Greater than 40% ..... 3 pts b. Between 10% and 40% ..... 2 pts c. Less than 10% ..... 1 pt	<b>3</b>

*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	<u>1</u>
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	<u>3</u>
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	<u>2</u>
c. Greater than 75%	1 pt	
<b>Total Points:</b>		<b><u>20</u></b>

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: <u>ODOT ROW located E of I-5, W of Judkins Dedicated Rd.</u>	
Date: <u>7/27/2009</u>	Riparian Code: <u>R-GS-2 Left bank</u>		
On-site: <input checked="" type="checkbox"/> Off-Site: <input type="checkbox"/>	Reach Length: <u>1,740 feet</u>		
Investigators: <u>SE - ME</u>	Hydrologic Basin: <u>Glenwood Slough</u>		

WATER RESOURCE INFORMATION			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>2-5</u>	feet
	Lake/Pond: <input type="checkbox"/>	Width: _____	feet
	Wetland: <input type="checkbox"/>	Width: _____	feet
LWI Wetland Code: <u>GS-4</u>			
Water present year-round:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Are salmonids present in the adjacent water resource?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Is the water resource listed for temperature on DEQ's 303(d) list:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

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: <input type="checkbox"/>                  | Roads: <input checked="" type="checkbox"/> |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input type="checkbox"/>      |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>         |

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

1 meter = 3.2 feet

**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 Cutthroat 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

### WATER QUALITY

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

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>2</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>1</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>1</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u>8</u>

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 <b>R-GS-2</b> 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 b. No ..... 1 pt	<table border="1" style="width: 100px; height: 100px;"> <tr> <td style="text-align: center; vertical-align: middle;"><b>1</b></td> </tr> </table>	<b>1</b>
<b>1</b>		
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 b. No or no flood prone area present ..... 1 pt	<table border="1" style="width: 100px; height: 100px;"> <tr> <td style="text-align: center; vertical-align: middle;"><b>1</b></td> </tr> </table>	<b>1</b>
<b>1</b>		
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No ..... 3 pts b. Yes ..... 1 pt	<table border="1" style="width: 100px; height: 100px;"> <tr> <td style="text-align: center; vertical-align: middle;"><b>3</b></td> </tr> </table>	<b>3</b>
<b>3</b>		
<b>Total Points:</b>	<table border="1" style="width: 100px; height: 100px;"> <tr> <td style="text-align: center; vertical-align: middle;"><b>5</b></td> </tr> </table>	<b>5</b>
<b>5</b>		

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 <b>R-GS-2</b> Left bank
---

### THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	3 pts	<u>3</u>
b. No	1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>2</u>
c. Bare ground	1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<u>2</u>
b. No	1 pts	
<b>Total Points:</b>		<u>7</u>

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 <b>R-GS-2</b> Left bank
---

### WILDLIFE HABITAT

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b> a. More than 2 layers ..... 3 pts b. 2 layers ..... 2 pts c. 1 layer, or unvegetated ..... 1 pt	<u>3</u>
<b>13. What is the dominant vegetation layer in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>2</u>
<b>14. Does woody vegetation hang over the edge of the water?</b> a. Yes ..... 2 pts b. No ..... 1 pt	<u>2</u>
<b>15. Is large woody debris present within the riparian area?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<u>1</u>
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b> a. Greater than 40% ..... 3 pts b. Between 10% and 40% ..... 2 pts c. Less than 10% ..... 1 pt	<u>1</u>

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-GS-2</b> Left bank
---

### WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>1</u>
<b>Total Points:</b>		<b><u>14</u></b>

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

FUNCTION IS: **MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>ODOT ROW located E of I-5, W of Judkins Dedicated Rd.</u>	
<b>Date:</b> <u>7/27/2009</u>	<b>Riparian Code:</b> <u>R-GS-2 Right bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>1,740</u>		
<b>Investigators:</b> <u>SE - ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>2-5</u> feet	
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____ feet	
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____ feet	
<b>LWI Wetland Code:</b> <u>GS-4</u>			
<b>Water present year-round:</b>	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		
<b>Are salmonids present in the adjacent water resource?</b>	<b>Yes</b> <input type="checkbox"/> <b>No</b> <input checked="" type="checkbox"/>		
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b>	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>		

**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)

- |   |   |
|---|---|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input checked="" type="checkbox"/> |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input type="checkbox"/>      |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>         |

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

1 meter = 3.2 feet

**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

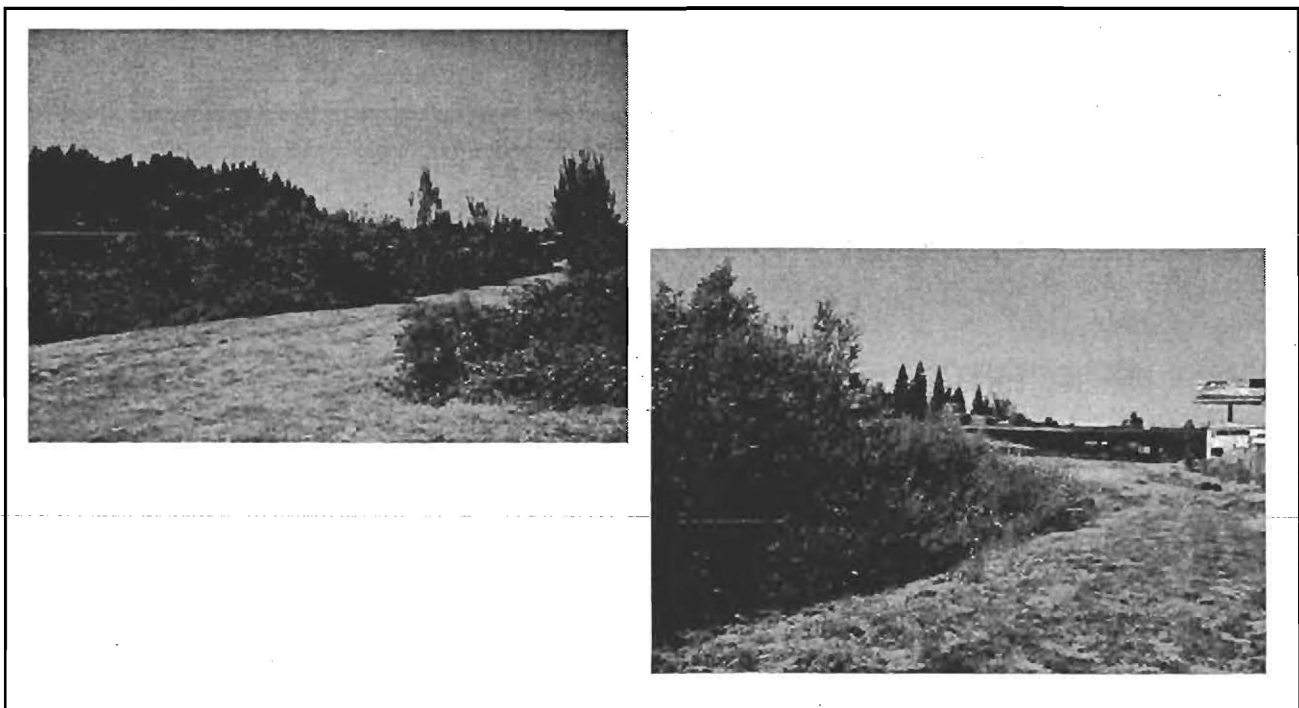
**Dominant tree species:** Populus trichocarpa (see other side for list of species)

**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 Cutthroat 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 <b>R-GS-2</b> Right bank
--

### WATER QUALITY

- |  |             |  |
|--|-------------|--|
| <b>1. What is the average slope in the riparian area?</b>  |             |  |
| a. Less than 10:1 (10%)  | ..... 3 pts |  |
| b. Between 10:1 (10%) and 5:1 (20%)  | ..... 2 pts |  |
| c. Greater than 5:1 (20%)  | ..... 1 pt  |  |
| <b>2. What is the dominant vegetation cover in the riparian area?</b>  |             |  |
| 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 |  |
| c. Bare ground   | ..... 1 pt  |  |
| <b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>   |             |  |
| 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 |  |
| c. Bare ground   | ..... 1 pt  |  |
| <b>4. What is the extent of impervious surfaces within the riparian area?</b>  |             |  |
| a. Less than 10%   | ..... 3 pts |  |
| b. Between 10% and 25%   | ..... 2 pts |  |
| c. Greater than 25%  | ..... 1 pt  |  |
| <b>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.</b> |             |  |
| a. Low, slight, moderate   | ..... 2 pts |  |
| b. High, severe, very high   | ..... 1 pts |  |

Score
<u>3</u>
<u>2</u>
<u>3</u>
<u>2</u>
<u>1</u>
<b>11</b>

**Total Points:**

**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**

## FLOOD MANAGEMENT

RIPARIAN CODE <b>R-GS-2</b> Right bank
--

- 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
- 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
- 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
- b. Yes ..... 1 pt

Score
<u>1</u>
<u>1</u>
<u>3</u>
<u>5</u>

**Total Points:**

**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 <b>R-GS-2</b> 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	2
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	2
b. No	1 pt	
<b>Total Points:</b>		<b>7</b>

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**

## WILDLIFE HABITAT

RIPARIAN CODE  
**R-GS-2**  
**Right bank**

	Score	
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers ..... 3 pts		
b. 2 layers ..... 2 pts	3	
c. 1 layer, or unvegetated ..... 1 pt		
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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		
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes ..... 2 pts	2	
b. No ..... 1 pt		
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes ..... 3 pts	1	
b. No ..... 1 pt		
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
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 <b>R-GS-2</b> Right bank
--

### WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>1</u>
<b>Total Points:</b>		<b><u>14</u></b>

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

FUNCTION IS: **MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Behind the Eco Sort building</u> <u>Portion just E of I-5</u>	
<b>Date:</b> <u>8/12/2009</u>	<b>Riparian Code:</b> <u>R-GS-3 Left bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input checked="" type="checkbox"/>	<b>Reach Length:</b> <u>2,706 feet</u>		
<b>Investigators:</b> <u>SE-ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>50-75</u>	feet
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
<b>LWI Wetland Code:</b> <u>GS-1, GS-3</u>			
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

**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)

- |   |   |
|---|---|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>                  |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input checked="" type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>               |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Cornus stolonifera</i>	
<i>Acer macrophyllum</i>	
<i>Rubus discolor</i>	
<i>Pseudotsuga menziesii</i>	

1 meter = 3.2 feet

**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

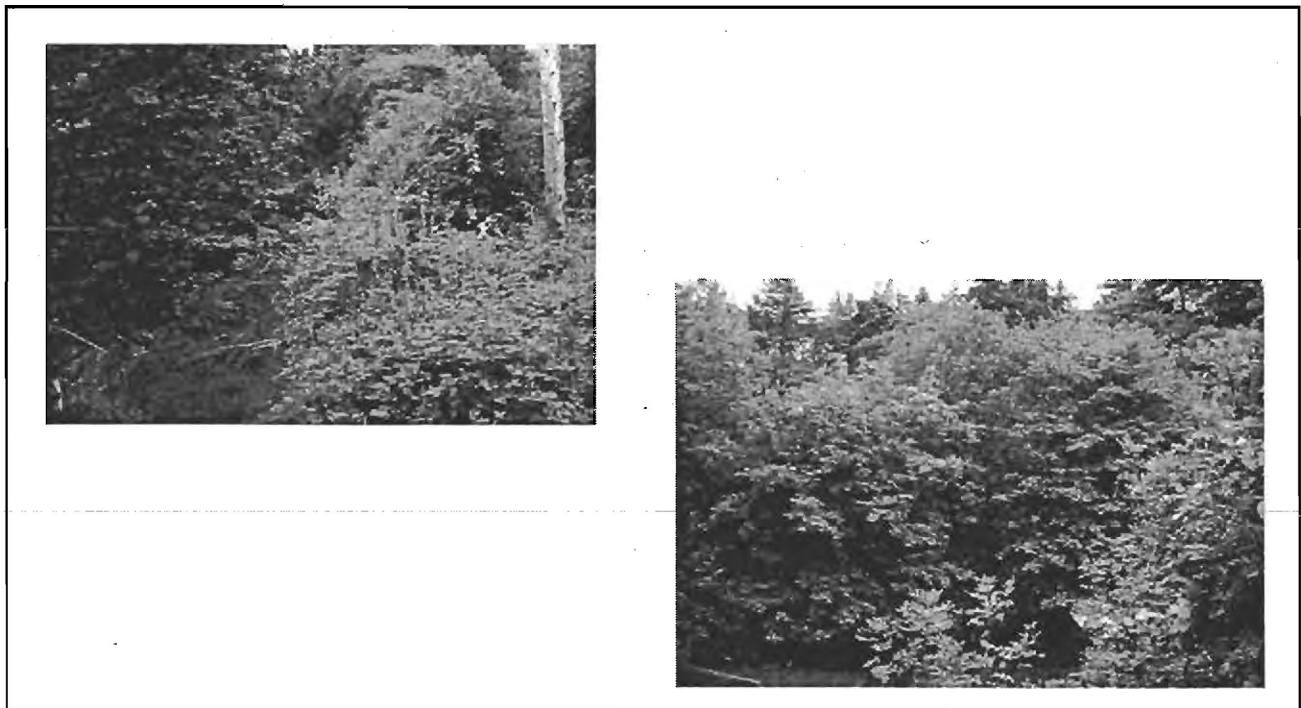
**Dominant tree species:** Acer macrophyllum (see other side for list of species)

**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 <b>R-GS-3</b> Left bank
---

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<u>2</u>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<u>3</u>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>13</u>

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**

## FLOOD MANAGEMENT

RIPARIAN CODE <b>R-GS-3</b> Left bank
---

**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
- b. No ..... 1 pt

**Score**

1

**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
- b. No or no flood prone area present ..... 1 pt

1

**8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?**

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

1

**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 <b>R-GS-3</b> Left bank
---

## THERMAL REGULATION

9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?

- |        |       |       |  |       |   |
|--------|-------|-------|--|-------|---|
| a. Yes | ..... | 3 pts |  | Score | 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 |  | Score | 3 |
| b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high  | ..... | 2 pts |  |       |   |
| c. Bare ground  | ..... | 1 pt  |  |       |   |

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

- |        |       |       |  |       |   |
|--------|-------|-------|--|-------|---|
| a. Yes | ..... | 2 pts |  | Score | 2 |
| b. No  | ..... | 1 pt  |  |       |   |

**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

### WILDLIFE HABITAT

RIPARIAN CODE  
**R-GS-3**  
 Left bank

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers _____	3 pts	
b. 2 layers _____	2 pts	<b>2</b>
c. 1 layer, or unvegetated _____	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<b>3</b>
c. Bare ground _____	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes _____	2 pts	<b>2</b>
b. No _____	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes _____	3 pts	<b>1</b>
b. No _____	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% _____	3 pts	
b. Between 10% and 40% _____	2 pts	<b>3</b>
c. Less than 10% _____	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-GS-3</b> Left bank
---

## WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	<u>1</u>
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	<u>3</u>
c. Greater than 75%	1 pt	
<b>Total Points:</b>		<b><u>18</u></b>

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Behind the Eco Sort building</u> <u>Portion just E of I-5</u>	
<b>Date:</b> <u>8/12/2009</u>	<b>Riparian Code:</b> <u>R-GS-3 Right bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input checked="" type="checkbox"/>	<b>Reach Length:</b> <u>2,706 feet</u>		
<b>Investigators:</b> <u>SE-ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>50-75</u>	feet
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
<b>LWI Wetland Code:</b> <u>GS-1, GS-3</u>			
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

**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)

- |   |   |
|---|---|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>                  |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input checked="" type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>               |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Corylus cornuta</i>	<i>Solanum dulcamara</i>
<i>Arbutus menziesii</i>	<i>Heracleum lanatum</i>
<i>Symphoricarpos albus</i>	<i>Solanum nigrum</i>
<i>Betula pendula</i>	<i>Cirsium arvense</i>
<i>Rhus diversiloba</i>	<i>Dipsacus sylvestris</i>
<i>Robina pseudoacacia</i>	<i>Epilobium watsonii</i>
<i>Fraxinus latifolia</i>	<i>Cirsium vulgare</i>

1 meter = 3.2 feet

**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

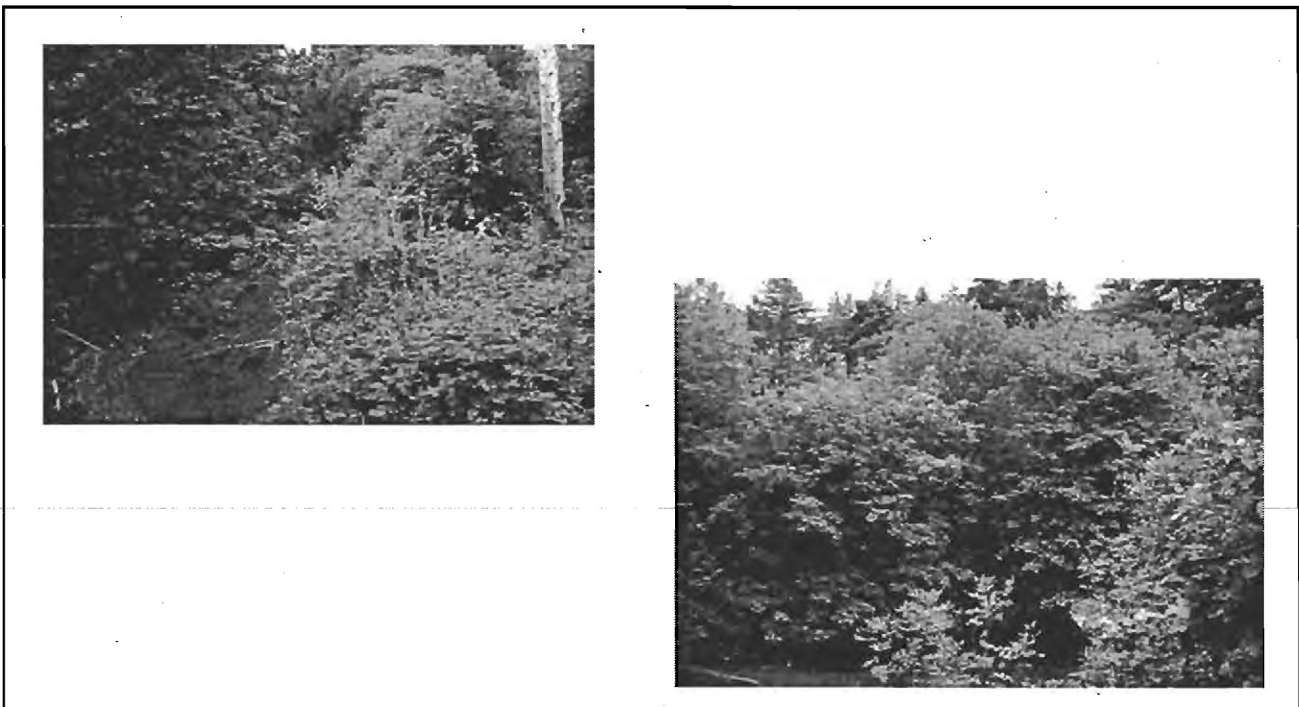
**Dominant tree species:** *Acer macrophyllum* (see other side for list of species)

**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 <b>R-GS-3</b> Right bank
--

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<u>2</u>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<u>2</u>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>12</u>

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**

## FLOOD MANAGEMENT

RIPARIAN CODE <b>R-GS-3</b> Right bank
--

	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 b. No ..... 1 pt	<hr/> <b>1</b>
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 b. No or no flood prone area present ..... 1 pt	<hr/> <b>1</b>
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No ..... 3 pts b. Yes ..... 1 pt	<hr/> <b>1</b>
<b>Total Points:</b>	<hr/> <b>3</b>

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 <b>R-GS-3</b> Right bank
--

## THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	3 pts	3
b. No	1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	3
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	2
b. No	1 pt	
<b>Total Points:</b>		<b>8</b>

**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 <b>R-GS-3</b> <b>Right bank</b>
---

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	<u>2</u>
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<u>2</u>
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	<u>3</u>
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	<u>3</u>
c. Less than 10%	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-GS-3</b> Right bank
--

### WILDLIFE HABITAT (continued)

	Score
17. Is surface water present throughout the year? a. Yes ..... 3 pts b. No ..... 1 pt	<u>3</u>
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 b. No ..... 1 pt	<u>1</u>
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 c. Greater than 75% ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>19</u>

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: <u>Viewed N of fenceline b/w GS-4 &amp; the Fed Ex parking lot</u>	
Date: <u>7/27/2009</u>		Riparian Code: <u>R-GS-4 Left bank</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>780 feet</u>	
Investigators: <u>SE - ME</u>		Hydrologic Basin: <u>Glenwood Slough</u>	

WATER RESOURCE INFORMATION			
Water Resource:	Stream/River: <input type="checkbox"/>	Width: _____	feet
	Lake/Pond: <input checked="" type="checkbox"/>	Width: <u>50 - 75</u>	feet
	Wetland: <input type="checkbox"/>	Width: _____	feet
LWI Wetland Code: <u>GS-3</u>			
Water present year-round:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Are salmonids present in the adjacent water resource?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Is the water resource listed for temperature on DEQ's 303(d) list:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

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)
<i>Populus trichocarpa</i>	<i>Echinocystis lobata</i>
<i>Pseudotsuga menziesii</i>	<i>Solanum dulcamara</i>
<i>Rubus discolor</i>	
<i>Prunus virginiana</i>	
<i>Fraxinus latifolia</i>	
<i>Acer macrophyllum</i>	
<i>Holodiscus discolor</i>	

1 meter = 3.2 feet

**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

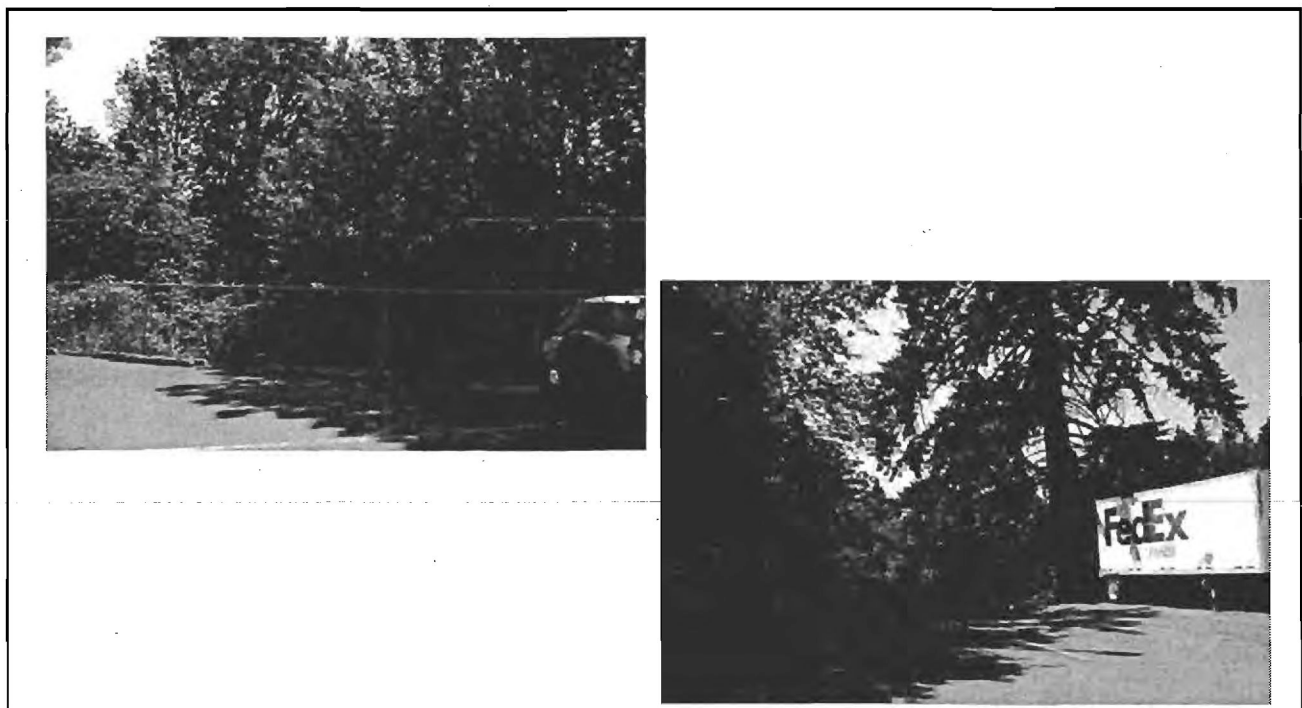
**Dominant tree species:** *Pseudotsuga menziesii* (see other side for list of species)

**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 with 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
<b>1. What is the average slope in the riparian area?</b>	
a. Less than 10:1 (10%) _____ 3 pts	
b. Between 10:1 (10%) and 5:1 (20%) _____ 2 pts	<u>2</u>
c. Greater than 5:1 (20%) _____ 1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>	
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	<u>3</u>
c. Bare ground _____ 1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>	
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	<u>3</u>
c. Bare ground _____ 1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>	
a. Less than 10% _____ 3 pts	
b. Between 10% and 25% _____ 2 pts	<u>3</u>
c. Greater than 25% _____ 1 pt	
<b>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.</b>	
a. Low, slight, moderate _____ 2 pts	<u>2</u>
b. High, severe, very high _____ 1 pts	
<b>Total Points:</b>	<u><b>13</b></u>

**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

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
- b. No ..... 1 pt

Score

1

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
- b. No or no flood prone area present ..... 1 pt

1

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

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

3

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 <b>R-GS-4</b> 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 b. No _____ 1 pt	<hr/> <b>3</b>
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 c. Bare ground _____ 1 pt	<hr/> <b>3</b>
11. Does woody vegetation hang over the edge of the water? a. Yes _____ 2 pts b. No _____ 1 pt	<hr/> <b>2</b>
<b>Total Points:</b>	<hr/> <b>8</b>

**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**

## WILDLIFE HABITAT

RIPARIAN CODE  
**R-GS-4**  
Left bank

	Score	
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers ..... 3 pts		
b. 2 layers ..... 2 pts	<u>2</u>	
c. 1 layer, or unvegetated ..... 1 pt		
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>	
c. Bare ground ..... 1 pt		
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes ..... 2 pts	<u>2</u>	
b. No ..... 1 pt		
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes ..... 3 pts	<u>3</u>	
b. No ..... 1 pt		
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% ..... 3 pts		
b. Between 10% and 40% ..... 2 pts	<u>3</u>	
c. Less than 10% ..... 1 pt		

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-GS-4</b> Left bank
---

### WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>3</u>
<b>Total Points:</b>		<u><b>20</b></u>

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

FUNCTION IS: **HIGH**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Viewed N of fenceline b/w GS-4 &amp; the Fed Ex parking lot</u>	
<b>Date:</b> <u>7/27/2009</u>	<b>Riparian Code:</b> <u>R-GS-4 Right bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>780 feet</u>		
<b>Investigators:</b> <u>SE - ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
	<b>Lake/Pond:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>50 - 75</u>	feet
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____	feet
<b>LWI Wetland Code:</b> <u>GS-3</u>			
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

**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)

- |   |   |
|---|---|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>                  |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input checked="" type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>               |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Populus trichocarpa</i>	<i>Echinocystis lobata</i>
<i>Pseudotsuga menziesii</i>	<i>Solanum dulcamara</i>
<i>Rubus discolor</i>	
<i>Prunus virginiana</i>	
<i>Fraxinus latifolia</i>	
<i>Acer macrophyllum</i>	
<i>Holodiscus discolor</i>	

1 meter = 3.2 feet

**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 with the riparian area on the right bank is 10-25%.

**Typical Cross Section:**



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-GS-4</b> Right bank
--

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<u>2</u>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<u>2</u>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>12</u>

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 <b>R-GS-4</b> <b>Right bank</b>
---

## FLOOD MANAGEMENT

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 |  | Score | 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 |  | Score | 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 |  | Score | 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 <b>R-GS-4</b> Right bank
--

## THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	..... 3 pts	<u>3</u>
b. No	..... 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	..... 3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	..... 2 pts	
c. Bare ground	..... 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	..... 2 pts	<u>2</u>
b. No	..... 1 pts	
<b>Total Points:</b>		<u>8</u>

**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 <b>R-GS-4</b> <b>Right bank</b>
---

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	<u>2</u>
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<u>2</u>
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	<u>3</u>
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	<u>3</u>
c. Less than 10%	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-GS-4</b> <b>Right bank</b>
---

## WILDLIFE HABITAT (continued)

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

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

**FUNCTION IS:** **HIGH**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Viewed from the southern portion of ODOT yard</u>	
<b>Date:</b> <u>9/15/2009</u>	<b>Riparian Code:</b> <u>R-GS-5 Left bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>339 feet</u>		
<b>Investigators:</b> <u>SE - ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>2-6</u>	<b>feet</b>
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____	<b>feet</b>
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____	<b>feet</b>
<b>LWI Wetland Code:</b> _____			
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

**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)

- |   |  |
|---|--|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>       |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>    |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Psedotsuga mensiesii</i>	<i>Cirsium arvense</i>
<i>Rubus discolor</i>	<i>Artemisia sp.</i>
<i>Symphoricarpos albus</i>	<i>Heracleum maximum</i>
<i>Acer circinatum</i>	<i>Elymus glaucus</i>
<i>Cytisus scoparius</i>	

1 meter = 3.2 feet

**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

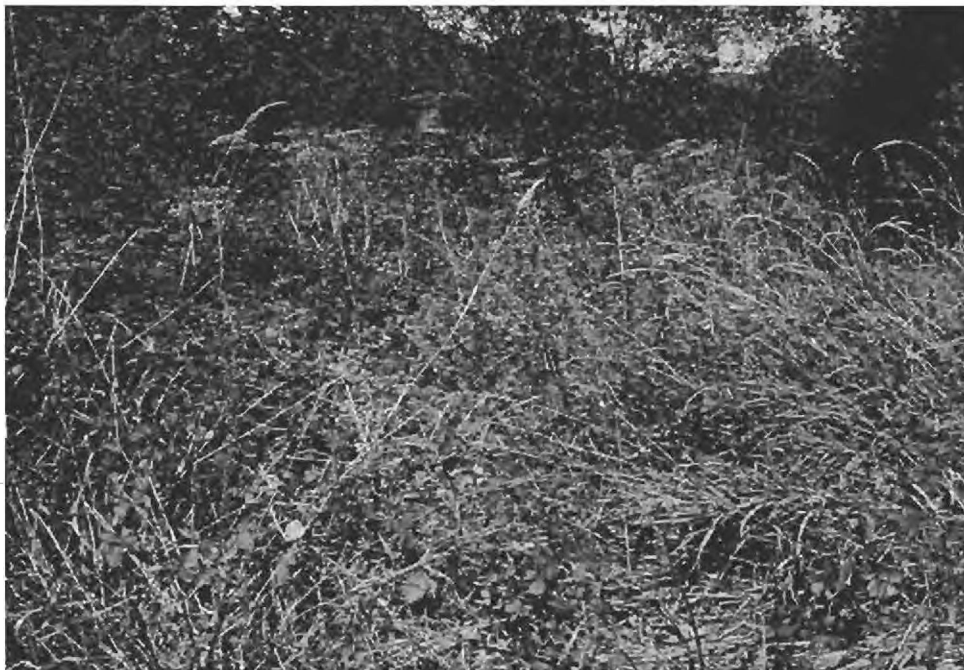
RIPARIAN CODE

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 slope is 20%, the extent of impervious surface within the 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
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>2</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>2</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u><b>11</b></u>

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 <b>R-GS-5</b> 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 b. No ..... 1 pt	<table border="0"> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">3</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 50px;"></td> </tr> </table>	3	
3			
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 b. No or no flood prone area present ..... 1 pt	<table border="0"> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">3</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 50px;"></td> </tr> </table>	3	
3			
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No ..... 3 pts b. Yes ..... 1 pt	<table border="0"> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">1</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 50px;"></td> </tr> </table>	1	
1			
<b>Total Points:</b>	<table border="0"> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">7</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 50px;"></td> </tr> </table>	7	
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

9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?

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

Score

3

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
- c. Bare ground ..... 1 pt

3

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

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

2

**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 <b>R-GS-5</b> Left bank
---

### WILDLIFE HABITAT

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b> a. More than 2 layers ..... 3 pts b. 2 layers ..... 2 pts c. 1 layer, or unvegetated ..... 1 pt	<hr/> <b>2</b> <hr/>
<b>13. What is the dominant vegetation layer in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<hr/> <b>3</b> <hr/>
<b>14. Does woody vegetation hang over the edge of the water?</b> a. Yes ..... 2 pts b. No ..... 1 pt	<hr/> <b>2</b> <hr/>
<b>15. Is large woody debris present within the riparian area?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<hr/> <b>1</b> <hr/>
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b> a. Greater than 40% ..... 3 pts b. Between 10% and 40% ..... 2 pts c. Less than 10% ..... 1 pt	<hr/> <b>3</b> <hr/>

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-GS-5</b> Left bank
---

## WILDLIFE HABITAT (continued)

	Score
17. Is surface water present throughout the year? a. Yes ..... 3 pts b. No ..... 1 pt	<u>3</u>
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 b. No ..... 1 pt	<u>1</u>
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 c. Greater than 75% ..... 1 pt	<u>1</u>
<b>Total Points:</b>	<u><b>16</b></u>

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Viewed from the southern portion of ODOT yard</u>	
<b>Date:</b> <u>9/15/2009</u>	<b>Riparian Code:</b> <u>R-GS-5 Right bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>339 feet</u>		
<b>Investigators:</b> <u>SE - ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>2-6</u> feet	
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____ feet	
	<b>Wetland:</b> <input type="checkbox"/>	<b>Width:</b> _____ feet	
<b>LWI Wetland Code:</b> _____			
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

**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)

- |   |  |
|---|--|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>       |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>    |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Psedotsuga mensiesii</i>	<i>Cirsium arvense</i>
<i>Rubus discolor</i>	<i>Artemisia sp.</i>
<i>Symphoricarpos albus</i>	<i>Heracleum maximum</i>
<i>Acer circinatum</i>	<i>Elymus glaucus</i>
<i>Cytisus scoparius</i>	

1 meter = 3.2 feet

**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 <b>R-GS-5</b> Right bank
--

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<u>3</u>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<u>3</u>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>14</u>

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**

## FLOOD MANAGEMENT

RIPARIAN CODE
<b>R-GS-5</b>
<b>Right bank</b>

	Score
<b>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?</b>	
a. Yes ..... 3 pts	<u>3</u>
b. No ..... 1 pt	
<b>7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?</b>	
a. Yes ..... 3 pts	<u>3</u>
b. No or no flood prone area present ..... 1 pt	
<b>8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?</b>	
a. No ..... 3 pts	<u>1</u>
b. Yes ..... 1 pts	
<b>Total Points:</b>	<u>7</u>

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 <b>R-GS-5</b> 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 b. No ..... 1 pt	<hr/> <b>3</b> <hr/>
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 c. Bare ground ..... 1 pt	<hr/> <b>3</b> <hr/>
11. Does woody vegetation hang over the edge of the water? a. Yes ..... 2 pts b. No ..... 1 pt	<hr/> <b>2</b> <hr/>
<b>Total Points:</b>	<hr/> <b>8</b> <hr/>

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 <b>R-GS-5</b> Right bank
--

### WILDLIFE HABITAT

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b> a. More than 2 layers ..... 3 pts b. 2 layers ..... 2 pts c. 1 layer, or unvegetated ..... 1 pt	<b>3</b>
<b>13. What is the dominant vegetation layer in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<b>3</b>
<b>14. Does woody vegetation hang over the edge of the water?</b> a. Yes ..... 2 pts b. No ..... 1 pt	<b>2</b>
<b>15. Is large woody debris present within the riparian area?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<b>1</b>
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b> a. Greater than 40% ..... 3 pts b. Between 10% and 40% ..... 2 pts c. Less than 10% ..... 1 pt	<b>3</b>

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-GS-5</b> Right bank
--

### WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>2</u>
<b>Total Points:</b>		<u><b>18</b></u>

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

**FUNCTION IS:** **MEDIUM**

# Riparian Characterization Form



## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>Viewed from the southern portion of ODOT yard</u>	
<b>Date:</b> <u>10/7/2009</u>	<b>Riparian Code:</b> <u>R-GS-6</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>575 feet</u>		
<b>Investigators:</b> <u>SE-ME</u>	<b>Hydrologic Basin:</b> <u>Glenwood Slough</u>		

<b>WATER RESOURCE INFORMATION</b>									
<b>Water Resource:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Stream/River:</td> <td style="text-align: center; width: 30px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Lake/Pond:</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Wetland:</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Stream/River:	<input checked="" type="checkbox"/>	Lake/Pond:	<input type="checkbox"/>	Wetland:	<input type="checkbox"/>	<b>Width:</b> <u>2</u> feet	
Stream/River:	<input checked="" type="checkbox"/>								
Lake/Pond:	<input type="checkbox"/>								
Wetland:	<input type="checkbox"/>								
		<b>Width:</b> _____ feet							
		<b>Width:</b> _____ feet							
<b>LWI Wetland Code:</b> _____									
<b>Water present year-round:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>									
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>									
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>									

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

**Mapped soil series:** Chehalis silty clay loam

**Adjacent Land Uses?** (Check as many as needed)

- |   |  |
|---|--|
| <b>Agriculture:</b> <input type="checkbox"/>                  | <b>Roads:</b> <input type="checkbox"/>       |
| <b>Commercial/Indus.:</b> <input checked="" type="checkbox"/> | <b>Undeveloped:</b> <input type="checkbox"/> |
| <b>Residential:</b> <input type="checkbox"/>                  | <b>Forestry:</b> <input type="checkbox"/>    |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Salix sitchensis</i>	<i>Cirsium arvense, Phalaris arundinacea</i>
<i>Rosa nutkana</i>	<i>Solanum dulcamara</i>
<i>Salix lasiandra</i>	<i>Lathyrus sp.</i>
<i>Rubus discolor</i>	<i>Equisetum arvense</i>
	<i>Aster sp.</i>
	<i>Conium maculatum</i>
	<i>Dipsacus sylvestris</i>

1 meter = 3.2 feet

**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**

<b>Date:</b> <u>10/7/2009</u>	<b>Investigators:</b> <u>SE-ME</u>
<b>Dominant tree species:</b> <u>Salix sitchensis</u> (see other side for list of species)	
<b>Potential tree height (PTH)/Actual Width of riparian area :</b> <u>30</u> feet (Width measured horizontally from edge of water resource)	
<b>PTH determined by:</b>	
<b>On-site vegetation</b> <input checked="" type="checkbox"/>	<b>Reference site</b> <input type="checkbox"/> <b>Code</b> _____

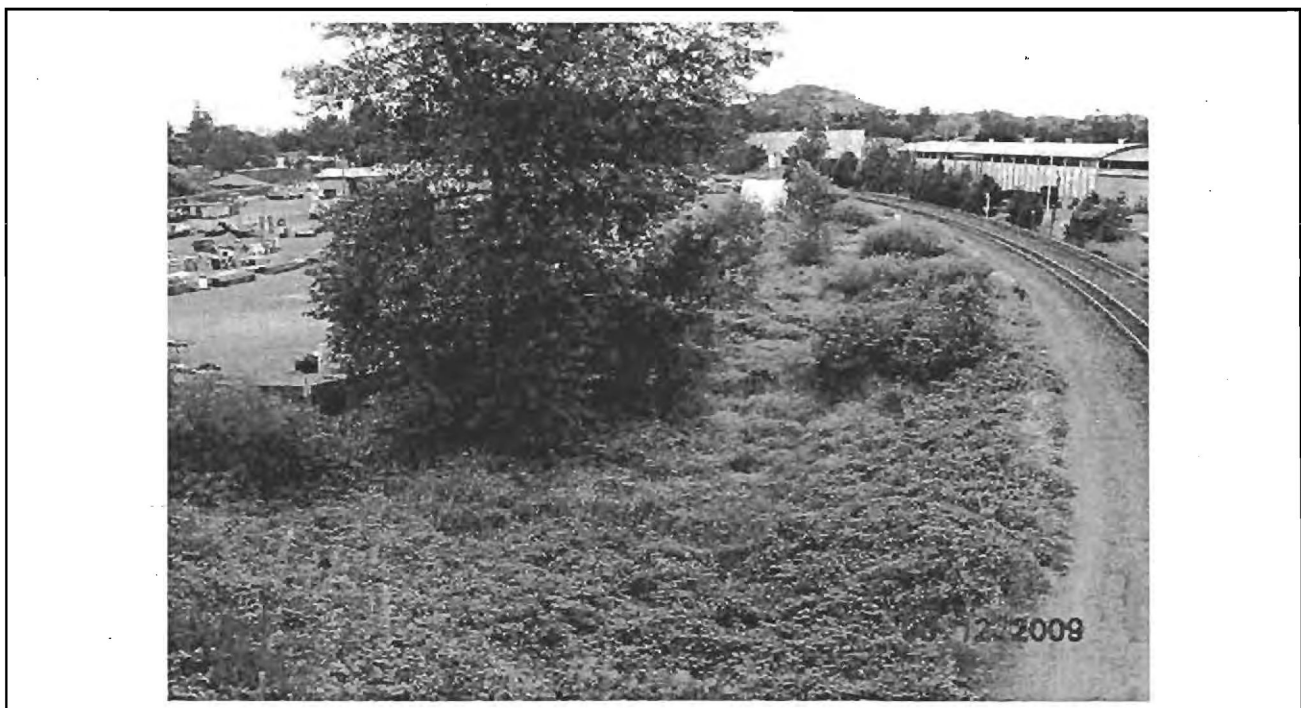
**Comments:** R-GS-6 is located between the railroad tracks and the ODOT maintenance yard.  
R-GS-6 is a channelized manmade feature that flows northwest and converges with GS-5.

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### Typical Cross Section:



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE
R-GS-6

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b>	
a. Less than 10:1 (10%) ..... 3 pts	
b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts	<u>3</u>
c. Greater than 5:1 (20%) ..... 1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>	
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	<u>2</u>
c. Bare ground ..... 1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>	
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	<u>2</u>
c. Bare ground ..... 1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>	
a. Less than 10% ..... 3 pts	
b. Between 10% and 25% ..... 2 pts	<u>3</u>
c. Greater than 25% ..... 1 pt	
<b>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.</b>	
a. Low, slight, moderate ..... 2 pts	<u>2</u>
b. High, severe, very high ..... 1 pts	
<b>Total Points:</b>	<u><b>12</b></u>

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
<p>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?</p> <p>a. Yes ..... 3 pts</p> <p>b. No ..... 1 pt</p>	<p><u>1</u></p>
<p>7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?</p> <p>a. Yes ..... 3 pts</p> <p>b. No or no flood prone area present ..... 1 pt</p>	<p><u>1</u></p>
<p>8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?</p> <p>a. No ..... 3 pts</p> <p>b. Yes ..... 1 pt</p>	<p><u>1</u></p>
<b>Total Points:</b>	<b><u>3</u></b>

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

9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?

Score

- |        |       |       |  |   |
|--------|-------|-------|--|---|
| 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 |  | 2 |
| b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high  | ..... | 2 pts |  |   |
| 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**

## WILDLIFE HABITAT

RIPARIAN CODE  
**R-GS-6**

	pts	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers _____	3 pts	
b. 2 layers _____	2 pts	<b>2</b>
c. 1 layer, or unvegetated _____	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<b>2</b>
c. Bare ground _____	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes _____	2 pts	<b>2</b>
b. No _____	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes _____	3 pts	<b>1</b>
b. No _____	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% _____	3 pts	
b. Between 10% and 40% _____	2 pts	<b>2</b>
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	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	<u>2</u>
c. Greater than 75%	1 pt	
<b>Total Points:</b>		<u>15</u>

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

**FUNCTION IS:** **MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>Viewed from Henderson Ave, and Newman Street</u>	
Date: <u>10/7/2009</u>		Riparian Code: <u>R-GS-7 Left bank</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>1,669 feet</u>	
Investigators: <u>SE-ME</u>		Hydrologic Basin: <u>Glenwood Slough</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>8-10</u>	feet
	Lake/Pond: <input type="checkbox"/>	Width: _____	feet
	Wetland: <input type="checkbox"/>	Width: _____	feet
LWI Wetland Code: <u>GS-5</u>			
Water present year-round:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Are salmonids present in the adjacent water resource?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Is the water resource listed for temperature on DEQ's 303(d) list:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

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: <input type="checkbox"/>                  | Roads: <input type="checkbox"/>       |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>    |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Fraxinus latifolia</i>	<i>Heracleum lanatum</i>
<i>Symphoricarpos albus</i>	<i>Phalaris arundinacea</i>
<i>Rubus discolor</i>	<i>Tellima grandiflora</i>
<i>Crataegus monogyna</i>	<i>Carex leptopoda</i>
<i>Echinocystis lobata</i>	
<i>Crataegus douglasii</i>	

1 meter = 3.2 feet

**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

		<b>Score</b>
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%) .....	3 pts	
b. Between 10:1 (10%) and 5:1 (20%) .....	2 pts	<u>2</u>
c. Greater than 5:1 (20%) .....	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
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	<u>3</u>
c. Bare ground .....	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
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	<u>3</u>
c. Bare ground .....	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10% .....	3 pts	
b. Between 10% and 25% .....	2 pts	<u>3</u>
c. Greater than 25% .....	1 pt	
<b>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.</b>		
a. Low, slight, moderate .....	2 pts	<u>2</u>
b. High, severe, very high .....	1 pts	
	<b>Total Points:</b>	<u><b>13</b></u>

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
<b>R-GS-7</b>
<b>Left bank</b>

## FLOOD MANAGEMENT

		Score
<b>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?</b>		
a. Yes	3 pts	1
b. No	1 pt	
<b>7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?</b>		
a. Yes	3 pts	1
b. No or no flood prone area present	1 pt	
<b>8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?</b>		
a. No	3 pts	1
b. Yes	1 pts	
<b>Total Points:</b>		<b>3</b>

**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 <b>R-GS-7</b> Left bank
---

### THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	..... 3 pts	<u>3</u>
b. No	..... 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	..... 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	..... 2 pts	<u>2</u>
b. No	..... 1 pts	
<b>Total Points:</b>		<u>8</u>

**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
<b>R-GS-7</b>
<b>Left bank</b>

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	2
b. 2 layers	2 pts	
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	3
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	2
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	1
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	3
b. Between 10% and 40%	2 pts	
c. Less than 10%	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-GS-7</b> Left bank
---

## WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>2</u>
<b>Total Points:</b>		<u><b>17</b></u>

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

**FUNCTION IS:** **MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>Viewed from Henderson Ave, and Newman Street</u>	
Date: <u>10/7/2009</u>		Riparian Code: <u>R-GS-7 Left bank</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>1,669 feet</u>	
Investigators: <u>SE-ME</u>		Hydrologic Basin: <u>Glenwood Slough</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>8-10</u> feet	
	Lake/Pond: <input type="checkbox"/>	Width: _____ feet	
	Wetland: <input type="checkbox"/>	Width: _____ feet	
LWI Wetland Code: <u>GS-5</u>			
Water present year-round: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

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: <input type="checkbox"/>                  | Roads: <input type="checkbox"/>       |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>    |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Fraxinus latifolia</i>	<i>Heracleum lanatum</i>
<i>Symphoricarpos albus</i>	<i>Phalaris arundinacea</i>
<i>Rubus discolor</i>	<i>Tellima grandiflora</i>
<i>Crataegus monogyna</i>	<i>Carex leptopoda</i>
<i>Echinocystis lobata</i>	
<i>Crataegus douglasii</i>	

1 meter = 3.2 feet

**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
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	3
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	3
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	3
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	3
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	2
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<b>14</b>

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**

## FLOOD MANAGEMENT

RIPARIAN CODE <b>R-GS-7</b> Right bank
--

	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 b. No ..... 1 pt	<hr/> <b>1</b>
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 b. No or no flood prone area present ..... 1 pt	<hr/> <b>1</b>
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No ..... 3 pts b. Yes ..... 1 pt	<hr/> <b>1</b>
<b>Total Points:</b>	<hr/> <b>3</b>

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 <b>R-GS-7</b> 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 pt	
<b>Total Points:</b>	<b>8</b>

**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 <b>R-GS-7</b> <b>Right bank</b>
---

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	<hr style="width: 100%;"/> <b>2</b> <hr style="width: 100%;"/>
b. 2 layers	2 pts	
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<hr style="width: 100%;"/> <b>3</b> <hr style="width: 100%;"/>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<hr style="width: 100%;"/> <b>2</b> <hr style="width: 100%;"/>
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	<hr style="width: 100%;"/> <b>1</b> <hr style="width: 100%;"/>
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	<hr style="width: 100%;"/> <b>3</b> <hr style="width: 100%;"/>
b. Between 10% and 40%	2 pts	
c. Less than 10%	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-GS-7</b> Right bank
--

## WILDLIFE HABITAT (continued)

	Score
17. Is surface water present throughout the year? a. Yes ..... 3 pts b. No ..... 1 pt	<u>3</u>
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 b. No ..... 1 pt	<u>1</u>
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 c. Greater than 75% ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>17</u>

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>East 22nd Avenue</u>	
Date: <u>10/7/2009</u>		Riparian Code: <u>R-GS-8</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>317</u>	
Investigators: <u>ME-SE</u>		Hydrologic Basin: <u>Glenwood Slough</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>3</u>	feet
	Lake/Pond: <input type="checkbox"/>	Width: _____	feet
	Wetland: <input type="checkbox"/>	Width: _____	feet
LWI Wetland Code: _____			
Water present year-round: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

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: <input type="checkbox"/>                  | Roads: <input checked="" type="checkbox"/>       |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input checked="" type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>               |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Salix sitchensis</i>	<i>Festuca arundinacea</i>
<i>Populus trichocarpa</i>	<i>Typha latifolia</i>
<i>Rubus discolor</i>	<i>Carex obnupta</i>
	<i>Trifolium pratense</i>
	<i>Daucus carota</i>
	<i>Tanacetum vulgare</i>

1 meter = 3.2 feet

**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



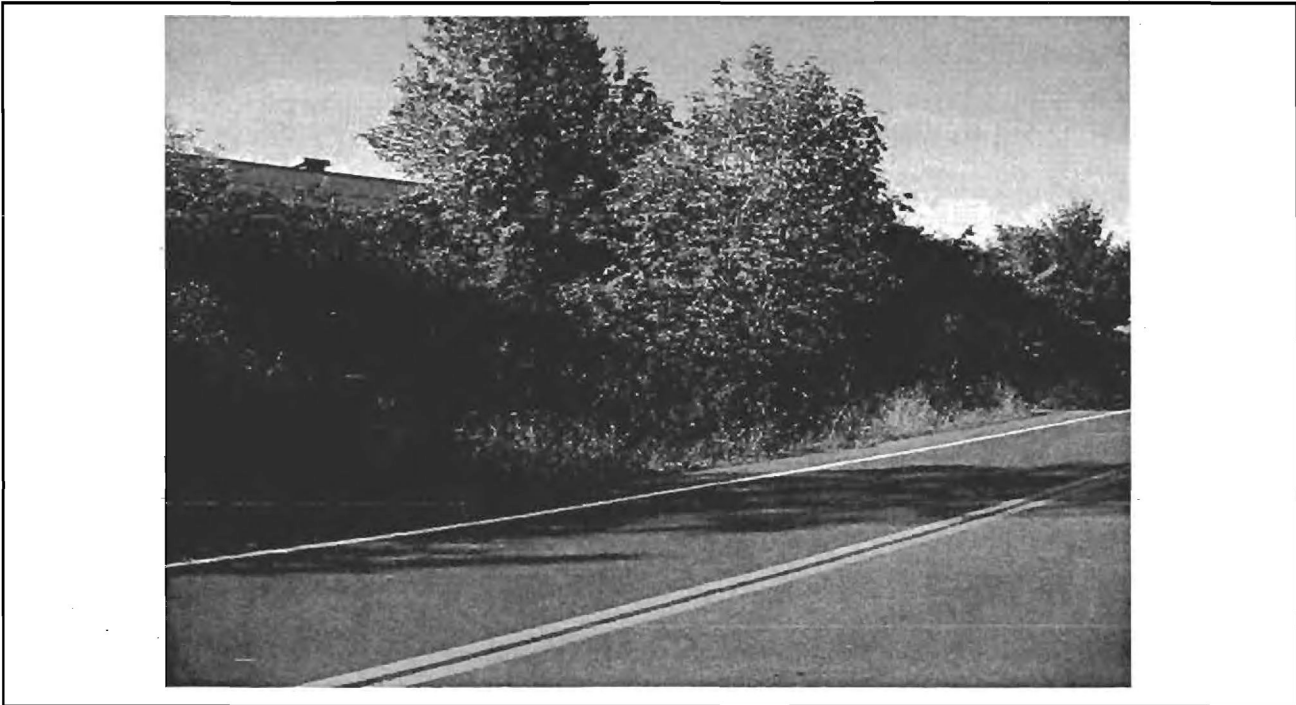
## Glenwood Area of Springfield

RIPARIAN CODE
<b>R-GS-8</b>

<b>Date:</b>	<u>10/7/2009</u>	<b>Investigators:</b>	<u>ME-SE</u>
<b>Dominant tree species:</b>	<u>Salix sitchensis</u> (see other side for list of species)		
<b>Potential tree height (PTH)/Actual Width of riparian area :</b>	<u>20</u>	<b>feet</b>	
	(Width measured horizontally from edge of water resource)		
<b>PTH determined by:</b>			
<b>On-site vegetation</b>	<input checked="" type="checkbox"/>	<b>Reference site</b>	<input type="checkbox"/> Code <u>                    </u>

**Comments:** The riparian area appears to be a roadside ditch; however, it has perennial flow, therefore it was evaluated 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
<b>R-GS-8</b>

### WATER QUALITY

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	<u>3</u>
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
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	<u>2</u>
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	<u>1</u>
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>2</u>
b. High, severe, very high	1 pt	
<b>Total Points:</b>		<u><b>11</b></u>

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
<b>R-GS-8</b>

## FLOOD MANAGEMENT

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
- b. No ..... 1 pt

Score

1

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
- b. No or no flood prone area present ..... 1 pt

1

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

- a. No ..... 3 pts
- b. Yes ..... 1 pts

1

**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
<b>R-GS-8</b>

## THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	3 pts	3
b. No	1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	2
b. No	1 pt	
<b>Total Points:</b>		<b>8</b>

**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
<b>R-GS-8</b>

### WILDLIFE HABITAT

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b> a. More than 2 layers ..... 3 pts b. 2 layers ..... 2 pts c. 1 layer, or unvegetated ..... 1 pt	<u>2</u>
<b>13. What is the dominant vegetation layer in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>14. Does woody vegetation hang over the edge of the water?</b> a. Yes ..... 2 pts b. No ..... 1 pt	<u>2</u>
<b>15. Is large woody debris present within the riparian area?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<u>1</u>
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b> a. Greater than 40% ..... 3 pts b. Between 10% and 40% ..... 2 pts c. Less than 10% ..... 1 pt	<u>1</u>

*Questions continued on next page*





# Riparian Functional Assessment Answer Sheet

**Glenwood Area of Springfield**

RIPARIAN CODE
<b>R-GS-8</b>

## WILDLIFE HABITAT (continued)

		Score
<b>17. Is surface water present throughout the year?</b>		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
<b>18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?</b>		
a. Yes	3 pts	
b. No	1 pt	<u>1</u>
<b>19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?</b>		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	
c. Greater than 75%	1 pt	<u>1</u>
<b>Total Points:</b>		<u><b>14</b></u>

**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: <u>Viewed from the southern and eastern portion of the drainage</u>	
Date:	<u>10/7/2009</u>	Riparian Code:	<u>R-GS-9</u>
On-site: <input type="checkbox"/>	Off-Site: <input checked="" type="checkbox"/>	Reach Length:	<u>274 feet</u>
Investigators:	<u>ME-SE</u>	Hydrologic Basin:	<u>Glenwood Slough</u>

WATER RESOURCE INFORMATION			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width:	<u>40</u> feet
	Lake/Pond: <input type="checkbox"/>	Width:	_____ feet
	Wetland: <input type="checkbox"/>	Width:	_____ feet
LWI Wetland Code: _____			
Water present year-round:    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list:    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

Within FEMA-mapped 100-year floodplain:    Yes     No

Mapped soil series: Bellpine silty clay loam

Adjacent Land Uses? (Check as many as needed)

- |  |  |
|--|--|
| Agriculture: <input type="checkbox"/>                  | Roads: <input type="checkbox"/>                  |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input checked="" type="checkbox"/> |
| Residential: <input checked="" type="checkbox"/>       | Forestry: <input type="checkbox"/>               |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Salix lasiandra</i>	

1 meter = 3.2 feet

**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
<b>R-GS-9</b>

### WATER QUALITY

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>2</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>3</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>2</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u>11</u>

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

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
- b. No ..... 1 pt

Score

1

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
- b. No or no flood prone area present ..... 1 pt

1

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

- a. No ..... 3 pts
- b. Yes ..... 1 pts

3

**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
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	3 pts	3
b. No	1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	2
b. No	1 pt	
<b>Total Points:</b>		<b>8</b>

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
<b>R-GS-9</b>

### WILDLIFE HABITAT

	Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>	
a. More than 2 layers ..... 3 pts	
b. 2 layers ..... 2 pts	<u>1</u>
c. 1 layer, or unvegetated ..... 1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>	
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	<u>3</u>
c. Bare ground ..... 1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>	
a. Yes ..... 2 pts	<u>2</u>
b. No ..... 1 pt	
<b>15. Is large woody debris present within the riparian area?</b>	
a. Yes ..... 3 pts	<u>1</u>
b. No ..... 1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>	
a. Greater than 40% ..... 3 pts	
b. Between 10% and 40% ..... 2 pts	<u>1</u>
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
<b>17. Is surface water present throughout the year?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<u>3</u>
<b>18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?</b> a. Yes ..... 3 pts b. No ..... 1 pt	<u>1</u>
<b>19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?</b> a. Less than 25% ..... 3 pts b. Between 25% and 75% ..... 2 pts c. Greater than 75% ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>14</u>

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: <u>N of Franklin Blvd, W of the crane shop along the River</u>	
Date:	<u>10/7/2009</u>	Riparian Code:	<u>R-WR-1 Left bank</u>
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length:	<u>4671 feet</u>
Investigators:	<u>ME - SE</u>	Hydrologic Basin:	<u>Willamette River</u>

WATER RESOURCE INFORMATION			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width:	<u>Approximately 420</u> feet
	Lake/Pond: <input type="checkbox"/>	Width:	_____ feet
	Wetland: <input type="checkbox"/>	Width:	_____ feet
LWI Wetland Code: _____			
Water present year-round: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

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)
<i>Acer macrophyllum, Populus trichocarpa</i>	<i>Lactuca serriola</i>
<i>Fraxinus latifolia</i>	<i>Hypericum perforatum</i>
<i>Rubus discolor</i>	<i>Hypochaeris radicata</i>
<i>Hedera helix</i>	<i>Carex obnupta</i>
<i>Alnus rubra</i>	
<i>Corylus cornuta</i>	
<i>Salix lasiandra</i>	

1 meter = 3.2 feet

**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.

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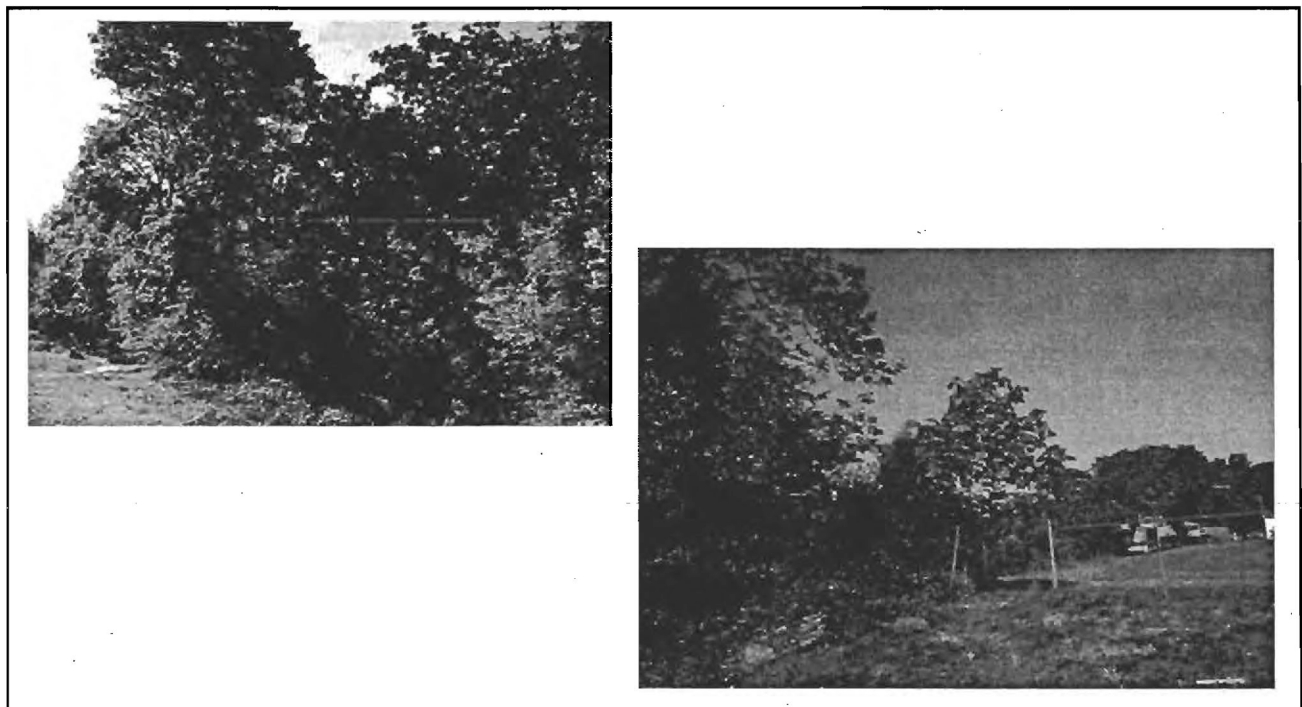


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### Typical Cross Section:



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

### WATER QUALITY

RIPARIAN CODE <b>R-WR-1</b> Left bank
---

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>1</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>2</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u>10</u>

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 <b>R-WR-1</b> 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	
<b>Total Points:</b>	<b>5</b>

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 <b>R-WR-1</b> Left bank
---

## THERMAL REGULATION

	Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>	
a. Yes _____ 3 pts	<b>3</b>
b. No _____ 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>	
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high _____ 3 pts	<b>3</b>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high _____ 2 pts	
c. Bare ground _____ 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>	
a. Yes _____ 2 pts	<b>2</b>
b. No _____ 1 pt	
<b>Total Points:</b>	<b>8</b>

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 <b>R-WR-1</b> Left bank
---

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">3</div>
b. 2 layers	2 pts	
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">3</div>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">2</div>
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">1</div>
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	<div style="border-bottom: 1px solid black; margin-bottom: 5px;">2</div>
b. Between 10% and 40%	2 pts	
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)

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

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>Brambaugh property on</u> <u>N Brooklyn Street</u>	
Date: <u>10/7/2009</u>	Riparian Code: <u>R-WR-2 Left bank</u>		
On-site: <input checked="" type="checkbox"/> Off-Site: <input type="checkbox"/>	Reach Length: <u>130 feet</u>		
Investigators: <u>SE-ME</u>	Hydrologic Basin: <u>Willamette River</u>		

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>300</u> feet	
	Lake/Pond: <input type="checkbox"/>	Width: _____ feet	
	Wetland: <input type="checkbox"/>	Width: _____ feet	
LWI Wetland Code: _____			
Water present year-round:      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list:      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Within FEMA-mapped 100-year floodplain:      Yes       No

Mapped soil series: Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

- |  |  |
|--|--|
| Agriculture: <input type="checkbox"/>                  | Roads: <input type="checkbox"/>                  |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input checked="" type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>               |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Populus trichocarpa, Symphoricarpos albus,</i>	<i>Mentha sp., Polystichum munitum</i>
<i>Alnus rhombifolia, Acer macrophyllum, Corylus</i>	<i>Carex obnupta</i>
<i>cornuta, Physocarpus capitatus, Cornus</i>	<i>Hypericum perforatum</i>
<i>stolonifera, Salix sitchensis, Hedera helix, Salix</i>	<i>Rubus ursinus</i>
<i>lasiandra, Rubus discolor, Crataegus douglasii,</i>	<i>Phalaris arundinacea</i>
<i>Crataegus monogyna, Rosa nutkana</i>	<i>Aster sp.</i>
	<i>Hypericum perforatum</i>

1 meter = 3.2 feet

**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 <b>R-WR-2</b> Left bank
---

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<u>3</u>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<u>3</u>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<u>3</u>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<u>14</u>

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 <b>R-WR-2</b> 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 b. No _____ 1 pt	<hr/> <b>3</b>
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 b. No or no flood prone area present _____ 1 pt	<hr/> <b>3</b>
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No _____ 3 pts b. Yes _____ 1 pt	<hr/> <b>3</b>
<b>Total Points:</b>	<hr/> <b>9</b>

**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
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	..... 3 pts	<u>3</u>
b. No	..... 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	..... 3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	..... 2 pts	
c. Bare ground	..... 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	..... 2 pts	<u>2</u>
b. No	..... 1 pt	
<b>Total Points:</b>		<u>8</u>

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**

## WILDLIFE HABITAT

RIPARIAN CODE  
**R-WR-2**  
Left bank

	Score	
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers ..... 3 pts		<u>3</u>
b. 2 layers ..... 2 pts		
c. 1 layer, or unvegetated ..... 1 pt		
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high ..... 3 pts		<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high ..... 2 pts		
c. Bare ground ..... 1 pt		
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes ..... 2 pts		<u>2</u>
b. No ..... 1 pt		
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes ..... 3 pts		<u>1</u>
b. No ..... 1 pt		
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% ..... 3 pts		<u>3</u>
b. Between 10% and 40% ..... 2 pts		
c. Less than 10% ..... 1 pt		

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-WR-2</b> Left bank
---

## WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	
c. Greater than 75%	1 pt	<u>1</u>
<b>Total Points:</b>		<u><b>17</b></u>

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>Under Franklin Bridge across Willamette River</u>	
Date: <u>10/7/2009</u>		Riparian Code: <u>R-WR-3 Left bank</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>2,311 feet</u>	
Investigators: <u>ME-SE</u>		Hydrologic Basin: <u>Willamette River</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>400</u> feet	
	Lake/Pond: <input type="checkbox"/>	Width: _____ feet	
	Wetland: <input type="checkbox"/>	Width: _____ feet	
LWI Wetland Code: _____			
Water present year-round: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Within FEMA-mapped 100-year floodplain: Yes  No

Mapped soil series: Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

- |  |  |
|--|--|
| Agriculture: <input type="checkbox"/>                  | Roads: <input checked="" type="checkbox"/>       |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input checked="" type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>               |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Quercus garryana</i>	<i>Festuca arundinacea</i>
<i>Populus trichocarpa</i>	<i>Holcus lanatus</i>
<i>Salix spp.</i>	<i>Phalaris arundinacea</i>
<i>Fraxinus latifolia</i>	<i>Taraxacum officinale</i>
<i>Symphoricarpus albus</i>	<i>Carex obnupta</i>
<i>Berberis aquifolium</i>	<i>Dactylis glomerate</i>
	<i>Polystichum munitum</i>

1 meter = 3.2 feet

**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 <b>R-WR-3</b> Left bank
---

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b> a. Less than 10:1 (10%) ..... 3 pts b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts c. Greater than 5:1 (20%) ..... 1 pt	<hr/> <b>3</b> <hr/>
<b>2. What is the dominant vegetation cover in the riparian area?</b> 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 c. Bare ground ..... 1 pt	<hr/> <b>3</b> <hr/>
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b> 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 c. Bare ground ..... 1 pt	<hr/> <b>3</b> <hr/>
<b>4. What is the extent of impervious surfaces within the riparian area?</b> a. Less than 10% ..... 3 pts b. Between 10% and 25% ..... 2 pts c. Greater than 25% ..... 1 pt	<hr/> <b>3</b> <hr/>
<b>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.</b> a. Low, slight, moderate ..... 2 pts b. High, severe, very high ..... 1 pt	<hr/> <b>2</b> <hr/>
<b>Total Points:</b>	<hr/> <b>14</b> <hr/>

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

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
- b. No ..... 1 pt

Score

1

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
- b. No or no flood prone area present ..... 1 pt

1

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

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

3

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 <b>R-WR-3</b> Left bank
---

### THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	3 pts	3
b. No	1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	2
b. No	1 pts	
<b>Total Points:</b>		<b>8</b>

**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 <b>R-WR-3</b> <b>Left bank</b>
--

### WILDLIFE HABITAT

		Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	<u>3</u>
c. 1 layer, or unvegetated	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	2 pts	<u>2</u>
b. No	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes	3 pts	<u>1</u>
b. No	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	<u>3</u>
c. Less than 10%	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-WR-3</b> Left bank
---

## WILDLIFE HABITAT (continued)

	Score
17. Is surface water present throughout the year? a. Yes ..... 3 pts b. No ..... 1 pt	<u>3</u>
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 b. No ..... 1 pt	<u>1</u>
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 c. Greater than 75% ..... 1 pt	<u>2</u>
<b>Total Points:</b>	<b><u>18</u></b>

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: <u>In the Shamrock Village mobile home park</u>	
Date:	<u>9/15/2009</u>	Riparian Code:	<u>R-WR-4 Left bank</u>
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length:	<u>2,150 feet</u>
Investigators:	<u>ME-SE</u>	Hydrologic Basin:	<u>Willamette River</u>

WATER RESOURCE INFORMATION			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width:	<u>200</u> feet
	Lake/Pond: <input type="checkbox"/>	Width:	_____ feet
	Wetland: <input type="checkbox"/>	Width:	_____ feet
LWI Wetland Code:	<u>None</u>		
Water present year-round:	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Are salmonids present in the adjacent water resource?	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Is the water resource listed for temperature on DEQ's 303(d) list:	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>

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: <input type="checkbox"/>            | Roads: <input checked="" type="checkbox"/> |
| Commercial/Indus.: <input type="checkbox"/>      | Undeveloped: <input type="checkbox"/>      |
| Residential: <input checked="" type="checkbox"/> | Forestry: <input type="checkbox"/>         |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Liquidambar styraciflua</i>	<i>Unknown grass</i>
<i>Pseudotsuga menziesii</i>	<i>Taraxacum officinalte</i>
<i>Libocedrys decurrens</i>	<i>Trifolium pratense</i>
<i>Acer macrophyllum</i>	
<i>Salix sp.</i>	
<i>Fraxinus latifolia</i>	
<i>Rubus discolor</i>	

1 meter = 3.2 feet

**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** \_\_\_\_\_

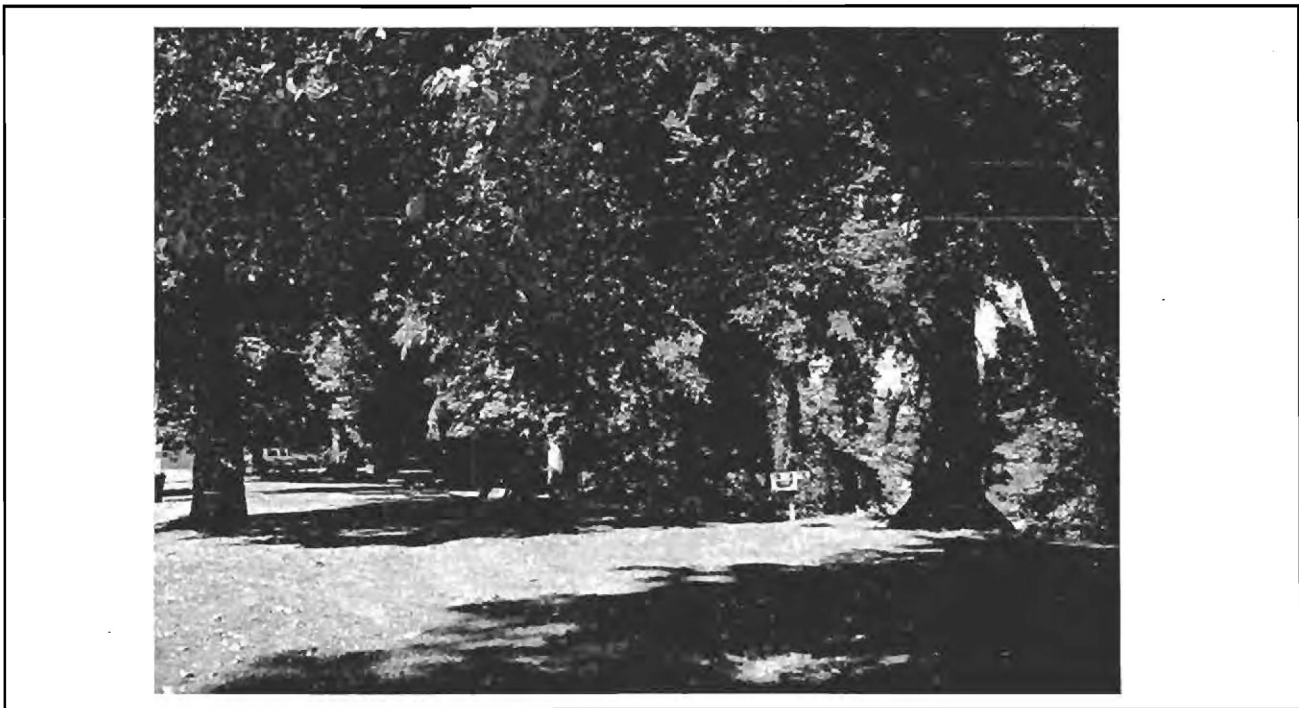
**Comments:** In Shamrock Village, there is a narrow strip of vegetation east of the mobile park road and river. Mature trees with grass and picnic tables make up this section of riparian corridor.

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**Typical Cross Section:**





# Riparian Functional Assessment Answer Sheet

## Glenwood Area of Springfield

RIPARIAN CODE <b>R-WR-4</b> Left bank
---

### WATER QUALITY

	Score
<b>1. What is the average slope in the riparian area?</b>	
a. Less than 10:1 (10%) ..... 3 pts	
b. Between 10:1 (10%) and 5:1 (20%) ..... 2 pts	<u>2</u>
c. Greater than 5:1 (20%) ..... 1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>	
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	<u>3</u>
c. Bare ground ..... 1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>	
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	<u>3</u>
c. Bare ground ..... 1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>	
a. Less than 10% ..... 3 pts	
b. Between 10% and 25% ..... 2 pts	<u>3</u>
c. Greater than 25% ..... 1 pt	
<b>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.</b>	
a. Low, slight, moderate ..... 2 pts	<u>2</u>
b. High, severe, very high ..... 1 pt	
<b>Total Points:</b>	<b><u>13</u></b>

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 <b>R-WR-4</b> <b>Left bank</b>
--

## 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 b. No _____ 1 pt	<hr/> <b>3</b>
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 b. No or no flood prone area present _____ 1 pt	<hr/> <b>3</b>
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)? a. No _____ 3 pts b. Yes _____ 1 pt	<hr/> <b>3</b>
<b>Total Points:</b>	<hr/> <b>9</b>

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 <b>R-WR-4</b> Left bank
---

### THERMAL REGULATION

		Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>		
a. Yes	..... 3 pts	<u>3</u>
b. No	..... 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>
c. Bare ground	..... 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>		
a. Yes	..... 2 pts	<u>2</u>
b. No	..... 1 pt	
<b>Total Points:</b>		<u>8</u>

**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	
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers ..... 3 pts		
b. 2 layers ..... 2 pts	<u>2</u>	
c. 1 layer, or unvegetated ..... 1 pt		
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>	
c. Bare ground ..... 1 pt		
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes ..... 2 pts	<u>2</u>	
b. No ..... 1 pt		
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes ..... 3 pts	<u>1</u>	
b. No ..... 1 pt		
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% ..... 3 pts		
b. Between 10% and 40% ..... 2 pts	<u>1</u>	
c. Less than 10% ..... 1 pt		

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-WR-4</b> Left bank
---

### WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>3</u>
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	
b. No	1 pt	<u>1</u>
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	<u>2</u>
c. Greater than 75%	1 pt	
<b>Total Points:</b>		<b><u>15</u></b>

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

FUNCTION IS: **MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		Location of data point: <u>West of Franklin Blvd. in</u> <u>Wetland WR-7</u>	
Date: <u>1/0/1900</u>		Riparian Code: <u>R-WR-5 Left bank</u>	
On-site: <input checked="" type="checkbox"/>	Off-Site: <input type="checkbox"/>	Reach Length: <u>5,134 feet</u>	
Investigators: <u>SE - ME</u>		Hydrologic Basin: <u>Willamette River</u>	

<b>WATER RESOURCE INFORMATION</b>			
Water Resource:	Stream/River: <input checked="" type="checkbox"/>	Width: <u>100</u> feet	
	Lake/Pond: <input type="checkbox"/>	Width: _____ feet	
	Wetland: <input type="checkbox"/>	Width: _____ feet	
LWI Wetland Code: <u>None</u>			
Water present year-round: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Are salmonids present in the adjacent water resource? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Is the water resource listed for temperature on DEQ's 303(d) list: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

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: <input type="checkbox"/>                  | Roads: <input checked="" type="checkbox"/>       |
| Commercial/Indus.: <input checked="" type="checkbox"/> | Undeveloped: <input checked="" type="checkbox"/> |
| Residential: <input type="checkbox"/>                  | Forestry: <input type="checkbox"/>               |

Woody vegetation (trees, shrubs, vines >1 meter)	Herbaceous vegetation (include trees, shrubs, vines <1 meter)
<i>Acer macrophyllum, Pseudotsuga menziesii,</i>	<i>Rubus discolor</i>
<i>Quercus garryana, Rubus discolor,</i>	<i>Daucus carota</i>
<i>Populus trichocarpa,</i>	<i>Festuca arundinacea</i>
<i>Rhus diversiloba</i>	<i>grass sp.</i>
<i>Populus trichocarpa</i>	<i>Cynosurus echinatus</i>
<i>Fraxinus latifolia</i>	<i>Dactylis glomerata</i>
<i>Salix sp.</i>	

1 meter = 3.2 feet

**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

### WATER QUALITY

RIPARIAN CODE  
R-WR-5  
Left bank

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>3</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>1</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u>11</u>

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 <b>R-WR-5</b> Left bank
---

## FLOOD MANAGEMENT

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
- b. No 1 pt

Score

3

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
- b. No or no flood prone area present 1 pt

3

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

- a. No 3 pts
- b. Yes 1 pts

3

**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 <b>R-WR-5</b> Left bank
---

## THERMAL REGULATION

	Score
<b>9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?</b>	
a. Yes ..... 3 pts	<b>3</b>
b. No ..... 1 pt	
<b>10. What is the dominant vegetation layer in the riparian area?</b>	
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	<b>3</b>
c. Bare ground ..... 1 pt	
<b>11. Does woody vegetation hang over the edge of the water?</b>	
a. Yes ..... 2 pts	<b>2</b>
b. No ..... 1 pt	
<b>Total Points:</b>	<b>8</b>

**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	
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>		
a. More than 2 layers ..... 3 pts		
b. 2 layers ..... 2 pts	<u>3</u>	
c. 1 layer, or unvegetated ..... 1 pt		
<b>13. What is the dominant vegetation layer in the riparian area?</b>		
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	<u>3</u>	
c. Bare ground ..... 1 pt		
<b>14. Does woody vegetation hang over the edge of the water?</b>		
a. Yes ..... 2 pts	<u>2</u>	
b. No ..... 1 pt		
<b>15. Is large woody debris present within the riparian area?</b>		
a. Yes ..... 3 pts	<u>1</u>	
b. No ..... 1 pt		
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>		
a. Greater than 40% ..... 3 pts		
b. Between 10% and 40% ..... 2 pts	<u>3</u>	
c. Less than 10% ..... 1 pt		

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

RIPARIAN CODE <b>R-WR-5</b> Left bank
---

## WILDLIFE HABITAT (continued)

	Score
17. Is surface water present throughout the year? a. Yes ..... 3 pts b. No ..... 1 pt	<hr/> <b>3</b> <hr/>
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 b. No ..... 1 pt	<hr/> <b>1</b> <hr/>
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 c. Greater than 75% ..... 1 pt	<hr/> <b>2</b> <hr/>
<b>Total Points:</b>	<hr/> <b>18</b> <hr/>

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

**FUNCTION IS: MEDIUM**



# Riparian Characterization Form

## Glenwood Area of Springfield

<b>GENERAL INFORMATION</b>		<b>Location of data point:</b> <u>At culvert located east of Franklin Boulevard</u>	
<b>Date:</b> <u>10/7/2009</u>	<b>Riparian Code:</b> <u>R-WR-6 Left bank</u>		
<b>On-site:</b> <input checked="" type="checkbox"/> <b>Off-Site:</b> <input type="checkbox"/>	<b>Reach Length:</b> <u>331 feet</u>		
<b>Investigators:</b> <u>ME-SE</u>	<b>Hydrologic Basin:</b> <u>Willamette River</u>		

<b>WATER RESOURCE INFORMATION</b>			
<b>Water Resource:</b>	<b>Stream/River:</b> <input checked="" type="checkbox"/>	<b>Width:</b> <u>2-3</u> feet	
	<b>Lake/Pond:</b> <input type="checkbox"/>	<b>Width:</b> _____ feet	
	<b>Wetland:</b> <input checked="" type="checkbox"/>	<b>Width:</b> _____ feet	
<b>LWI Wetland Code:</b> <u>WR-7</u>			
<b>Water present year-round:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Are salmonids present in the adjacent water resource?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>Is the water resource listed for temperature on DEQ's 303(d) list:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

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

**Mapped soil series:** Dixonville-Philomath-Hazelair complex

**Adjacent Land Uses?** (Check as many as needed)

- |   |   |
|---|---|
| <b>Agriculture:</b> <input type="checkbox"/>            | <b>Roads:</b> <input checked="" type="checkbox"/>       |
| <b>Commercial/Indus.:</b> <input type="checkbox"/>      | <b>Undeveloped:</b> <input checked="" type="checkbox"/> |
| <b>Residential:</b> <input checked="" type="checkbox"/> | <b>Forestry:</b> <input type="checkbox"/>               |

<b>Woody vegetation</b> (trees, shrubs, vines >1 meter)	<b>Herbaceous vegetation</b> (include trees, shrubs, vines <1 meter)
<i>Acer macrophyllum, Populus trichocarpa</i>	<i>Festuca arundinacea</i>
<i>Ilex aquifolium, Rubus discolor</i>	<i>Phalaris arundinacea</i>
<i>Fraxinus latifolia</i>	
<i>Symphoricarpus albus</i>	
<i>Hedera helix</i>	
<i>Quercus garryana</i>	
<i>Oemleria cerasiformis</i>	

1 meter = 3.2 feet

**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.

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**Typical Cross Section:**



# Riparian Functional Assessment Answer Sheet



## Glenwood Area of Springfield

RIPARIAN CODE <b>R-WR-6</b> Left bank
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### WATER QUALITY

		Score
<b>1. What is the average slope in the riparian area?</b>		
a. Less than 10:1 (10%)	3 pts	<u>1</u>
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	
c. Greater than 5:1 (20%)	1 pt	
<b>2. What is the dominant vegetation cover in the riparian area?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?</b>		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	<u>3</u>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	
c. Bare ground	1 pt	
<b>4. What is the extent of impervious surfaces within the riparian area?</b>		
a. Less than 10%	3 pts	<u>3</u>
b. Between 10% and 25%	2 pts	
c. Greater than 25%	1 pt	
<b>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.</b>		
a. Low, slight, moderate	2 pts	<u>1</u>
b. High, severe, very high	1 pts	
<b>Total Points:</b>		<u><b>11</b></u>

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
- b. No ..... 1 pt

1

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
- b. No or no flood prone area present ..... 1 pt

1

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?

- a. No ..... 3 pts
- b. Yes ..... 1 pts

3

**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 <b>R-WR-6</b> Left bank
---

### THERMAL REGULATION

9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?

Score

- |        |       |       |  |   |
|--------|-------|-------|--|---|
| 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 |  | 3 |
| b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high  | ..... | 2 pts |  |   |
| 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 <b>R-WR-6</b> <b>Left bank</b>
--

### WILDLIFE HABITAT

			Score
<b>12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?</b>			
a. More than 2 layers	.....	3 pts	<div style="border-top: 1px solid black; width: 100px; margin: 0 auto;">3</div>
b. 2 layers	.....	2 pts	
c. 1 layer, or unvegetated	.....	1 pt	
<b>13. What is the dominant vegetation layer in the riparian area?</b>			
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	.....	3 pts	<div style="border-top: 1px solid black; width: 100px; margin: 0 auto;">3</div>
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	.....	2 pts	
c. Bare ground	.....	1 pt	
<b>14. Does woody vegetation hang over the edge of the water?</b>			
a. Yes	.....	2 pts	<div style="border-top: 1px solid black; width: 100px; margin: 0 auto;">2</div>
b. No	.....	1 pt	
<b>15. Is large woody debris present within the riparian area?</b>			
a. Yes	.....	3 pts	<div style="border-top: 1px solid black; width: 100px; margin: 0 auto;">1</div>
b. No	.....	1 pt	
<b>16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?</b>			
a. Greater than 40%	.....	3 pts	<div style="border-top: 1px solid black; width: 100px; margin: 0 auto;">3</div>
b. Between 10% and 40%	.....	2 pts	
c. Less than 10%	.....	1 pt	

*Questions continued on next page*



# Riparian Functional Assessment Answer Sheet



**Glenwood Area of Springfield**

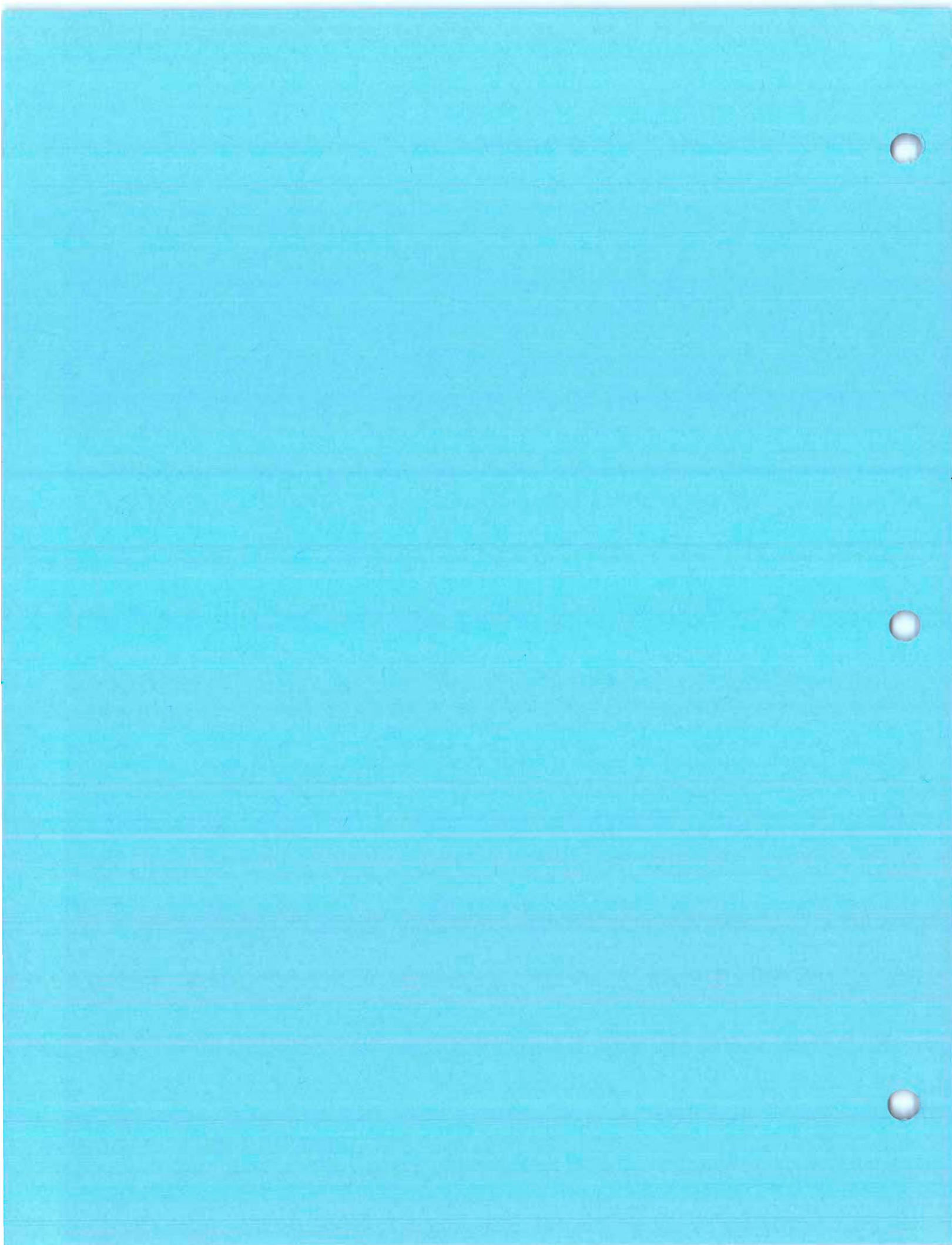
RIPARIAN CODE <b>R-WR-6</b> Left bank
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## WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	<u>1</u>
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	<u>3</u>
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	<u>3</u>
c. Greater than 75%	1 pt	
<b>Total Points:</b>		<u><b>19</b></u>

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

**FUNCTION IS:** **HIGH**



**Glenwood  
Natural Resource  
Wildlife Habitat Assessment  
2010**



Report and field sheets  
City of Springfield  
Environmental Services Division  
Water Resource Section

Attachment 1-99

## Glenwood Wildlife Assessment February 2010

February 10, 2010  
Sunny Washburn  
Meghan Murphy

### *Overview and project understanding*

January 2010 Pacific Habitat Service (PHS) submitted a draft document that listed areas that they considered riparian corridors in Glenwood needing protection based on Safe Harbor and/or the Urban Riparian Inventory and Assessment Guide (URIAG) methods. 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*).

In order for the City to incorporate the PHS riparian areas identified into the Cities existing Natural Resource Inventory (NRI) it was determined that an additional assessment method was required since the NRI is an adopted inventory by Council. See Figure 1 for identified sites.

### *Springfield Adopted Wildlife Habitat Inventory Methodology and Inventory Requirements*

The City adopted method and requirements are listed in the Springfield Natural Resource Study Report 2005. Section 3.2 Identifying Significant Resource Sites discusses the screening criteria, administration of the Wildlife Habitat Assessment, and significance criteria. A short explanation is given below.

#### 3.2 Identifying Significant Resource Sites

- Screening criteria
  - a. Areas mapped as wetland on the National Wetland Inventory and the Springfield Local Wetland Inventory.
  - b. Areas which have been designated as jurisdictional wetland by the Oregon Division of State Lands or Army Corps of Engineers.
  - c. Streams mapped on the Oregon Department of Fish and Wildlife and Department of Forestry Fish Bearing Stream maps.
  - d. Undeveloped areas which contain natural vegetation (non-cultivated, including forests, natural prairies and meadows) and are larger than 1 acre.
  - e. Undeveloped natural areas that are contiguous with a water feature.
  - f. Areas which are undeveloped, and which in their natural state are un-vegetated (e.g., rock outcrops, gravel bars).
  - g. Locations of plants listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.



- h. Documented habitat of animals listed as threatened or endangered, or considered official candidates to be listed as threatened or endangered by state or federal government.

Areas found meeting the above criteria move to the next step; Tier1 evaluation. PHS fulfilled the above task by doing the Local Wetlands Inventory and Riparian Corridor Assessment.

Sites identified were subject to on-site evaluation using a protocol called the Wildlife Habitat Assessment (WHA). The WHA evaluates sites based on the food, water, and cover it offers for wildlife. The assessment determines a relative rating for each site based on 13 factors, such as seasonality of the water on the site, variety of food, layers of vegetation, and disturbance of the site. Sites that passed the Tier 1 and Tier 2 criteria comprise the final proposed inventory of *significant* sites for incorporation into the existing Springfield Natural Resource Inventory.

### ***Significance criteria***

A required step of Statewide Land Use Goal 5 is to determine if a site is *significant* or *not significant*. Springfield chose to adopt a two-tiered approach for determining the significance of sites. Tier1 criteria are very closely associated with the original screening criteria (described above). Tier2 criteria serve to narrow the list of sites identified by the Tier1 criteria to only those sites that provide relatively high quality riparian areas, wetlands, or wildlife habitat.

#### Tier1 significance criteria

- Tier1 significance criteria – must meet at least 1 factor of the 7 listed.
  1. Areas mapped on State Wetlands Inventory (NWI).
  2. Areas mapped as jurisdictional wetlands (LWI).
  3. Areas mapped as Fish-Bearing Streams (ODFW maps).
  4. Undeveloped natural areas (UNDA), primary native veg, continuous with water feature & provide habitat.
  5. Locations with threatened, endangered or sensitive (TES) plants.
  6. Locations with documented habitat for TES animals.
  7. Other ecologically significant area identified by public agencies/natural resource professional.
- Areas matching Tier1 criteria move to the list of sites subject to Tier2.

Six sites met the criteria of Tier1. See Table 1 – Tier1 Significance Criteria Evaluation Table for results. See Figure 1 for identified sites.

#### Tier2 significance criteria

- Sites that meet one or more Tier1 criteria were assessed using the WHA methodology.



- Sites with a WHA rating of 17 or greater shall be included on the Goal 5 inventory.

Table 1 – Tier1 Significance Criteria Evaluation Table

PHS Riparian Site Name	Tier1 Significance Criteria							Existing Inventory NRI	Comment
	1 NWI	2 LWI	3 Fish	4 UDNA	5 TES-P	6 TES-A	7 Other		
R-GS-1		X	X					E39	T2 needed east section
R-GS-2		X	X						T2 – split system
R-GS-3		X	X					E39	Existing protection
R-GS-4		X	X					E39	Existing protection
R-GS-5			X						T2
R-GS-6			X						T2
R-GS-7		X						E39	T2 needed SE section
R-GS-8									Did not meet T1
R-GS-9				?			X		ESD staff bumped to T2
R-WR-1	X		X					WA/WB	Existing protection
R-WR-2	X		X					WA/WB	Existing protection
R-WR-3	X		X					WA/WB	Existing protection
R-WR-4	X		X					WA/WB	Existing protection
R-WR-5	X		X					WA/WB	Existing protection
R-WR-6		X							T2

### *Property Access and Time of Year*

Due to limited site access, the field crews were only able to perform the WHA from public Right of Ways and private property where access was granted. Aerial photos and existing wetland and riparian data gathered by PHS were also used in aiding the narrative description and scoring process of Tier2.

Since the WHA for Glenwood was performed in February, not all vegetation layers were visible. Dry vegetation, duff materials such as leaves, nuts, berries, and the field sheets from PHS initial assessment were used to aid in determining species presence and layering.



**Results**

The seven riparian areas identified as Tier 2 Wildlife Habitat include some areas with existing protection from the Springfield Natural Resource boundaries of E39. Therefore, these areas were not subject to reevaluation.

Site areas adjoining E39 were evaluated and compared to the existing E39 site descriptions and habitat. Some of the adjoining sites were split into separate evaluation areas based on their proximity. For example: R-GS-7 has existing protection in the middle of the riparian area from E-39 but the west and east ends required an evaluation for T2 criteria. Therefore R-GS-7 was split into evaluation areas “A” and “B”. All of the adjoining sites were similar in nature and can be easily absorbed into the existing protection of E39.

Sites not adjoining any existing resource area were subject to a full walk through, with the exception of R-WR-6 which could not be accessed. This site was easily visible from the ROW areas.

Results are listed in Table 2 below. It is recommended that three additional resource sites be added to Springfield’s Natural Resource Inventory, and that three adjoining sites be incorporated into the existing E39 boundaries. One site did not meet T2 criteria and needs no action taken.

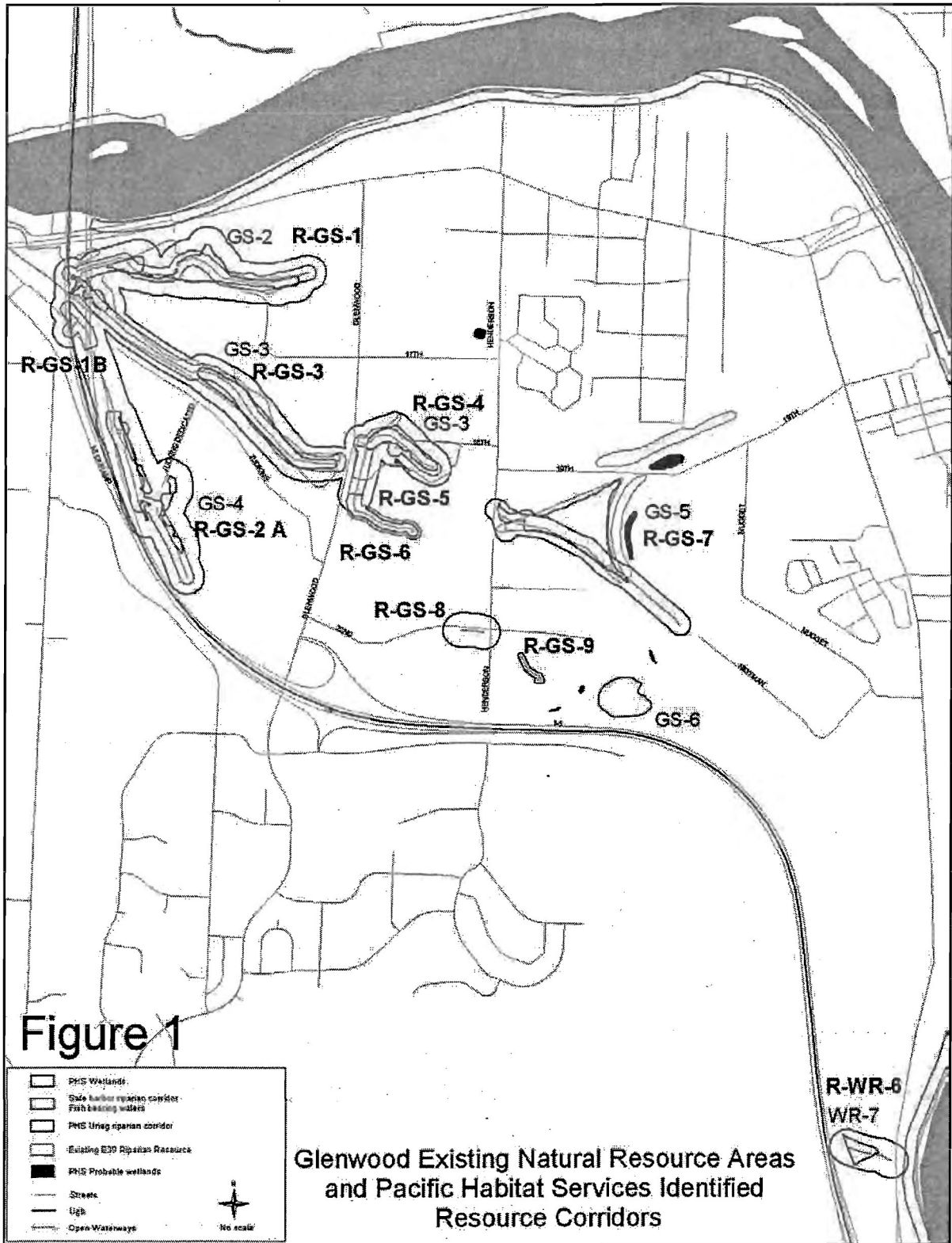
It is also recommended that the existing E39 boundaries and Water Quality Limited Waterway boundaries be better identified on maps and in the City GIS digital files. Over the past few years GIS layers have been updated and shifted, new aerial photos are available and property has been developed, which leave some current boundaries unclear and not well defined.

Table 2 – Tier2 Significance Criteria Score Table Results

Site	WHA Score	T2 criteria met	Comments
R-GS-1	22	Yes	Incorporate into existing E39 protection
R-GS-2A	57	Yes	New riparian resource area
R-GS-2B	17	Yes	Restoration work will improve area and allow it to be incorporated into E39
R-GS-5	34	Yes	Incorporate into existing E39 protection
R-GS-6	15	No	
R-GS-7E	61	Yes	Incorporate into existing E39 protection
R-GS-7W	42	Yes	Incorporate into existing E39 protection
R-GS-9	45	Yes	ESD staff bumped this site to T2 evaluation level; site is highly disturbed on the top of bank on the south end, the riparian area appears to be in its natural state, has continuity with a water feature and mixture of native and non native veg. This area did pass the T2 significance criteria. – New riparian resource area
R-WR-6	61	Yes	New riparian resource area



Figure 1 - Identified sites





A black and white photograph of a large, leafless tree in a field. The tree is the central focus, with its thick trunk and numerous bare branches extending upwards and outwards. The background shows a dense thicket of smaller, leafless trees and bushes. The overall scene is somewhat desaturated and has a grainy texture. The title 'Field Sheets' is overlaid in the center in a large, black, serif font.

# Field Sheets

Attachment 1-105

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-1 (eastern upper reach)

**Location:** West of Glenwood Blvd, south of Franklin, access thru Sanipac truck parking lot

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** Steady light rain

**Wind:** ESE @ 3.0 mph

**Percent cloud cover:** Foggy grayed out sky

**Temperature:** 40.1F

**Physical Parameters**

**General topography:** Flat upper banks with slight slope to wetlands.

**Degree and orientation of slope:** East to west water system with north and south banks, banks at 10 to 20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Upper east end is 2 small streams feeding into the wetlands (Spfld. WQLW designations). Both appear to be storm system fed. Wetlands are ponded with a flowing channel.

**Percent of silt inundated by water:**

**Major structures, roads:** 2 stormwater outfall pipes on the upper east end, parking lot and pavement on 2 sides, commercial back yard on the north side and wetlands on the west.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood (*Populus trichocarpa*) – Dominant tree species  
Willow (*Salix sp.*)  
Grass species  
Blackberry (*Rubus armeniacus/dicolor*)  
Thistle (*Cirsium*)  
Teasel (*Dipsacus*)  
Plantain (*Plantago*)  
Flowering plum (*Prunus sp.*)

Mostly non native vegetation along top of banks and around asphalt. Lower lying areas and wetland edge have a more native vegetation base of emergent wetland community to palustrine forested. Canopy layer can be improved as blackberries and willows are the co-dominant species.

## **Wildlife**

### ***Species observed (herps, fish, birds, mammals):***

None seen – nutria scat in area, bird droppings in area.

### ***Species not observed but known to be present, and sources of information:***

Fish Bearing Status	ODFW
Nutria	Past assessments and Spfld. staff
Raccoon	Past assessments and Spfld. staff
Crows	“
Jays	“
Robins	“
Starlings	“

### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is low habitat layering at this upper end; cottonwoods are dominant tree species with willows and blackberries as co-dominant. Large and small woody debris throughout the area with a large duff layer of leaves and twigs. Water system seems to be storm fed and seasonal with the wetland area staying damp; currently ponded with a stream flow thru the edge.

## **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and uses with a parking lot and asphalt on 2 sides and a back yard of a commercial business on the north side. Lots of garbage in the water, along banks and throughout the riparian area. Heavy noise from large garbage trucks and equipment moving metal dumpsters. There are two stormwater outfalls in this small area; one from a parking lot swale not currently flowing and the other is a permitted (DEQ permit holder) industrial stormwater discharge outfall from the Sanipac site with discharge water currently flowing.

## **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

This area can be easily incorporated into the existing E39 boundaries. The E39 boundary is very close to the end of the upper reach and the WQLW boundary. This area has a lot of potential for enhancement thru invasive species removal and garbage control. The industrial discharger may also be able to provide enhancements to the stream channel that they discharge to as a water treatment area (Water Quality Facility – swale).

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None



*RGS-1 eastern upper reach facing north*



*RGS-1 – eastern upper reach facing west*

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 10<sup>th</sup>, 2010

Site #: R-GS-1 Location: West of Glenwood Blvd and south Franklin Blvd.

Comments: Evaluated upper eastern reach, access thru Sanipac Parking lot.

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____		Perennial _____ 8	4	
	Quality	Stagnant 0 _____	Seasonally Flushed _____ 3	Continually Flushed _____ 6	3	
	Proximity to cover	None 0 _____	Nearby _____ 4	Immediately Adjacent _____ 8	6	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present _____ 4	Three present _____ 8	4	WQLW and Wetlands
FOOD	Variety	Low 0 _____	Medium _____ 4	High _____ 8	0	
	Quantity	Low 0 _____	Limited _____ 4	Year Round _____ 8	0	
	Seasonality	None 0 _____	Limited _____ 4	Year Round _____ 8	2	
COVER	Structural Diversity	Low 0 _____	Medium _____ 4	High _____ 8	1	
	Variety	Low 0 _____	Medium _____ 4	High _____ 8	0	
	Seasonality	Low 0 _____	Medium _____ 2	High _____ 4	0	
DISTUR- BANCE	Physical	High 0 _____	Medium _____ 2	Low _____ 4	1	Storm system outfalls
	Human	High 0 _____	Medium _____ 2	Low _____ 4	0	Surrounded by commercial use and pavement
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique _____ 2	Very Unique _____ 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique _____ 2	Very Unique _____ 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare _____ 2	Very Rare _____ 4	0	
	Interspersion	Low 0 _____	Medium _____ 3	High _____ 6	1	Potential to incorporate into E39 and enhancements

**TOTAL SCORE: 22**

LANE COUNTY OWNED LANDS DEPT  
1703334400300

1703343300800  
SANIPAC INC

GSS-2

CITY OF SPRINGFIELD  
1703343300500

1703343300400

1703343300300

ODOT  
1703343300200

1703343300100  
BROOKS FAMILY

1703343200300  
MOE'S STEPHEN

R-GSS

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-2A southern section with wetlands

**Location:** East of I5 and at the southwest end of Judkins dedicated rd. Just south of the I5 bridge over the Willamette River at Glenwwood.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** Overcast sky

**Wind:** East @ 2.0 mph

**Percent cloud cover:** Grayed out sky / overcast

**Temperature:** 47.8 F

**Physical Parameters**

**General topography:** Flat upper bank and flat along wetlands. East bank slightly sloped to water course, west bank steeper along freeway edge and down to watercourse.

**Degree and orientation of slope:** South to north water system with east and west banks, banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Wetland channels are braided and come from underground springs that are also braided. The main watercourse is a narrow stream that starts out meandering and becomes channelized as it flows north. Added flows from storm system culverts and industry. A large fish friendly culvert separates the system into two sections of open water with riparian corridors.

**Percent of silt inundated by water:**

**Major structures, roads:** I5 along the west top of bank on part of the system. Culverts and outfall structures. A section of this system was recently piped with a large fish friendly culvert separating it from the lower waterway section under the bridges.

**Vegetation**

**Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:**

Black Cottonwood ( <i>Populus trichocarpa</i> )	Thistle ( <i>Cirsium sp.</i> )
Doug Fir ( <i>Pseudotsuga mensiesii</i> )	Teasel ( <i>Dipsacus sp.</i> )
Big Leaf Maple ( <i>Acer mauophyllum</i> )	Queen Anne Lace ( <i>Daucus carota</i> )
Cedar ( <i>Calocedrus decurrens</i> )	Blackberry ( <i>Rubus armeniacus/dicolor</i> )
Willow ( <i>Salix sp.</i> )	Cowparsnip ( <i>Heracleum maximum</i> )
Alder ( <i>Alnus sp.</i> )	Broom ( <i>Cytisus scoparius</i> )
Hawthorn ( <i>Crataegus sp.</i> )	Reed Canary Grass ( <i>Phalaris arundinacea</i> )
Rose ( <i>Rosa sp.</i> )	Sword Fern ( <i>Polystichum munitum</i> )

Poison Hemlock (*Conium maculatum*)  
Mint (*Mentha arvensis*)  
Mowed grass sp.

English Holly (*Ilex aquifolium*)  
Rush (*Juncus effuses*)

A dominant canopy is missing in the wetlands with scattered Hawthorn trees and a small stretch with conifers bordering parts of the wetlands. The main watercourse has a dominant canopy of willows mixed with hawthorns.

### **Wildlife**

#### ***Species observed (herps, fish, birds, mammals):***

Crow  
Nutria scat  
Deer tracks

#### ***Species not observed but known to be present and sources of information:***

Sources: Fish bearing status by ODFW, past assessments and Spfld. staff

Raccoon	Starlings	Nutria
Crows	Jays	
Deer	Fish	

#### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is low habitat layering along the watercourse with willows and hawthorn dominant. The wetlands are open and mowed.

### **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and ROW. There is a lot of noise from traffic on I5. There are boot worn trails in the wetland area from foot traffic. ODOT currently has the area marked for bridge work they are doing to the north. Signs of culvert work are becoming over grown with blackberries and willows.

### **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

None

### **Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None





*RGS-2A facing south at fish culvert*



*facing north from southern end*



*Facing northwest midway from wetlands*



*Wetland area southeast of Judkins dedicated rd.*



*Wetlands and watercourse south of Judkins dedicated rd.*

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

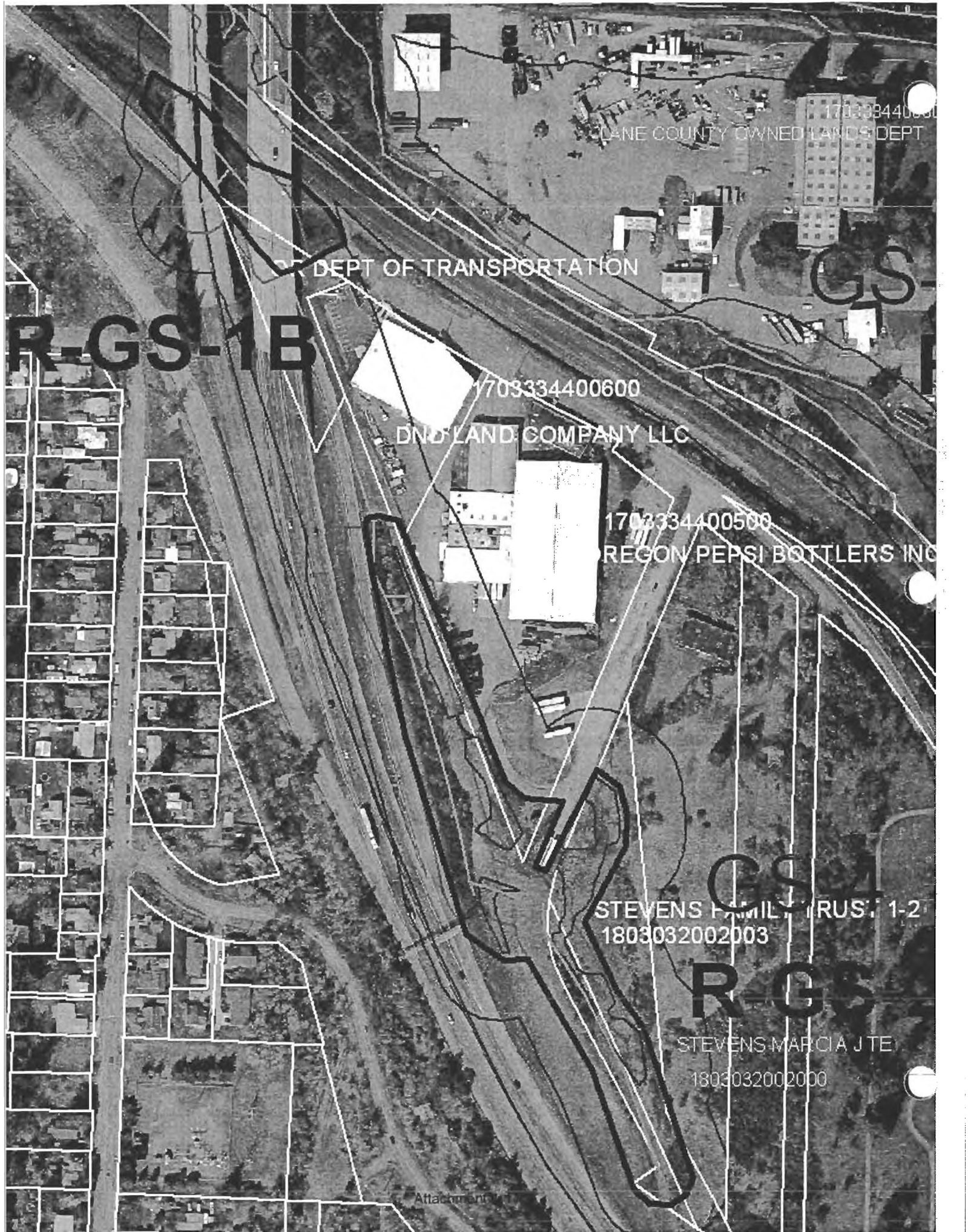
Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 10<sup>th</sup>, 2010

Site #: R-GS-2A Location: East of I5 and at the southern end of Judkins dedicated rd. just south of the I5 Bridge going over the Willamette River in Glenwood.

Comments: Evaluated upper reach separate from lower because of large culvert splitting the system.

Component		Range of Values	Score	Comments
WATER	Seasonality	Seasonal 4 _____ Perennial 8	8	
	Quality	Stagnant      Seasonally Flushed      Continually Flushed 0 _____ 3 _____ 6	5	
	Proximity to cover	None                  Nearby                  Immediately Adjacent 0 _____ 4 _____ 8	7	
	Diversity (streams, ponds, wetlands)	One present                  Two present                  Three present 2 _____ 4 _____ 8	4	WQLW and Wetlands
FOOD	Variety	Low                  Medium                  High 0 _____ 4 _____ 8	4	
	Quantity	Low                  Limited                  Year Round 0 _____ 4 _____ 8	6	
	Seasonality	None                  Limited                  Year Round 0 _____ 4 _____ 8	4	
COVER	Structural Diversity	Low                  Medium                  High 0 _____ 4 _____ 8	6	
	Variety	Low                  Medium                  High 0 _____ 4 _____ 8	4	
	Seasonality	Low                  Medium                  High 0 _____ 2 _____ 4	2	
DISTUR- BANCE	Physical	High                  Medium                  Low 0 _____ 2 _____ 4	2	Large storm structure from under I5 & fish culvert
	Human	High                  Medium                  Low 0 _____ 2 _____ 4	2	Surrounded by commercial use and I5
UNIQUE FEATURES	Wildlife	Not Unique                  Somewhat Unique                  Very Unique 0 _____ 2 _____ 4	0	
	Flora	Not Unique                  Somewhat Unique                  Very Unique 0 _____ 2 _____ 4	0	
	Rarity of Habitat Type	Not Rare                  Somewhat Rare                  Very Rare 0 _____ 2 _____ 4	0	
	Interspersion	Low                  Medium                  High 0 _____ 3 _____ 6	3	Wetlands in and immediately adjacent

**TOTAL SCORE: 57**



**R-GS-1B**

DEPT OF TRANSPORTATION

170333440000  
LANE COUNTY OWNED LANDS DEPT

1703334400600

DND LAND COMPANY LLC

1703334400500

REGON PEPSI BOTTLERS INC

CS  
STEVENS FAMILY TRUST 1-2  
1803032002003

**R-GS**

STEVENS MARCIA J TE  
1803032002000

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-2B northern section under I5 Bridge

**Location:** Under I5 and along railroad tracks south of the Willamette River and at the west end of Judkins rd.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** Overcast sky

**Wind:** East @ 2.0 mph

**Percent cloud cover:** Grayed out sky / overcast

**Temperature:** 47.8 F

**Physical Parameters**

**General topography:** Flat upper bank steep down to watercourse. Construction activity as damaged the banks and vegetation is cut/missing.

**Degree and orientation of slope:** South to north water system with east and west banks, banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** The waterway has been channelized from construction activity with the intent to pass water thru the area quickly.

**Percent of silt inundated by water:**

**Major structures, roads:** Major construction activity for bridge replacement

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood (*Populus trichocarpa*)

Thistle (*Cirsium sp.*)

Teasel (*Dipsacus sp.*)

Blackberry (*Rubus armeniacus/discolor*)

Willow (*Salix sp.*)

The area is mostly barren with little vegetation in the channel area. No existing riparian corridor currently exists. When the construction activity is complete ODOT may be obligated to re-vegetate the area. If re-vegetation is to occur it is assumed that they would use riparian vegetation appropriate for the area and wetlands to the north.

## **Wildlife**

### ***Species observed (herps, fish, birds, mammals):***

None seen

### ***Species not observed but known to be present and sources of information:***

Fish bearing status by ODFW

### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

No habitat currently exists

## **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is under construction by ODOT, lies under the I5 bridge and has the railroad on the north. Heavy noise area from traffic and trains.

## **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

When construction activity is complete ODOT may be obligated to re-vegetate the area. If re-vegetation is to occur it is assumed that they would use riparian vegetation appropriate for the area and wetlands to the north.

## **Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 10<sup>th</sup>, 2010

Site #: R-GS-2B Location: Under I5 and along railroad tracks south of the Willamette River and at the west end of Judkins rd.

Comments: Evaluated lower reach separate from upper because of large culvert splitting the system.

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____	_____	Perennial 8	8	
	Quality	Stagnant 0 _____	Seasonally Flushed 3 _____	Continually Flushed 6	5	
	Proximity to cover	None 0 _____	Nearby 4 _____	Immediately Adjacent 8	0	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present 4 _____	Three present 8	2	WQLW
FOOD	Variety	Low 0 _____	Medium 4 _____	High 8	0	
	Quantity	Low 0 _____	Limited 4 _____	Year Round 8	0	
	Seasonality	None 0 _____	Limited 4 _____	Year Round 8	0	
COVER	Structural Diversity	Low 0 _____	Medium 4 _____	High 8	0	
	Variety	Low 0 _____	Medium 4 _____	High 8	0	
	Seasonality	Low 0 _____	Medium 2 _____	High 4	0	
DISTUR- BANCE	Physical	High 0 _____	Medium 2 _____	Low 4	2	construction
	Human	High 0 _____	Medium 2 _____	Low 4	0	construction
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique 2 _____	Very Unique 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique 2 _____	Very Unique 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare 2 _____	Very Rare 4	0	
	Interspersion	Low 0 _____	Medium 3 _____	High 6	0	Wetlands in and immediately adjacent

**TOTAL SCORE: 17**



1703344000

LANE COUNTY OWNED LANDS DEPT

DEPT OF TRANSPORTATION

GS

R-GS-1B

170334400600

DND LAND COMPANY LLC

170334400500

REGON PEPSI BOTTLERS INC

GS

STEVENS FAMILY TRUST 1-2

1803032002003

R-GS

STEVENS MARCIA J TE

1803032002000

Attachment



**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-5

**Location:** East of Glenwood Blvd just north of the Rail Road and west of the ODOT maintenance yard off Henderson.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** Steady light rain

**Wind:** SE @ 2.0 mph

**Percent cloud cover:** Foggy grayed out sky

**Temperature:** 43.0 F

**Physical Parameters**

**General topography:** Flat upper bank on the east side with slight slope to watercourse, west bank steep off Glenwood Blvd.

**Degree and orientation of slope:** South to north water system with east and west banks, banks at > 20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Narrow stream meanders thru willow thicket to wetlands north. The system is choked at times by Reed canary grass.

**Percent of silt inundated by water:**

**Major structures, roads:** A major boulevard on the upper west bank, gravel parking lot and equipment lot on the east bank. At the southern end of the reach the railroad bed create a levy that bounds the reach.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood (*Populus trichocarpa*)  
Doug Fir (*Pseudotsuga mensiesii*)  
Hazelnut (*Corylus sp.*)  
Willow (*Salix sp.*)  
Rose (*Rosa sp.*)  
Broom (*Cytisus scoparius*)  
Poison Hemlock (*Conium maculatum*)  
Blackberry (*Rubus armeniacus/discolor*)  
English Ivy (*Hedera helix*)

Thistle (*Cirsium sp.*)  
Teasel (*Dipsacus sp.*)  
Queen Anne Lace (*Daucus carota*)  
Plantain (*Plantago sp.*)  
Reed Canary Grass (*Phalaris arundinacea*)  
Sedge (*Carex sp.*)  
Horsetail (*Equisetum sp.*)  
Cowparsnip (*Heracleum maximum*)

Mostly non native vegetation along top of banks and around asphalt. Lower lying areas and wetland edge have a more native vegetation base of emergent wetland community to palustrine scrub-shrub. Dominant canopy is willow with a few Hazel nut and Douglas Fir trees. The water way at times is being choked by Reed canary grass.

### **Wildlife**

#### ***Species observed (herps, fish, birds, mammals):***

None seen – nutria scat in area, deer tracks and can hear song birds.

#### ***Species not observed but known to be present and sources of information:***

Sources: Fish bearing status by ODFW, other species by past assessments and Spfld. staff

Raccoon	Nutria
Crows	Deer
Jays	Fish
Robin	
Starlings	

#### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is low habitat layering at this upper end (southern end). A dead cottonwood snag with wood pecker holes and signs of nesting is in the southeast corner of the reach. Willows are the dominant species with a few Doug Firs at each end. The Fir trees become thicker and more dominant at the northern end edging the wetlands. There is small woody debris throughout the area with a large duff layer of leaves and twigs. Water system seems to be storm fed and seasonal with the wetland area staying damp; currently ponded with a slow stream flow.

### **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and ROW with a parking lot on one side, Railroad on the south end and at top of bank on the west end is Glenwood Blvd. Heavy noise from large traffic volume and rail system. Since half of this reach is currently protected as E39 Natural Resource area it can easily be included by a boundary adjustment.

### **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

This area can be easily incorporated into the existing E39 boundaries. There are signs that the railroad and the ODOT facility use herbicides to control vegetation along their property perimeters.

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

There is a nice snag that is currently being used by birds; it has wood pecker holes in it and signs of nesting.



*RGS-5 facing the north taken from the southern end*

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 10<sup>th</sup>, 2010

Site #: R-GS-5 Location: East of Glenwood Blvd., north of the railroad and west of the ODOT Maintenance yard off Henderson.

Comments: Current Natural Resource area protect on 1/2 of the reach (E39)

Component		Range of Values	Score	Comments
WATER	Seasonality	Seasonal 4 _____ Perennial 8	4	
	Quality	Stagnant _____ Seasonally Flushed _____ Continually Flushed 0 _____ 3 _____ 6	3	
	Proximity to cover	None _____ Nearby _____ Immediately Adjacent 0 _____ 4 _____ 8	7	
	Diversity (streams, ponds, wetlands)	One present _____ Two present _____ Three present 2 _____ 4 _____ 8	4	Moon Mt system and Slough Wetlands
FOOD	Variety	Low _____ Medium _____ High 0 _____ 4 _____ 8	1	
	Quantity	Low _____ Limited _____ Year Round 0 _____ 4 _____ 8	2	
	Seasonality	None _____ Limited _____ Year Round 0 _____ 4 _____ 8	2	
COVER	Structural Diversity	Low _____ Medium _____ High 0 _____ 4 _____ 8	4	
	Variety	Low _____ Medium _____ High 0 _____ 4 _____ 8	0	
	Seasonality	Low _____ Medium _____ High 0 _____ 2 _____ 4	1	
DISTUR- BANCE	Physical	High _____ Medium _____ Low 0 _____ 2 _____ 4	2	Railroad and Glenwood Blvd.
	Human	High _____ Medium _____ Low 0 _____ 2 _____ 4	1	Surrounded by commercial use and rail
UNIQUE FEATURES	Wildlife	Not Unique _____ Somewhat Unique _____ Very Unique 0 _____ 2 _____ 4	0	
	Flora	Not Unique _____ Somewhat Unique _____ Very Unique 0 _____ 2 _____ 4	0	
	Rarity of Habitat Type	Not Rare _____ Somewhat Rare _____ Very Rare 0 _____ 2 _____ 4	0	
	Interspersion	Low _____ Medium _____ High 0 _____ 3 _____ 6	3	Potential to incorporate into E39 and enhancements

**TOTAL SCORE: 34**

1803032002600

BABBS JOHN EMERY

OR DEPT OF TRANSPORTATION

1803032002800

R-GS-5

OR DEPT OF TRANSPORTATION

1803032000100

APR 11 2011 11:25

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-6

**Location:** East of Glenwood Blvd just north of the Rail Road and south of the ODOT maintenance yard off Henderson.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** Steady light rain

**Wind:** SE @ 2.0 mph

**Percent cloud cover:** Foggy grayed out sky

**Temperature:** 43.0 F

**Physical Parameters**

**General topography:** Flat upper bank on both the north and south sides with slight slope to watercourse.

**Degree and orientation of slope:** East to west water system with north and south banks, banks at <20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Narrow stream meanders thru blackberry thickets and Reed canary grass. The system is choked at times by Reed canary grass.

**Percent of silt inundated by water:**

**Major structures, roads:** The railroad parallels the reach on the south bank. There is also a fiber optic underground line that parallels the system at top of bank on the south side. Glenwood Blvd. is also close by.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood ( <i>Populus trichocarpa</i> )	Thistle ( <i>Cirsium sp.</i> )
Doug Fir ( <i>Pseudotsuga mensiesii</i> )	Teasel ( <i>Dipsacus sp.</i> )
Maple ( <i>Acer sp.</i> )	Queen Anne Lace ( <i>Daucus carota</i> )
Willow ( <i>Salix sp.</i> )	Cowparsnip ( <i>Heracleum maximum</i> )
Rose ( <i>Rosa sp.</i> )	Reed Canary Grass ( <i>Phalaris arundinacea</i> )
Broom ( <i>Cytisus scoparius</i> )	Sweet pea ( <i>Lathyrus sp.</i> )
Poison Hemlock ( <i>Conium maculatum</i> )	
Blackberry ( <i>Rubus armeniacus/dicolor</i> )	

Mostly non native vegetation throughout the reach as Reed Canary grass has taken over the area. A dominant canopy is missing with scattered willows, maples and a couple fir trees present. The waterway is being choked by Reed canary grass. A large cottonwood is on the west end with a dead snag that birds are using. Signs of wood pecker holes and nesting in snag.

## **Wildlife**

### ***Species observed (herps, fish, birds, mammals):***

Humming bird	Nutria scat
Song sparrow	Deer scat

### ***Species not observed but known to be present and sources of information:***

Sources: Fish bearing status by ODFW, other species by past assessments and Spfld. staff.

Raccoon	Nutria
Crows	Fish
Jays	
Starlings	
Deer	

### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is low habitat layering, a dead cottonwood snag with wood pecker holes and signs of nesting are in the northwest corner of the reach. Grasses are the dominant species with a few Doug Fir at each end. Water system seems to be storm fed and seasonal.

## **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and ROW with a gravel parking lot on the north side and railroad on the south. Heavy noise.

## **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

There are signs that the railroad and the ODOT facility use herbicides to control vegetation along their property perimeters.

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

There is a nice snag that is currently being used by birds; it has wood pecker holes in it and signs of nesting.



*RGS-6 facing east taken from the west end*



## Wildlife Habitat Assessment Scoring Sheet

Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 10<sup>th</sup>, 2010

Site #: R-GS-6 Location: East of Glenwood Blvd., north of the railroad and south of the ODOT Maintenance yard off Henderson.

Comments: \_\_\_\_\_

Component		Range of Values	Score	Comments
WATER	Seasonality	Seasonal 4 _____ Perennial 8	4	
	Quality	Stagnant _____ Seasonally Flushed _____ Continually Flushed 0 _____ 3 _____ 6	3	
	Proximity to cover	None _____ Nearby _____ Immediately Adjacent 0 _____ 4 _____ 8	1	
	Diversity (streams, ponds, wetlands)	One present _____ Two present _____ Three present 2 _____ 4 _____ 8	2	Moon Mt system
FOOD	Variety	Low _____ Medium _____ High 0 _____ 4 _____ 8	1	
	Quantity	Low _____ Limited _____ Year Round 0 _____ 4 _____ 8	1	
	Seasonality	None _____ Limited _____ Year Round 0 _____ 4 _____ 8	1	
COVER	Structural Diversity	Low _____ Medium _____ High 0 _____ 4 _____ 8	0	
	Variety	Low _____ Medium _____ High 0 _____ 4 _____ 8	0	
	Seasonality	Low _____ Medium _____ High 0 _____ 2 _____ 4	0	
DISTUR- BANCE	Physical	High _____ Medium _____ Low 0 _____ 2 _____ 4	2	Railroad
	Human	High _____ Medium _____ Low 0 _____ 2 _____ 4	0	Surrounded by commercial use and rail
UNIQUE FEATURES	Wildlife	Not Unique _____ Somewhat Unique _____ Very Unique 0 _____ 2 _____ 4	0	
	Flora	Not Unique _____ Somewhat Unique _____ Very Unique 0 _____ 2 _____ 4	0	
	Rarity of Habitat Type	Not Rare _____ Somewhat Rare _____ Very Rare 0 _____ 2 _____ 4	0	
	Interspersion	Low _____ Medium _____ High 0 _____ 3 _____ 6	0	Might provide some food source to wildlife in wetland area - north

**TOTAL SCORE: 15**

OR DEPT OF TRANSPORTATION  
1803032002800

**R-GS-6**

OR DEPT OF TRANSPORTATION  
1803032000100

**R-GS-6**

Attachment 130

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-7 East end

**Location:** Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 12<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** none

**Wind:** SSW @ 8.0 mph

**Percent cloud cover:** Partly cloudy

**Temperature:** 56.7 F

**Physical Parameters**

**General topography:** Flat upper bank on both the north side with steep slope to watercourse, the south bank is railroad bed and steep to watercourse.

**Degree and orientation of slope:** East to west water system with north and south banks, banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Stream channel meandering through willow thicket to the train bridge where the flow slows and the water starts to pond.

**Percent of silt inundated by water:**

**Major structures, roads:** The railroad parallels the reach on the south bank then crosses over the waterway. Asphalt pavement on the north bank from a truck parking and loading area.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood (*Populus trichocarpa*)

Doug Fir (*Pseudotsuga mensiesii*)

Big Leaf Maple (*Acer mauophyllum*)

Willow (*Salix sp.*)

Reed Canary Grass (*Phalaris arundinacea*)

Sword Fern (*Polystichum munitum*)

English Ivy (*Hedera helix*)

Hazelnut (*Corylus sp.*)

Blackberry (*Rubus armeniacus/discolor*)

Queen Anne Lace (*Daucus carota*)

Cowparsnip (*Heracleum maximum*)

Broom (*Cytisus scoparius*)

Cedar (*Calocedrus decurrens*)

Large woody debris throughout the area with a willow thicket running through the middle. One large tree was recently cut by either the power company or railroad into and across the waterway. Lots of young fir and Cedar trees. The area at the far eastern end was recently planted by the bakery with small conifers and deciduous trees. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area.

### **Wildlife**

#### ***Species observed (herps, fish, birds, mammals):***

Shrew	Nutria scat
Song sparrow	Red wing blackbird

#### ***Species not observed but known to be present and sources of information:***

Sources: from past assessments and Spfld. staff.

Nutria  
Raccoon  
Crows  
Jays  
Starlings  
Deer

#### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

Large woody debris throughout the area with a willow thicket running through the middle. Lots of young trees. Habitat is the same as the existing E39 habitat.

### **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and ROW with a asphalt parking lot on the north side and railroad on the south. Heavy noise. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area. Two stormwater outfalls from the bakery were seen.

### **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

There are signs that the railroad uses herbicides to control vegetation along the tracks.

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

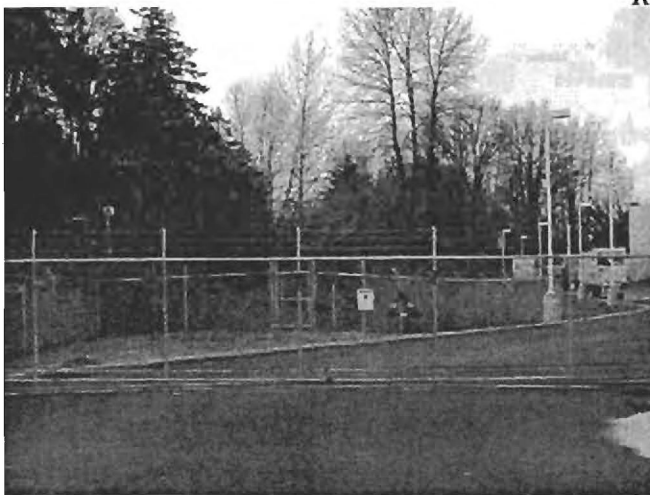
None



*RGS-7 East end - facing west*



*RGS-7 East end - facing east in the middle*



*RGS-7 East end - facing west outside the bakery area*

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

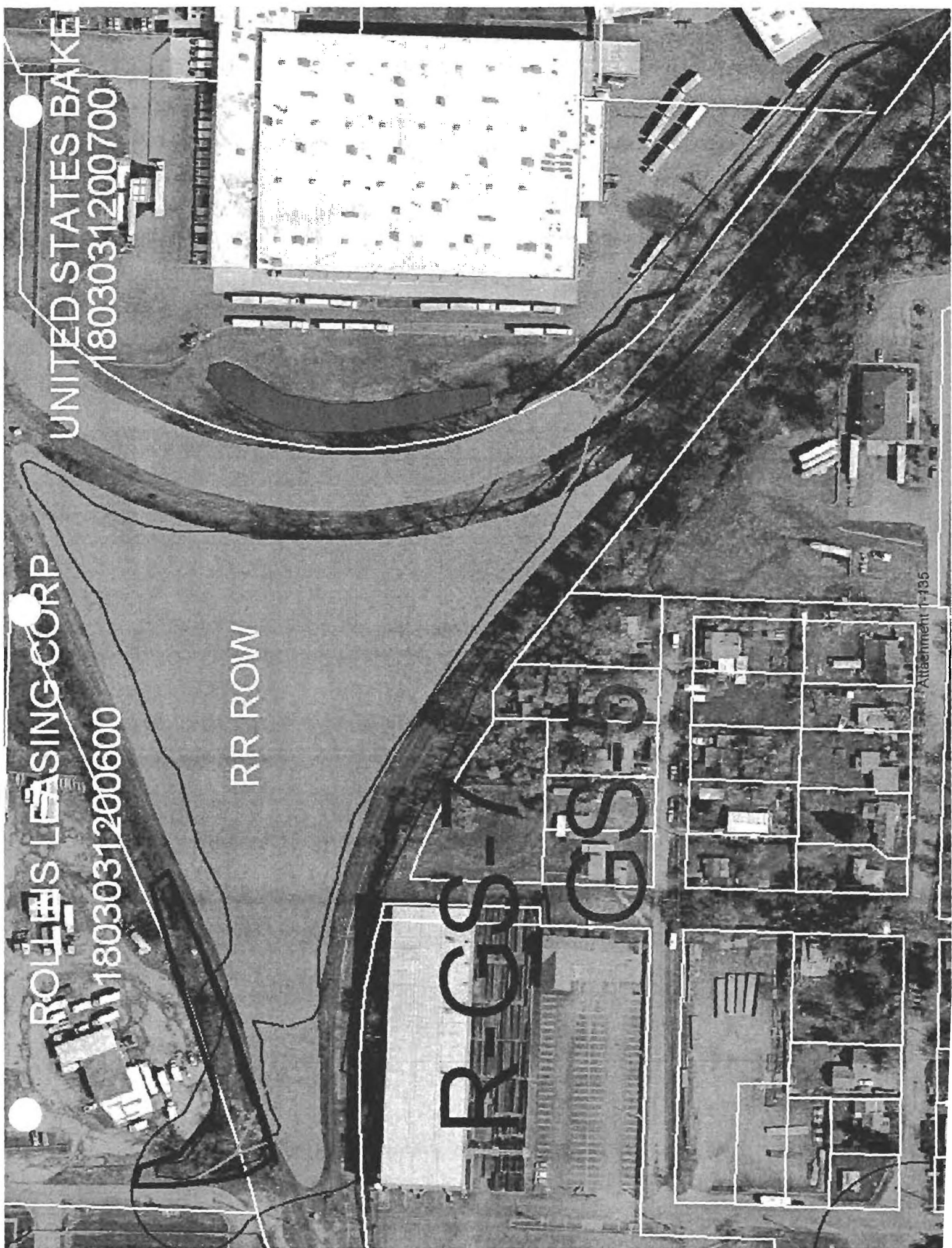
Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 12<sup>th</sup>, 2010

Site #: R-GS-7 East Location: Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

Comments: \_\_\_\_\_

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____		Perennial 8	8	
	Quality	Stagnant 0 _____	Seasonally Flushed 3 _____	Continually Flushed 6	3	
	Proximity to cover	None 0 _____	Nearby 4 _____	Immediately Adjacent 8	8	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present 4 _____	Three present 8	4	WQLW and Wetlands
FOOD	Variety	Low 0 _____	Medium 4 _____	High 8	6	
	Quantity	Low 0 _____	Limited 4 _____	Year Round 8	4	
	Seasonality	None 0 _____	Limited 4 _____	Year Round 8	6	
COVER	Structural Diversity	Low 0 _____	Medium 4 _____	High 8	6	
	Variety	Low 0 _____	Medium 4 _____	High 8	4	
	Seasonality	Low 0 _____	Medium 2 _____	High 4	2	
DISTURBANCE	Physical	High 0 _____	Medium 2 _____	Low 4	3	Railroad
	Human	High 0 _____	Medium 2 _____	Low 4	3	Surrounded by commercial use and rail
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique 2 _____	Very Unique 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique 2 _____	Very Unique 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare 2 _____	Very Rare 4	0	
	Interspersion	Low 0 _____	Medium 3 _____	High 6	4	

**TOTAL SCORE: 61**



ROLLEIS LEASING CORP

1803031200600

RR ROW

RCS - TGS TO

UNITED STATES BAKE

1803031200700

Attachment 135

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-7 West end

**Location:** Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 10<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** none

**Wind:** E @ 2.0 mph

**Percent cloud cover:** overcast

**Temperature:** 48.0 F

**Physical Parameters**

**General topography:** Flat upper bank on the north side with steep slope to watercourse, the south bank is railroad bed and steep to watercourse and the west bank is mild to watercourse.

**Degree and orientation of slope:** Southeast to northwest water system with north, south and banks, banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Stream channel meandering through willow thicket to the train bridge where the flow slows and the water starts to pond.

**Percent of silt inundated by water:**

**Major structures, roads:** The railroad parallels the reach on the south bank then crosses over the waterway where two tracks merge into one. Gravel parking area on the north bank from a truck parking and loading area.

**Vegetation**

**Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:**

Black Cottonwood (*Populus trichocarpa*)

Blackberry (*Rubus armeniacus/discolor*)

Big Leaf Maple (*Acer mauophyllum*)

Willow (*Salix sp.*)

Reed Canary Grass (*Phalaris arundinacea*)

Oregon ash (*Fraxinus latifolia*)

Hawthorn (*Crataegus douglasii*)

Queen Anne Lace (*Daucus carota*)

Sedge (*Carex leptopoda*)

Lots of willow and Ash trees, small and large woody debris with a thick canopy layer.



## **Wildlife**

### ***Species observed (herps, fish, birds, mammals):***

None seen – nutria scat

### ***Species not observed but known to be present and sources of information:***

Sources: from past assessments and Spfld. staff.

Nutria  
Raccoon  
Crows  
Jays  
Starlings  
Deer

### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

Small and large woody debris, bird nests in trees. Habitat is the same as the existing E39 habitat.

## **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

This area is surrounded by commercial land and ROW with a gravel parking lot on the north side and railroad on the south. Heavy noise. The railroad bed area is showing strong signs of long term herbicide use that is reaching into the riparian area.

## **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

There are signs that the railroad uses herbicides to control vegetation along the tracks.

## **Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None



*RGS-7 West end - facing east*

## Wildlife Habitat Assessment Scoring Sheet

Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy

Date of Field Visit: February 12<sup>th</sup>, 2010

Site #: R-GS-7 West Location: Western end is at the south end of Henderson Rd, south of Franklin Blvd. and the eastern end is southwest of Nugget Way.

Comments: \_\_\_\_\_

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____		Perennial _____ 8	8	
	Quality	Stagnant 0 _____	Seasonally Flushed _____ 3	Continually Flushed _____ 6	3	
	Proximity to cover	None 0 _____	Nearby _____ 4	Immediately Adjacent _____ 8	7	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present _____ 4	Three present _____ 8	4	WQLW and Wetlands
FOOD	Variety	Low 0 _____	Medium _____ 4	High _____ 8	2	
	Quantity	Low 0 _____	Limited _____ 4	Year Round _____ 8	4	
	Seasonality	None 0 _____	Limited _____ 4	Year Round _____ 8	3	
COVER	Structural Diversity	Low 0 _____	Medium _____ 4	High _____ 8	3	
	Variety	Low 0 _____	Medium _____ 4	High _____ 8	0	
	Seasonality	Low 0 _____	Medium _____ 2	High _____ 4	0	
DISTUR- BANCE	Physical	High 0 _____	Medium _____ 2	Low _____ 4	2	Railroad
	Human	High 0 _____	Medium _____ 2	Low _____ 4	1	Surrounded by commercial use and rail
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique _____ 2	Very Unique _____ 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique _____ 2	Very Unique _____ 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare _____ 2	Very Rare _____ 4	0	
	Interspersion	Low 0 _____	Medium _____ 3	High _____ 6	5	

**TOTAL SCORE: 42**

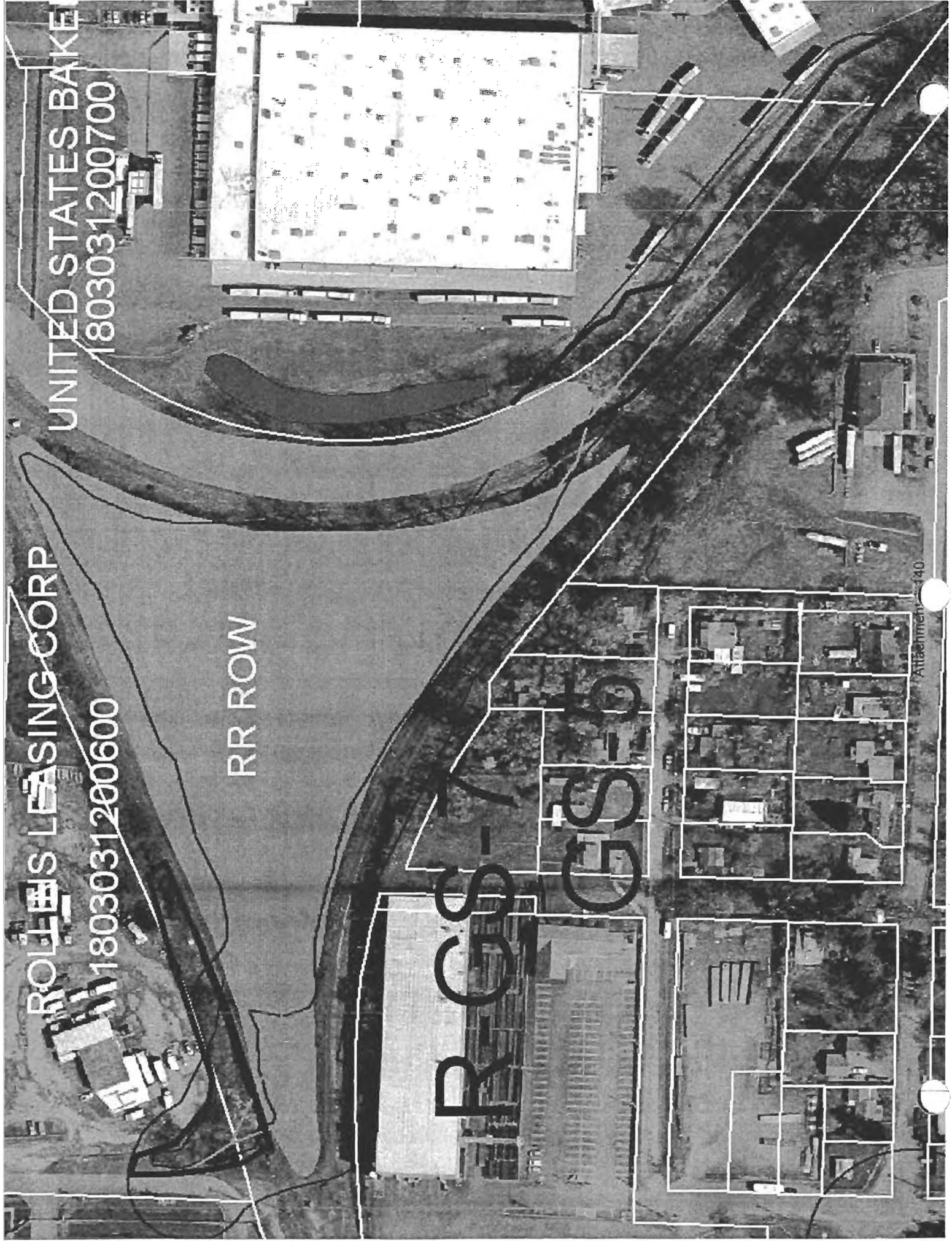
ROLLINS LEASING CORP  
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UNITED STATES BAKE  
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RR ROW

RCS-V  
G-S-10

Attachment 140



**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-GS-9

**Location:** North of 22<sup>nd</sup> Ave. and south of I5

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 12<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** none

**Wind:** SE @ 3.0 mph

**Percent cloud cover:** Partly cloudy

**Temperature:** 48.3 F

**Physical Parameters**

**General topography:** Flat upper bank on the south side with a very steep drop into the riparian area. Upper bank disturbed from past grading activity. Eastern and western bank are also very steep and start to taper at the northern end.

**Degree and orientation of slope:** Banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** A narrow stream that starts from a stormwater structure designed to slow the flow of water and limit impact to the open water system. The waterway meanders through willow and blackberry thickets. The system is fed by a storm system from under the freeway and exits through a storm culvert next to a house at the northern end.

**Percent of silt inundated by water:**

**Major structures, roads:** A stormwater structure designed to slow the flow of water and limit impact to the open water system sits at the start of the system at the bottom of the channel. The land at the top of bank has been graded and graveled in places. Residential housing at the northern end of the system.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood (*Populus trichocarpa*)

English Ivy (*Hedera helix*)

Maple (*Acer sp*)

Blackberry (*Rubus armeniacus/dicolor*)

Alder (*Alnus sp.*)

Cedar (*Calocedrus decurrens*)

Teasel (*Dispsacus sp.*)

Hazelnut (*Corylus sp.*)

Willow (*Salix sp.*)

Possible Knotweed species

Native and non native vegetation exists throughout the reach. There appears to be a clump of knotweed at the top of the bank on the south end. There is a very large cotton wood tree that is constantly being used by birds for food and nesting. Willow thickets and blackberries are the dominant vegetation along the narrow waterway.

## **Wildlife**

### ***Species observed (herps, fish, birds, mammals):***

Lots of birds: jays, crows, song birds, redwing black bird, wood peckers, flickers, chickadees and killdeer.

Nutria and deer scat

### ***Species not observed but known to be present and sources of information:***

Nutria and deer

### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is a thick canopy layer of willows along the watercourse mixing with cottonwoods and maples. A large cottonwood is providing habitat for lots of birds. The steep sloping banks keep people out of this area, but there has been lots of grading/blading at top of bank on the south end. Large and small woody debris cross the waterway.

## **Human Use**

*List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.*

The steep sloping banks have kept people out of this area, but there has been lots of grading/blading at top of bank on the south end. A storm structure is in the bottom of the channel at the start of the system (manhole). This area has traffic noise from I-5, some commercial use present on the south western top and some residential use present on the lower north. Undeveloped land sits to the east.

## **Management/Potential**

*A brief statement on enhancement, maintenance, or compatible uses and development:*

This area has the potential to become a valuable resource and open water system. The current open waterway lies in a steep area that would be difficult to develop. The top of bank could be better managed by including a setback. If vegetation is not maintained in this area there is the

potential for erosion and bank failure. This site could potentially be used as a water quality facility to treat water coming into Springfield from under the freeway.

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None



*R-GS-9 facing northwest from top*



*R-GS-9 facing down to storm structure at bottom*



*R-GS-9 facing northwest*

**Wildlife Habitat Assessment Scoring Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 12<sup>th</sup>, 2010

Site #: R-GS-9 Location: South of 22<sup>nd</sup> Ave and north of I5 west of Henderson Rd.

Comments: This area is an undeveloped area that has a lot of disturbance on the top of bank, but not in the riparian area.

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____		Perennial _____ 8	4	
	Quality	Stagnant 0 _____	Seasonally Flushed _____ 3 _____	Continually Flushed _____ 6	3	
	Proximity to cover	None 0 _____	Nearby _____ 4 _____	Immediately Adjacent _____ 8	7	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present _____ 4 _____	Three present _____ 8	2	
FOOD	Variety	Low 0 _____	Medium _____ 4 _____	High _____ 8	4	
	Quantity	Low 0 _____	Limited _____ 4 _____	Year Round _____ 8	4	
	Seasonality	None 0 _____	Limited _____ 4 _____	Year Round _____ 8	4	
COVER	Structural Diversity	Low 0 _____	Medium _____ 4 _____	High _____ 8	4	
	Variety	Low 0 _____	Medium _____ 4 _____	High _____ 8	4	
	Seasonality	Low 0 _____	Medium _____ 2 _____	High _____ 4	2	
DISTUR- BANCE	Physical	High 0 _____	Medium _____ 2 _____	Low _____ 4	3	
	Human	High 0 _____	Medium _____ 2 _____	Low _____ 4	3	
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique _____ 2 _____	Very Unique _____ 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique _____ 2 _____	Very Unique _____ 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare _____ 2 _____	Very Rare _____ 4	0	
	Interspersion	Low 0 _____	Medium _____ 3 _____	High _____ 6	1	

**TOTAL SCORE: 45**



JACDONA BENJAMIN C

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# TR-GS-9

1803031300301

MILLER VALLEY LTD PTRSHP

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1803031300500

PAPER PROPERTIES INC  
1803031300200

1803031300600

PETERSON MACHINERY CO

**Wildlife Habitat Assessment Narrative Sheet**  
Eugene-Springfield Metropolitan Natural Resources Study

R-WR-6

**Location:** West of McVay Hwy and east of I5, north of the I5 on ramp to I5 north bound.

**Observer:** Sunny Washburn, Meghan Murphy (Spfld. ESD)

**Date:** February 12<sup>th</sup>, 2010

**Weather**

**Precipitation (yes, no, type):** none

**Wind:** SSW @ 7.0 mph

**Percent cloud cover:** Partly cloudy

**Temperature:** 56.5 F

**Physical Parameters**

**General topography:** Flat upper bank on both the north and south sides with slight slope to watercourse. The west slope is very steep from the freeway and the east bank is steep from the roadway. The bottom is flat.

**Degree and orientation of slope:** West to east water system with north, south, east and west banks, banks at >20% slope.

**Water features (pond, lake, stream stagnant, etc.):** Narrow stream meanders thru willow thickets and Reed canary grass. The system is fed by a storm culvert from under the freeway and exits through a storm culvert under McVay Hwy. and into the Willamette River.

**Percent of silt inundated by water:**

**Major structures, roads:** There are major roadways on the west and east ends with residential housing on the north and south sides.

**Vegetation**

*Description of vegetation types, including species list, communities, percent canopy closure (tree, shrub, herb), number and size of snags, seral stage, general health and vitality, percent open water/percent emergent vegetation at inundated areas:*

Black Cottonwood ( <i>Populus trichocarpa</i> )	Oregon Ash ( <i>Fraxinus latifolia</i> )
Doug Fir ( <i>Pseudotsuga mensiesii</i> )	English Ivy ( <i>Hedera helix</i> )
Red-Osier Dogwood ( <i>Cornus stolonifera</i> )	Maple ( <i>Acer sp</i> )
Blackberry ( <i>Rubus armeniacus/dicolor</i> )	Willow ( <i>Salix sp.</i> )
Reed Canary Grass ( <i>Phalaris arundinacea</i> )	Indian Plum ( <i>Oemleria cerasiformis</i> )
Field Horsetail ( <i>Equisetum arvense</i> )	White Oak ( <i>Quercus Garryana</i> )

Native and non native vegetation throughout the reach and wetland. Reed Canary grass is starting to overtake the wetland area. There is a thick canopy with cottonwoods, maples and willows. Lots of Oak trees and Ash just outside the area with a scattering in the site.

### **Wildlife**

#### ***Species observed (herps, fish, birds, mammals):***

None seen

#### ***Species not observed but known to be present and sources of information:***

None known

#### ***General description of habitat function (food sources, roosting, perching, nesting, etc.):***

There is a thick canopy layer with a wetland in the middle of this riparian area. Sloping banks with flat bottom. There are more invasive blackberries on the western freeway banks than on the bottom or north and south banks. Scattered Oaks, Ash and cottonwood over story with a willow under story.

### **Human Use**

***List human uses and use by domestic animals, and proximity to residential area. Discuss compatibility and conflicts with natural resources and interspersions with other natural areas.***

This area has heavy traffic noise from I5 and the McVay Hwy. The railroad is just across the McVay Hwy to the east. Residential houses on the north and south banks with scattered garbage on the top of banks.

### **Management/Potential**

***A brief statement on enhancement, maintenance, or compatible uses and development:***

Lots of blackberries on the western end along I5 that appear to be managed by herbicides. The top of banks around the residential housing is mowed grass. It also appears that the McVay Hwy. is either mowed or the maintenance crews use herbicides along the ROW, which is the edge of the riparian area.

**Additional Comments:**

*Unique features, rare, threatened, or sensitive species:*

None



*R-WR-6 facing west*

## Wildlife Habitat Assessment Scoring Sheet

Eugene-Springfield Metropolitan Natural Resources Study

Observer Name: Sunny Washburn, Meghan Murphy Date of Field Visit: February 12<sup>th</sup>, 2010

Site #: R-WR-6 Location: West of McVay Hwy and east of I5, north of the I5 on ramp to I5 north bound.

Comments: \_\_\_\_\_

Component		Range of Values			Score	Comments
WATER	Seasonality	Seasonal 4 _____		Perennial 8	6	
	Quality	Stagnant 0 _____	Seasonally Flushed 3	Continually Flushed 6	3	
	Proximity to cover	None 0 _____	Nearby 4	Immediately Adjacent 8	8	
	Diversity (streams, ponds, wetlands)	One present 2 _____	Two present 4	Three present 8	4	waterway and wetlands
FOOD	Variety	Low 0 _____	Medium 4	High 8	4	
	Quantity	Low 0 _____	Limited 4	Year Round 8	4	
	Seasonality	None 0 _____	Limited 4	Year Round 8	4	
COVER	Structural Diversity	Low 0 _____	Medium 4	High 8	7	
	Variety	Low 0 _____	Medium 4	High 8	6	
	Seasonality	Low 0 _____	Medium 2	High 4	3	
DISTUR- BANCE	Physical	High 0 _____	Medium 2	Low 4	4	
	Human	High 0 _____	Medium 2	Low 4	4	
UNIQUE FEATURES	Wildlife	Not Unique 0 _____	Somewhat Unique 2	Very Unique 4	0	
	Flora	Not Unique 0 _____	Somewhat Unique 2	Very Unique 4	0	
	Rarity of Habitat Type	Not Rare 0 _____	Somewhat Rare 2	Very Rare 4	0	
	Interspersion	Low 0 _____	Medium 3	High 6	4	

**TOTAL SCORE: 61**

# R-WR-6

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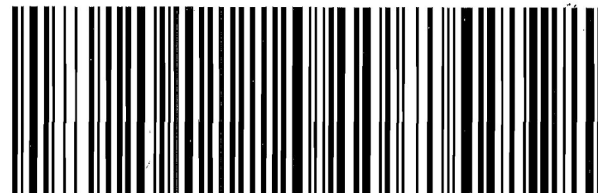
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