

NATURAL RESOURCE ASSESSMENT

SUPPLEMENT TO NATURAL RESOURCE ASSESSMENT

To: Oregon City Planning Department
Cc: Rian Park Development LLC
Monty Hurley, AKS Engineering and Forestry
From: Stacey Reed, Wetland Scientist
Date: May 20, 2014
Subject: Ellis Estates Residential Development
19821 Leland Road, Oregon City, Clackamas County, Oregon
Tax lot 1206 of tax map 3 2E 18

A future extension to the waterline on the Ellis Estates project site (tax lot 1206) requires the water line to loop through tax lot 1282 to the south of the project site. A perennial stream flows southerly through the eastern portion of tax lot 1282 (near Leland Road). The stream is mapped as a Title 3 Water Quality Resource on the City's Natural Resource Overlay District (NROD) map. A portion of the stream flows through a 12-inch diameter culvert located under an existing gravel driveway on tax lot 1282. The portion of the stream that is piped does not have a defined channel and is therefore not defined as a "stream" under Section 17.04.1205 of Oregon City code. According to Section 17.49.110 of Oregon City's NROD code, a vegetated corridor is measured from the top of bank of the defined water feature. Therefore, the portion of the stream within the pipe does not require an adjacent vegetated corridor.

Work for the waterline will occur entirely within the footprint of the existing gravel road. Work will not occur within the open stream channel or its associated vegetated corridor; therefore, the installation of the waterline will not occur within the NROD.

Please do not hesitate to contact me with any questions concerning the proposed project.

Stacey Reed



sreed@swca.com
503.956.2550

Natural Resource Assessment

To: Oregon City Planning Department
Cc: Rian Park Development Inc.
Chris Goodell, AKS Engineering and Forestry
From: Stacey Reed, Wetland Scientist
Date: April 9, 2014
Subject: Ellis Estates Residential Development
19821 Leland Road, Oregon City, Clackamas County, Oregon
Tax lot 1206 of tax map 3 2E 18 (5.94 acres in size)

INTRODUCTION AND BACKGROUND

SWCA Environmental Consultants (SWCA) was contracted by Rian Park Development Inc. to conduct a wetland determination at 19821 Leland Road in Oregon City, Clackamas County, Oregon (tax lot 1206 of tax map 3 2E 18; Figures 1 and 2). Residential development is proposed on the 5.94-acre site. Our site visit on May 2, 2013, determined that a portion of a potentially jurisdictional drainage is present in the southeastern corner of the site. The perennial drainage has an adjacent slope of less than 25%, requiring a 50-foot-wide vegetated corridor. The project proposes 350 square feet of temporary and 150 square feet of permanent impacts to the vegetated corridor for sanitary and stormwater utilities. No impacts are proposed within the drainage. The proposed development is consistent with the requirements listed in Chapter 17.49.155 and Chapter 17.49.140 of Oregon City's Code of Ordinances.

The drainage is mapped as an aboveground stream with Title 3 Water Quality Resources, and a Natural Resource Overlay District (NROD) is mapped adjacent to the drainage on the City of Oregon City's NROD map. Therefore, this natural resource assessment has been prepared in accordance with Chapter 17.49, NROD, of Oregon City's Code of Ordinances.

EXISTING CONDITIONS

According to the Natural Resources Conservation Service (NRCS) Clackamas County Area soil survey map and the Clackamas County hydric soils list, the non-hydric Bornstedt silt loam with 0% to 8% slopes (Unit 8B) is mapped in the northern portion of the site and the non-hydric Jory silty clay loam with 2% to 8% slopes (Unit 45B) is mapped in the southern portion of the site (Figure 3; NRCS 2013a, 2013b). According to Clackamas County's hydric soil list, Bornstedt silt loam can have 5% hydric Borges soils in depressions.

The project area is not covered under the 1999 study area for the City of Oregon City Local Wetland Inventory (LWI). However, the Oregon City NROD map shows a drainage (tributary to Mud Creek) flowing southerly through the northern portion of the tax lot (Figure 4).

A single-family residence and detached barn are present in the central portion of the site. North of the house is a grass area that was dominated by tall fescue. The remaining undeveloped area to the west of the

house is an unmowed field that was generally dominated by tall fescue, bentgrass, orchard grass, Kentucky bluegrass, Queen Anne's-lace, common dandelion, and English plantain. Oregon white oak and Douglas-fir trees were present in the southern portion of the site. One large Oregon white oak tree was present in the northern portion of the site. The topography on the site has a gentle (less than 3%) southerly slope. The surrounding land use is residential.

ON-SITE RESOURCES

A previous wetland delineation was conducted on the site in 2007 by Schott and Associates for the Leland Road property (tax lots 1000, 1206, 1282, and 1300 of Township 3 South, Range 2 East, Section 18). The 2007 delineation received concurrence from the Oregon Department of State Lands (DSL) under DSL File WD #07-0108 (attached for reference). The headwaters of a drainage were mapped in the northern portion of tax lot 1282. No waters or wetlands were identified on tax lot 1206. The drainage delineated on tax lot 1282 was determined to be jurisdictional by DSL. The 2007 wetland delineation expired on December 13, 2012.

A site visit was conducted on May 2, 2013, by Stacey Reed and Stacy Benjamin of SWCA to document current site conditions. The methodology used for determining the presence of wetlands followed the U.S. Army Corps of Engineers' (Corps') *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010), used by both the Corps and the Oregon DSL. Soils, vegetation, and indicators of hydrology were recorded at one sample plot location to document representative site conditions. Our site visit determined that a portion of a potentially jurisdictional drainage is present in the southeast portion of the site. However, the drainage is not present through the entire northern portion of the site, as mapped on the city's NROD map. The drainage originates on-site from a 12-inch-diameter pipe and extends off-site to the south. The outlet of the culvert was dry on our May 2, 2013, site visit (lacked surface saturation). The on-site channel bed lacked vegetation and was dominated by gravelly silt loam. Approximately 255 square feet of on-site channel was delineated on the site. The ordinary high water mark (OHWM) for the on-site portions of the channel were determined based on field indicators observed during the May 2013 site visit. These indicators consisted of drainage patterns and sediment sorting (gravels in the channel bed and lack of gravels above the channel bed). Immediately off-site, the channel is rock lined and covered with English ivy. Shallow, non-continuous ponding was observed in the downstream end of the channel immediately off-site during the May 2, 2013, site visit. Therefore, the flow regime associated with the channel was determined to be perennial; however, it is likely the flow regime is intermittent (lacks continuous flow for more than 30 continuous days during a normal rainfall year). The drainage continues to the south of the site and is a tributary to Mud Creek. Mud Creek is a tributary to Beaverton Creek.

Plot 1 documents the on-site conditions immediately upslope of the culvert outfall. This area was dominated by tall fescue and lacked wetland hydrology and hydric soil indicators. Therefore, plot 1 was determined to be upland. The approximate location for plot 1 and the perennial drainage are shown on the attached Figure 5, Existing Conditions. The Wetland Determination Data Sheet, a list of vegetation observed on the site, and representative photos are also attached.

EXTENT AND CONDITION OF ON-SITE VEGETATED CORRIDOR

The slope adjacent to the drainage is less than 25%; therefore, according to Table 17.49.110 of the Oregon City Chapter 17.49 NROD code, the drainage has an adjacent 50-foot-wide vegetated corridor extending from the top of the channel banks. Approximately 2,182 square feet of vegetated corridor exists on the project site. The extent of vegetated corridor is shown on the attached Figure 5, Existing Conditions.

The on-site vegetated corridor generally lacked woody and native vegetation at the time of our site visit, and can be considered to be in *degraded* condition. One Douglas fir tree was present rooted on the 50 foot boundary. The corridor is dominated by non-native grasses.

PROPOSED VEGETATED CORRIDOR IMPACTS

Residential development is proposed on the site. The installation of sanitary and stormwater lines associated with the new development will result in approximately 350 square feet of temporary impacts to *degraded* condition vegetated corridor. Two riprap stormwater outfall pads are also proposed in the *degraded* condition vegetated corridor, permanently impacting a total of approximately 150 square feet of vegetated corridor. One 27-inch dbh (diameter breast height) Douglas-fir tree will be removed from the vegetated corridor for the construction of the storm drain line. There is no alternate feasible location for the storm drain line that would avoid impact to the Douglas fir tree. The storm drain line cannot be shifted south due to property line setbacks. Other alternate locations would also result in tree removal. No grading or impacts are proposed below the OHWM of the drainage. The proposed sanitary and stormwater development activities are consistent with Chapter 17.49.155 and Chapter 17.49.140 of the city's Development Code. The proposed site plan is included as Figure 6.

PROPOSED VEGETATED CORRIDOR MITIGATION

To compensate for the 500 square feet of impacts (350 square feet temporary and 150 square feet permanent), the remaining approximately 2,000-square-foot vegetated corridor will be planted with native trees, shrubs, and ground cover according to the attached Ellis Estates Planting Specification Table, March 10, 2014. The proposed mitigation planting enhancement area was determined to be in *degraded* condition. The location of the proposed enhancement mitigation area is shown on attached Figure 6. The plant species listed on the table are only a recommended list of native plants. These species may be substituted based on stock availability; however, plants installed within the vegetated corridor enhancement area must be native and listed on the Oregon City Native Plants List. The mitigation planting densities proposed are consistent with Option 2 of Chapter 17.49.180. This option requires that the number of native trees and shrubs to be installed be calculated based on the size of the disturbance area. For the proposed mitigation enhancement area, the number of trees and shrubs were calculated based on dividing the 2,000-square-foot area by 500, then multiplying by five times for trees and 25 times for shrubs. The proposed mitigation is consistent with the mitigation requirements listed in Chapter 17.49.180.

Please do not hesitate to contact me with any questions concerning the proposed project.

LITERATURE CITED

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Online edition. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. Available at: <http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>.
- Natural Resources Conservation Service (NRCS). 2013a. Hydric soils in Clackamas County area, Oregon (survey version 6 dated March 20, 2007). Available at: <http://www.or.nrcs.usda.gov/technical/soil/hydric.html>. Accessed March 2013.
- . 2013b. Online soil survey. Available at: <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed March 2013.
- U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

List of Figures:

- Figure 1. U.S. Geological Survey site location map
- Figure 2. Tax lot map
- Figure 3. Soil survey map
- Figure 4. Oregon City Natural Resource Overlay District Map
- Figure 5. Existing conditions
- Figure 6. Proposed site plan

List of Attachments:

- December 13, 2007, DSL Wetland Concurrence Letter (WD #07-0108)
- Wetland Determination Data Sheet – Plot 1
- List of Vegetation Observed On-site
- Representative On-site Photographs
- Ellis Estates Vegetated Corridor Enhancement Planting Specification Table, March 10, 2014

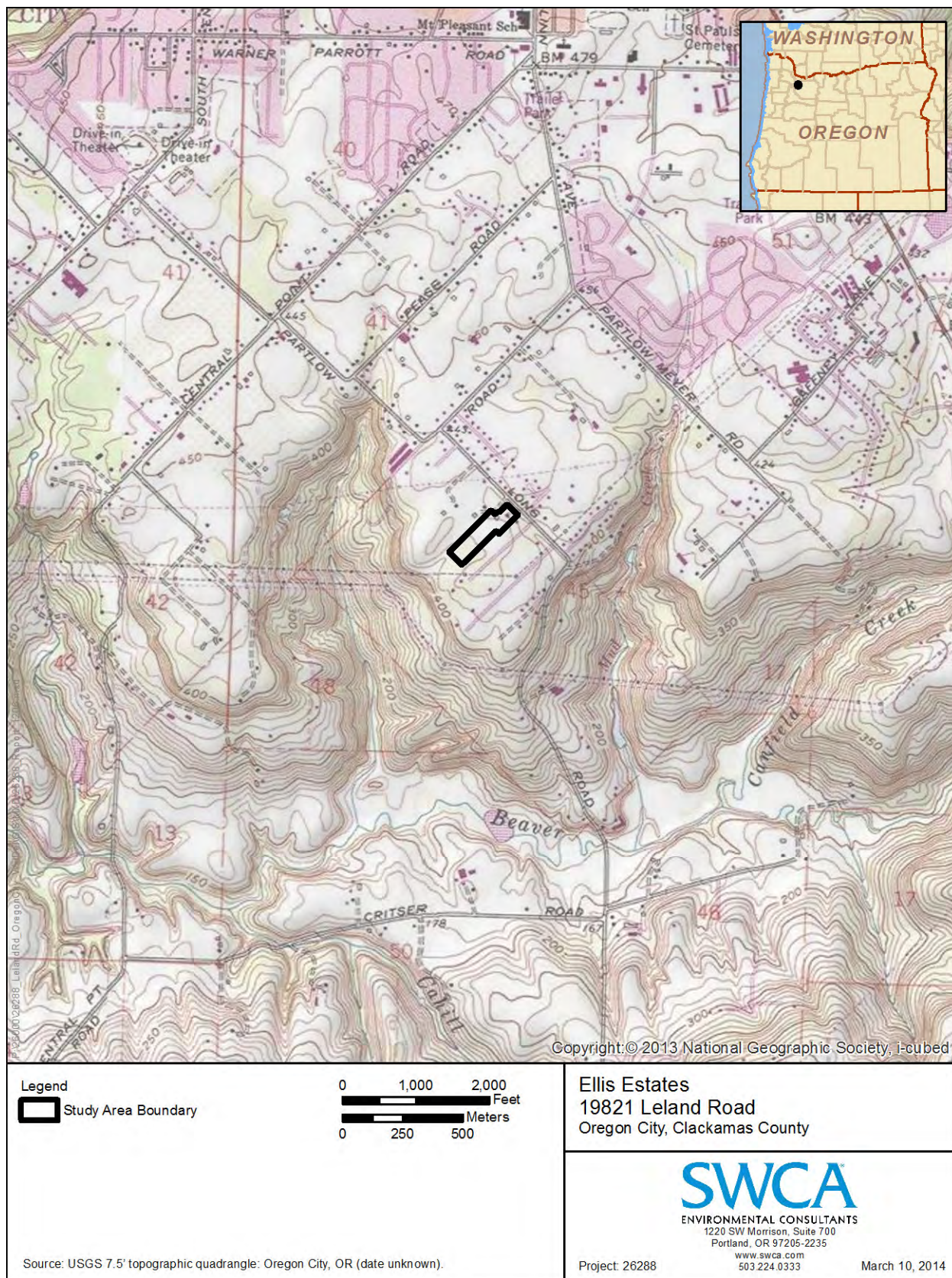


Figure 1. U.S. Geological Survey site location map.

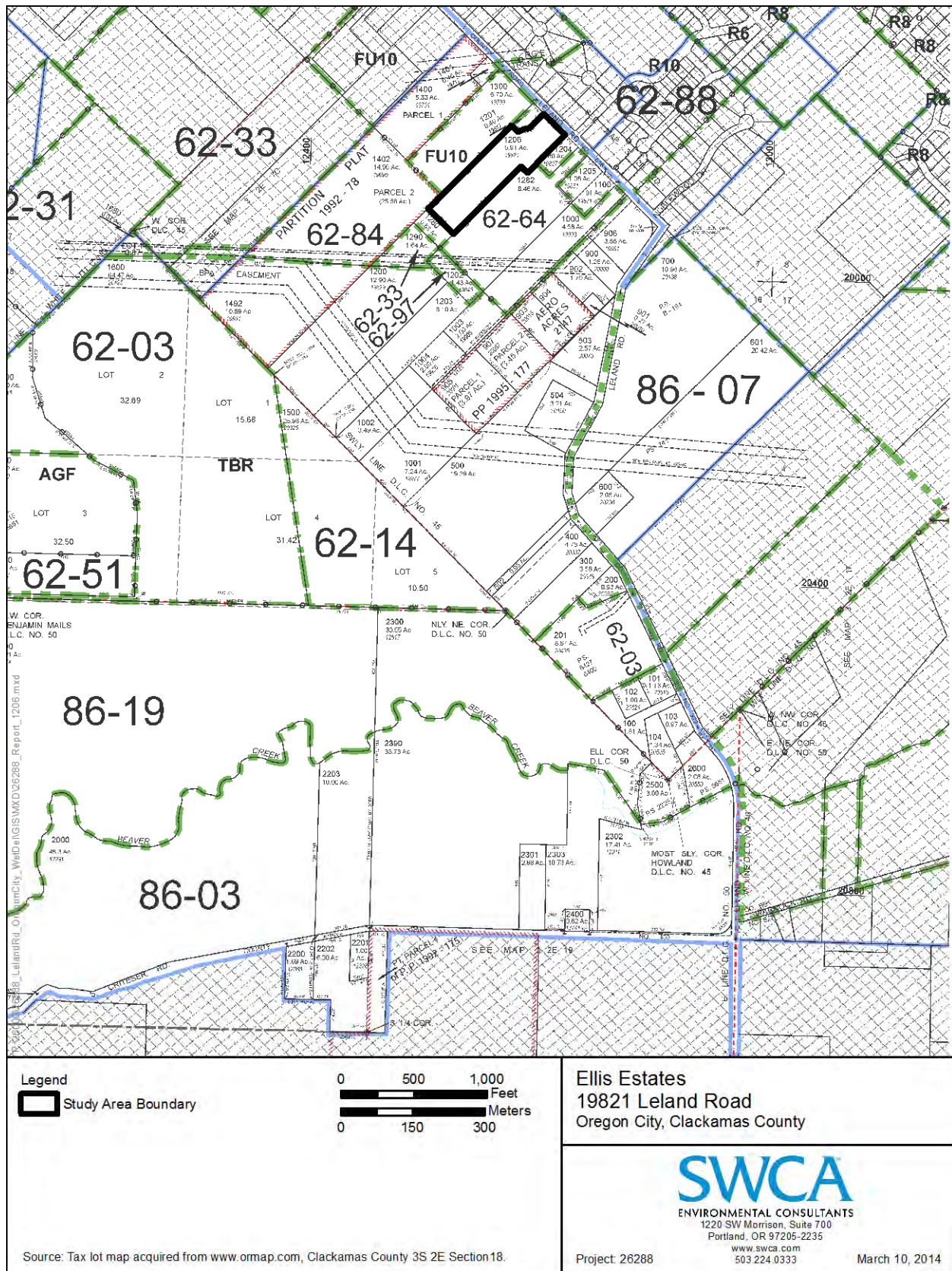


Figure 2. Tax lot map.

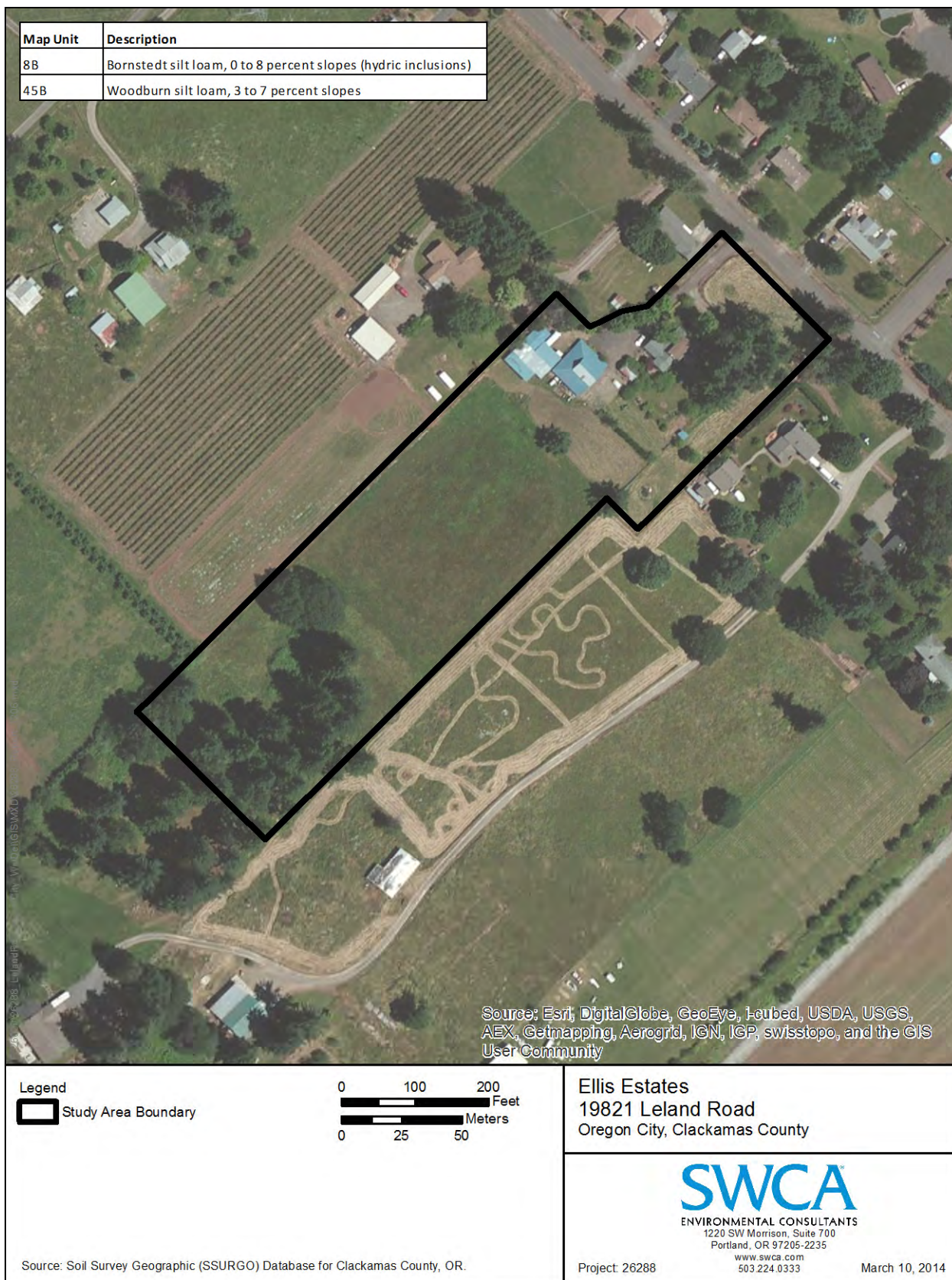


Figure 3. Soil survey map.

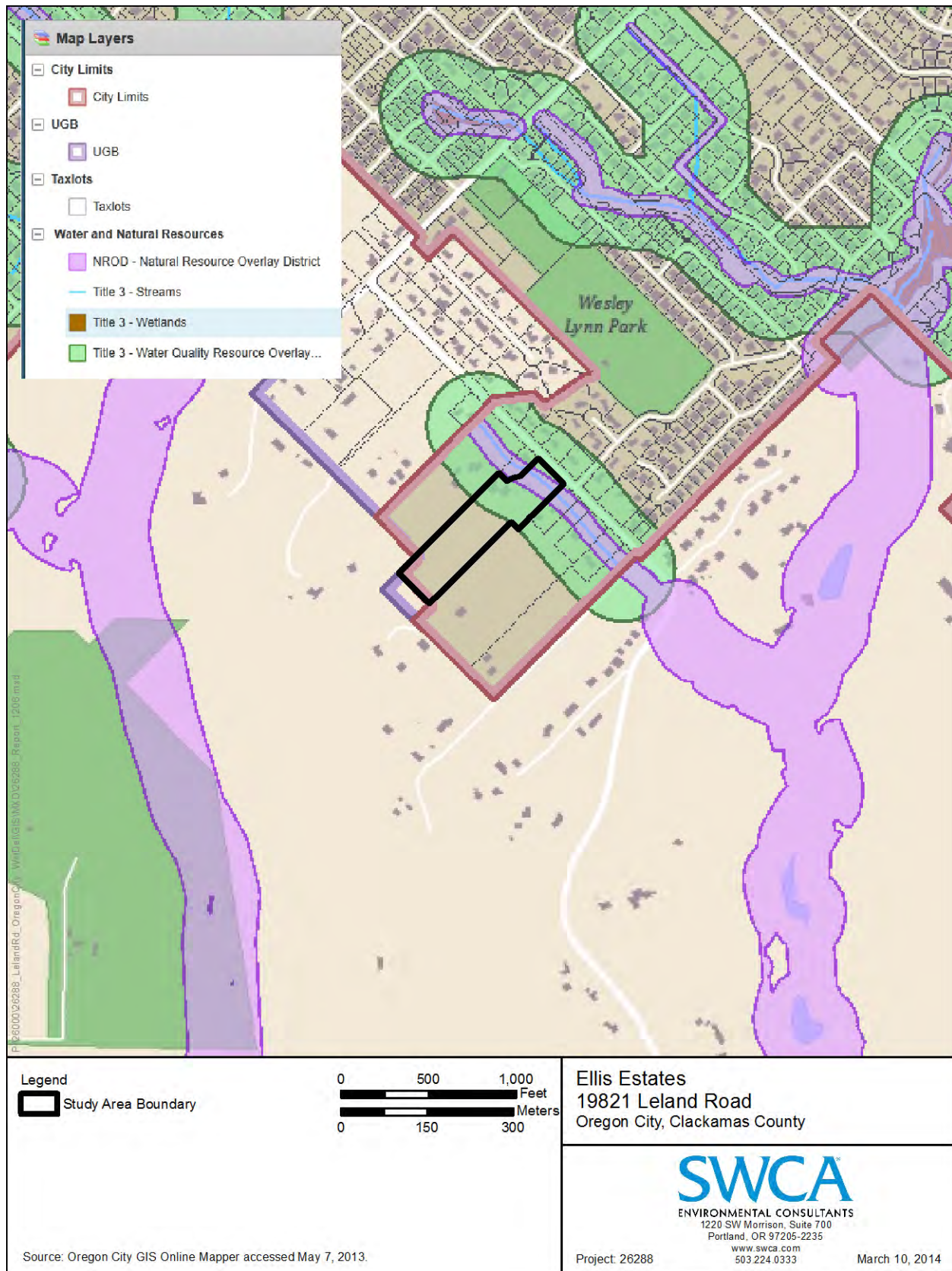


Figure 4. City of Oregon City Local Wetlands Inventory (LWI) map.

ENGINEERING • PLANNING
SURVEYING • FORESTRY13910 SW GALBREATH DR.,
SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

DESIGNED BY:

DRAWN BY: JOH

CHECKED BY: TGI

DRAWING NO.: 3867 P2-3

SCALE: AS NOTED

PREPARED FOR:

RIAN PARK DEVELOPMENT
15239 S LAKERIDGE WAY
OREGON CITY, OR 97045
PHONE: (503) 786-7979

DATE: 03/06/14

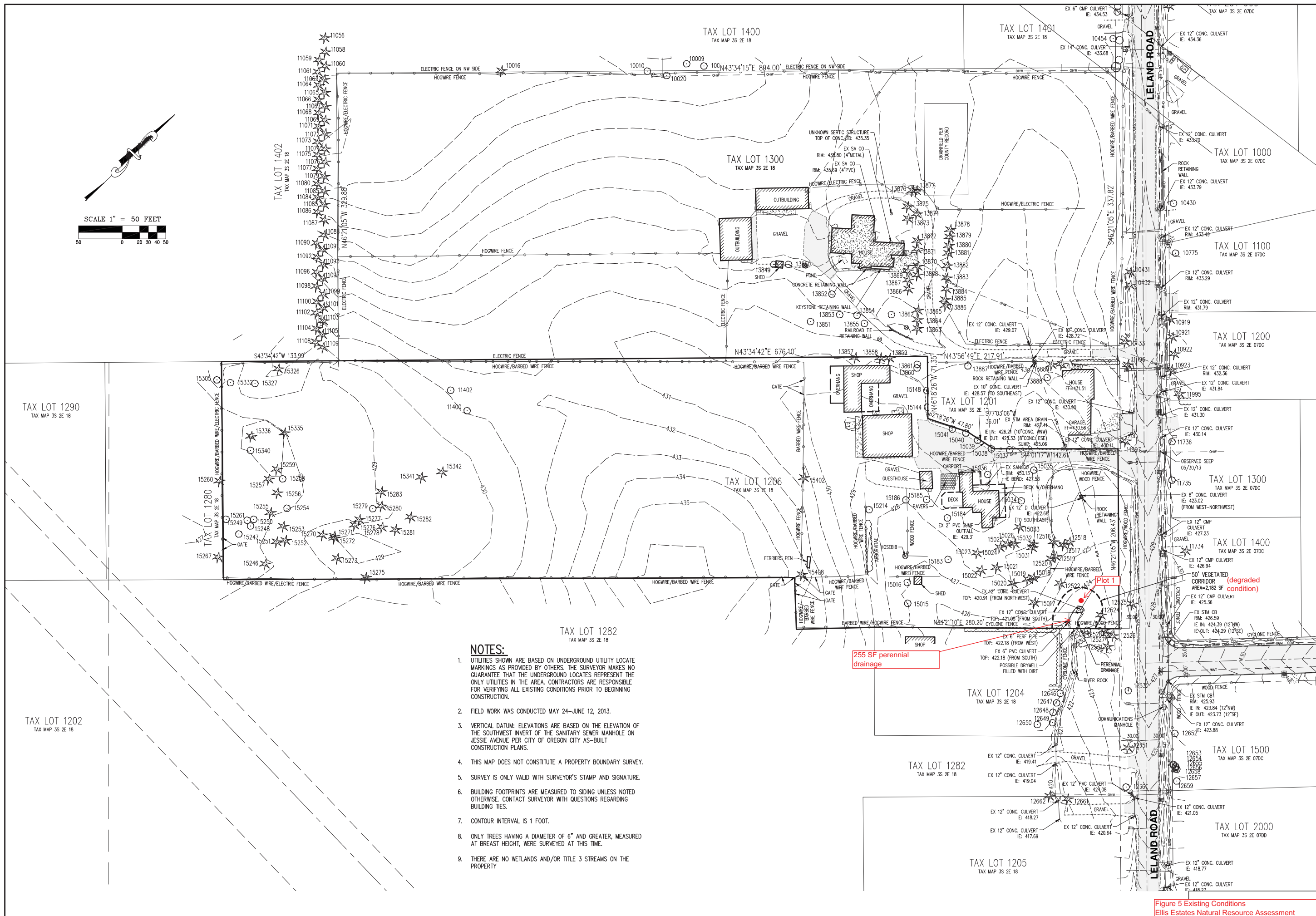
REGISTERED
PROFESSIONAL
LAND SURVEYOROREGON
JULY 15, 2003
MONTGOMERY B. HURLEY
58542LS
RENEWS: 6/30/15

JOB NUMBER

3867

SHEET

1

Figure 5 Existing Conditions
Ellis Estates Natural Resource Assessment

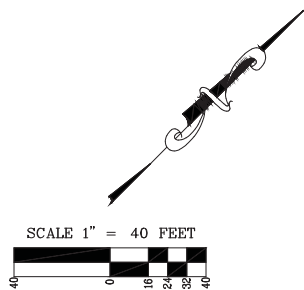
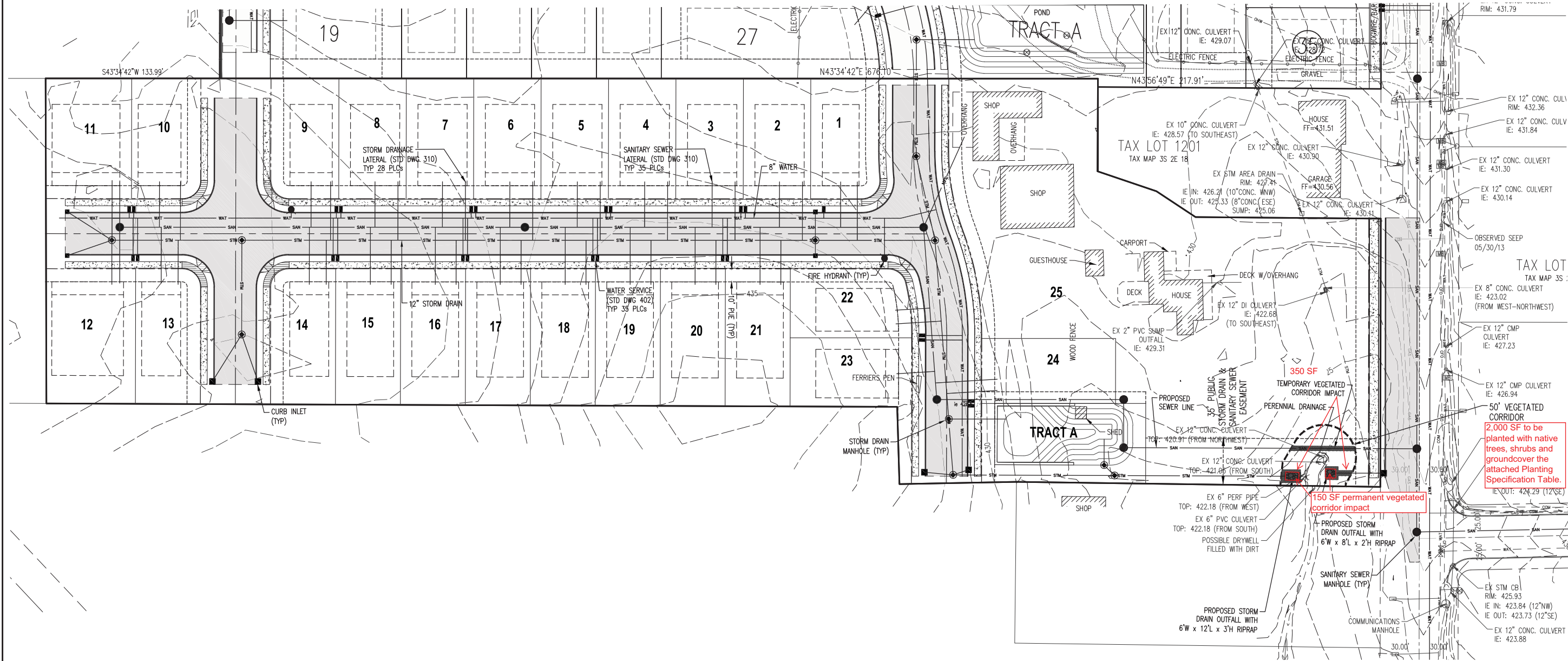


Figure 6 Site Plan
Ellis Estates Natural Resource Assessment

PRELIMINARY
SITE PLAN

ELLIS ESTATES

OREGON CITY

AKS
ENGINEERING & FORESTRY

ENGINEERING • PLANNING
SURVEYING • FORESTRY
13910 SW GALBREATH DR.,
SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

DESIGNED BY: VN
DRAWN BY: VN, DJM
CHECKED BY: VN, MBH
DRAWING NO.: 3867 SITE
SCALE: AS NOTED
PREPARED FOR:
RIAN PARK DEVELOPMENT, INC.
15239 S LAKERIDGE WAY
OREGON CITY, OR 97045
DATE: 03/06/2014
RENEWAL DATE: 6/30/15
JOB NUMBER
3867
SHEET
1

OREGON
TAX LOT 1206
CLACKAMAS COUNTY TAX MAP 3S 2E 18



Oregon

Theodore R. Kulongoski, Governor

Department of State Lands

775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us

December 13, 2007

State Land Board

Andrew E. Tiemann
Centex Homes, Inc.
16520 Upper Boones Ferry Road, Suite 200
Portland, OR 97224

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Re: Wetland Delineation Report for Site South of Leland Rd and S. Jessie
Ave. Intersection, Oregon City, Clackamas County, T3S R2E Sec. 18,
Tax Lots 1000, 1206, 1282, and 1300; WD #07-0108

Randall Edwards
State Treasurer

Dear Mr. Tiemann:

The Department of State Lands has reviewed the wetland delineation report prepared by Schott and Associates for the site referenced above. Based on the information presented in the report, we concur with the waterway boundaries as mapped in Figure 5 of the report. Within the study area, 1 waterway was identified on Tax Lot 1282, totaling 0.0076 acres. The rest of the waterway appears to be within pipes on the other tax lots. The waterway is subject to the permit requirements of the state Removal-Fill Law. A state permit is required for fill or excavation of 50 cubic yards below the ordinary high water line of a waterway (the 2 year recurrence interval flood elevation, if OHWL cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

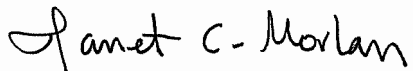
Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process. The permit coordinator for this site is Mike McCabe.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant,

landowner, or agent may submit a request for reconsideration of this determination in writing within 60 calendar days of the date of this letter.

Thank you for having the site evaluated. Please phone me at (503) 986-5236 if you have any questions.

Sincerely,

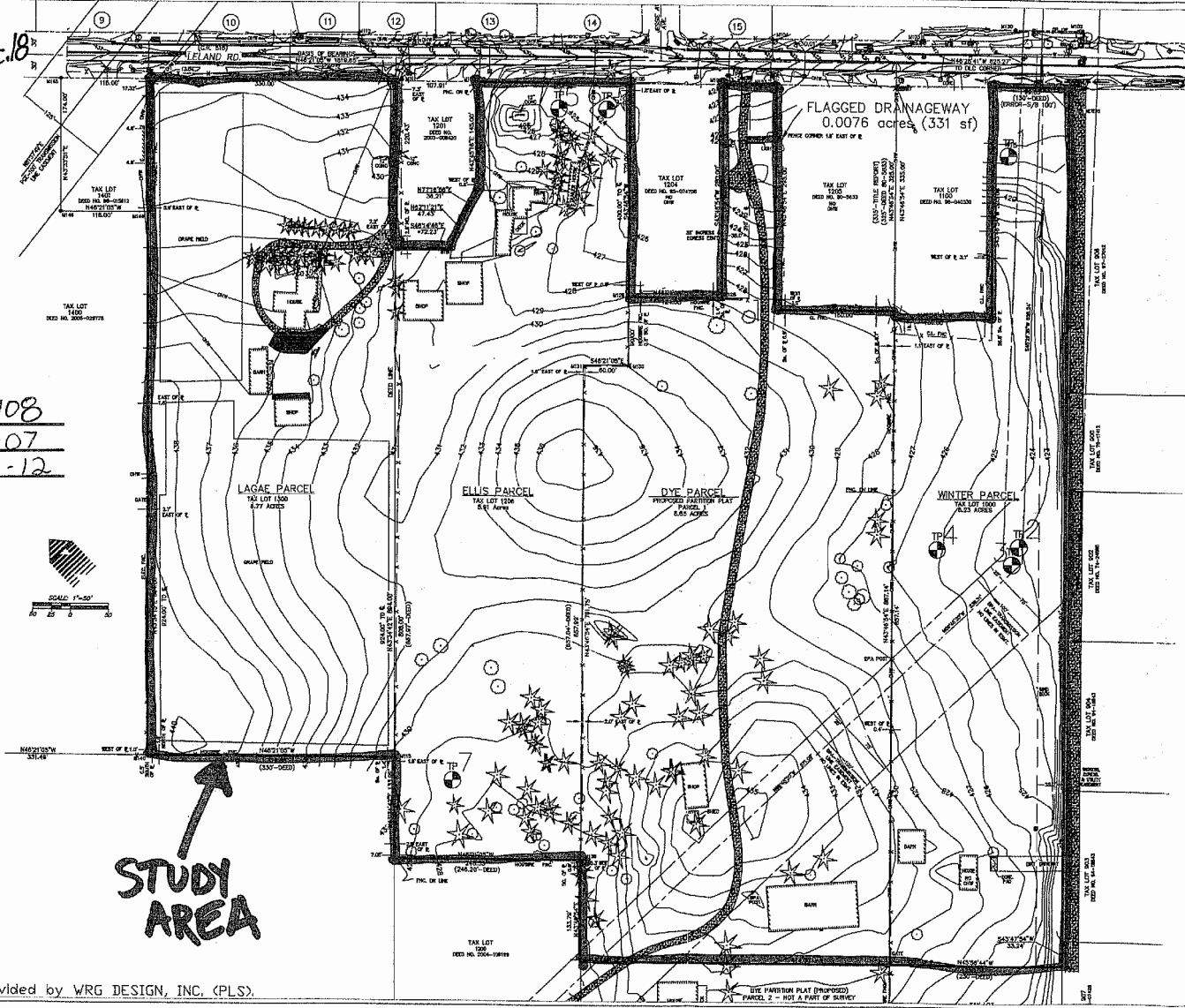
A handwritten signature in black ink that reads "Janet C. Morlan". The signature is written in a cursive, flowing style.

Janet C. Morlan, PWS
Wetlands Program Manager

cc: Dale Gulliford, Schott and Associates
City of Oregon City, Planning Department (Maps enclosed for updating LWI)
Debra Henry, Corps of Engineers
Mike McCabe, DSL

T3S R2E Sec.18

DSL WD # 07-0108
 Approval issued 12-13-07
 Approval Expires 12-13-12



Wetland map and survey provided by WRG DESIGN, INC. (PLS).

FIGURE 5. WETLAND MAP

WETLAND BOUNDARIES AND SAMPLE PLOT LOCATIONS

SCALE

1" = 150'

Schott & Associates
 Ecologists and Wetland Specialists
 PO Box 589, Aurora, OR 97002 • (503) 678-6007 • Fax (503) 678-6011
 Page 10 S&A#:1923

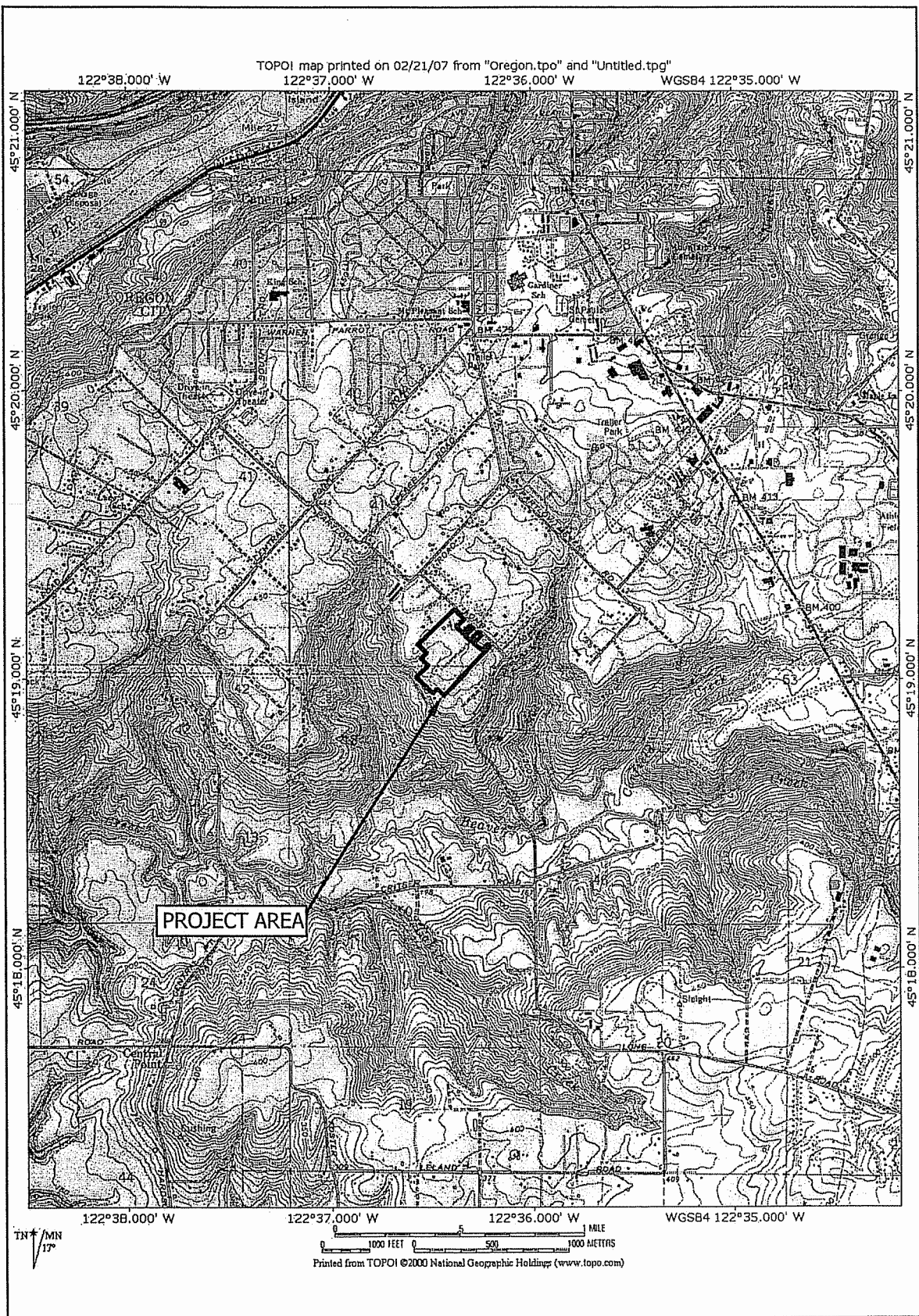


Figure 1. Topographic/Site Vicinity Map
Leland Road – Oregon City, OR Project #1923

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

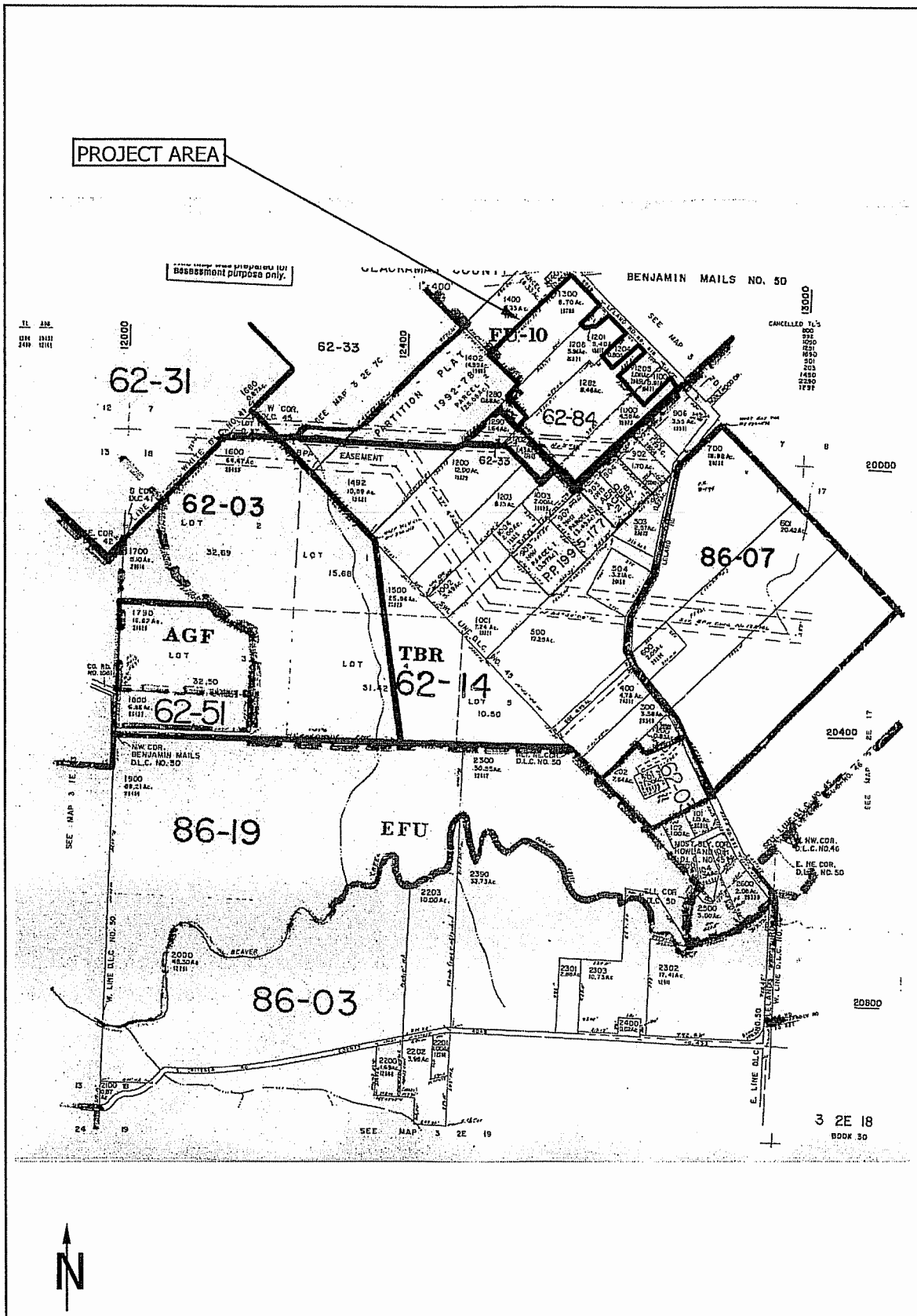


Figure 2. Tax map 32E 18
Leland Road – Oregon City, OR Project #1923

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

This form constitutes a request for a jurisdictional determination by the Department of State Lands. It must be fully completed and signed, and attached to the front of reports submitted to the Department for review and approval.

Wetlands Program Manager/Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279

DEPT OF STATE LANDS
RECEIVED
FEB 28 P 1:06

☒ Applicant ☐ Owner Name, Firm and Address:

Centex Homes, Inc., Attn: ANDREW E. TIEMANN
16520 Upper Boones Ferry Road, Suite 200
Portland, OR 97224

Business phone # 503 608-3060

Home phone # (optional)

FAX # 503 608-3061

E-mail:

☒ Authorized Legal Agent, Name and Address:

Schott and Associates
PO Box 589
Aurora, OR. 97002

Business phone # 503 678-6007

FAX # 503 678-6011

E-mail: dale@schottandassociates.com

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Centex Homes, a Nevada General Partnership
By: Centex Real Estate Corp., its managing general partner
Date: 2-15-07 Andrew E. Tiemann, Land Dev. Mgr. - Portland Division

Signature: [Redacted]

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: Leland Road	Latitude: 45°19.157'N	Longitude: 122°36.595'W
Proposed Use: Subdivision	Tax Map # 3 2E 18 & 3 2E 7	
Project Street Address (or other descriptive location): 0.03 miles northwest of Noblewood Dr./Leland Road intersection.	Township 3S Range 2E Section 7 & 18 QQ N/A	Tax Lot (s) 1000, 1282, 1206, & 1300
City: Oregon City County: Clackamas	Waterway: Trib. to Mud Cr. River Mile: 0.27	NWI Quad(s): Sherwood

WETLAND DELINEATION INFORMATION

Wetland Consultant Name, Firm and Address:

Schott and Associates
PO Box 589
Aurora, OR. 97002 Attn: Dale R. Gulliford Jr.

Phone # 503 678-6007

FAX # 503 678-6011

E-mail address: dale@schottandassociates.com

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge

Consultant Signature: [Redacted]

Date: February 16, 2006

Primary Contact for report review and site access is: ☒ Consultant ☐ Applicant/Owner ☒ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No Total Wetland Acreage: 0.0076 acres of drainage way

Delineation Purpose: Residential development

☒ R-F permit application submitted with delineation

☐ Mitigation bank site

☐ Industrial Land Certification Program site

☐ R-F application will be submitted within 90 days

☐ Sale, purchase, lease etc.

☒ Partition, re-plat, lot line adjustment

☐ Habitat restoration project

☐ Other: Residential subdivision

Other Information:

Has previous delineation/application been made on parcel? ☐ Y ☒ N

Does LWI, if any, show wetland on parcel? ☐ Y ☒ N

If known, previous DSL #

LWI wetland code:

For Office Use Only

DSL Reviewer: PR

Report Tier: ☐ 1 ☒ 2 ☐ 3

DSL WD # 2007-0108

Date Delineation Received: ___/___/___

DSL Project #

DSL Site #

Scanned: ☐ Final Scan: ☐

DSL WN #

DSL App. #

19821 Leland Road, Oregon City
Vegetation Table
May 2, 2013

Common Name	Scientific Name	Wetland Indicator Status	Native / Introduced & Invasive / Noxious
UPLAND VEGETATION			
bentgrass	<i>Agrostis species</i>	FAC ?	introduced
Canadian Thistle	<i>Cirsium arvense</i>	FAC	invasive, noxious
Bull Thistle	<i>Cirsium vulgare</i>	FACU	invasive, noxious
Orchard Grass	<i>Dactylis glomerata</i>	FACU	introduced
Queen Anne's-Lace	<i>Daucus carota</i>	FACU	introduced
dovefoot geranium	<i>Geranium molle</i>	NOL	introduced
Hairy Cat's-Ear	<i>Hypochaeris radicata</i>	FACU	introduced
English Plantain	<i>Plantago lanceolata</i>	FACU	introduced
Kentucky Blue Grass	<i>Poa pratensis</i>	FAC	introduced
bluegrass	<i>Poa species</i>	FAC ?	introduced
Douglas-Fir	<i>Pseudotsuga menziesii</i>	FACU	native
Oregon White Oak	<i>Quercus garryana</i>	FACU	native
tall fescue	<i>Schedonorus phoenix</i>	FAC	introduced
Common Chickweed	<i>Stellaria media</i>	FACU	introduced
Common Dandelion	<i>Taraxacum officinale</i>	FACU	introduced

An asterisk (*) following an indicator identifies tentative assignment in Region 9 of the USFWS plant list.

A question mark (?) preceded by a space indicates our default assumption that the plant is FAC.

Wetland Indicator Status for the WMVC Region per the National Wetland Plant List:

https://wetland_plants.usace.army.mil accessed April 30, 2012 using Firefox

See USDA Plants Database for non-wetland plants: <http://plants.usda.gov/>

Native per Hitchcock & Cronquist 1973 and <http://plants.usda.gov/>

Invasive status per Clean Water Services 2008:

<http://www.cleanwaterservices.org/PermitCenter/DesignAndConstruction/default.aspx>

Noxious per ODA 2012

<http://www.oregon.gov/ODA/PLANT/WEEDS/lists.shtml>

WETLAND INDICATOR STATUS - Western Mountains, Valleys, and Coast Region	
OBL	Obligate Wetland - Plants that occur almost always in wetlands (estimated probability >99%) under natural conditions, but which may also rarely occur in non-wetlands (<1% probability). Examples: broadleaf cattail, skunk cabbage
FACW	Facultative Wetland - Plants that usually occur in wetlands (estimated probability 67%-99%), but also occur in non-wetlands an estimated 1%-33% of the time. Examples: Oregon ash, red-osier dogwood
FAC	Facultative - Plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Examples: red alder, salmonberry
FACU	Facultative Upland - Plants that usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands (estimated probability 1%-33%). Examples: bigleaf maple, Himalayan blackberry
UPL	Upland - Plants that almost always occur in non-wetlands (<1% probability of occurring in wetlands).
NOL	Not Listed - Plants that are not on the list; assumed to be UPL but may not have occurred in the region when indicators were assigned.

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

Project/Site: 19821 Leland Road City/County: Oregon City / Clackamas Sampling Date: 5/2/2013
 Applicant/Owner: Rian Park Development LLC State: OR Sampling Point: 1
 Investigator(s): Stacy Benjamin and Stacey Reed Section, Township, Range: Sec 18, T3S, R2E
 Landform (hillslope, terrace, etc.): Plateau Local relief (concave, convex, none): None Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 8B- Bornstedt silt loam, 0-8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 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 the 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>	

Precipitation prior to fieldwork: No rainfall day of site visit and 0.58 inches two weeks prior in Portland.
 Remarks: NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).
Above start of drainage approximately 20 feet north of culvert in grass field.

VEGETATION

Tree Stratum	(Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: 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.	_____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>81</u> x 3 = <u>243</u> FACU species <u>21</u> x 4 = <u>84</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>102</u> (A) <u>327</u> (B) Prevalence Index = B/A = <u>3.21</u>
1.	_____	_____	_____	_____	
2.	_____	_____	_____	_____	
3.	_____	_____	_____	_____	
4.	_____	_____	_____	_____	
Herb Stratum (Plot size: <u>5' r</u>)					Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1.	<u>Schedonorus phoenix</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	
2.	<u>Taraxacum officinale</u>	<u>20%</u>	<u>No</u>	<u>FACU</u>	
3.	<u>Poa species</u>	<u>1%</u>	<u>No</u>	<u>FAC ?</u>	
4.	<u>Daucus carota</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
5.	_____	_____	_____	_____	
6.	_____	_____	_____	_____	
7.	_____	_____	_____	_____	
8.	_____	_____	_____	_____	
9.	_____	_____	_____	_____	
10.	_____	_____	_____	_____	
11.	_____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1.	_____	_____	_____	_____	
2.	_____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>0%</u>					

Remarks: _____ Entered by: sar QC by: cmw

SOIL

Sampling Point: 1

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 ¹	Loc ²		
0-16	7.5YR 3/3	100					sil	

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

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

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <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) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No **X**

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes _____ No **X** Depth (inches): **>16**

Saturation Present? Yes _____ No **X** Depth (inches): **>16**
(includes capillary fringe)

Wetland Hydrology Present?

Yes _____ No **X**

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

Remarks: Soils were very dry throughout. Entered by: sar QC by: cmw

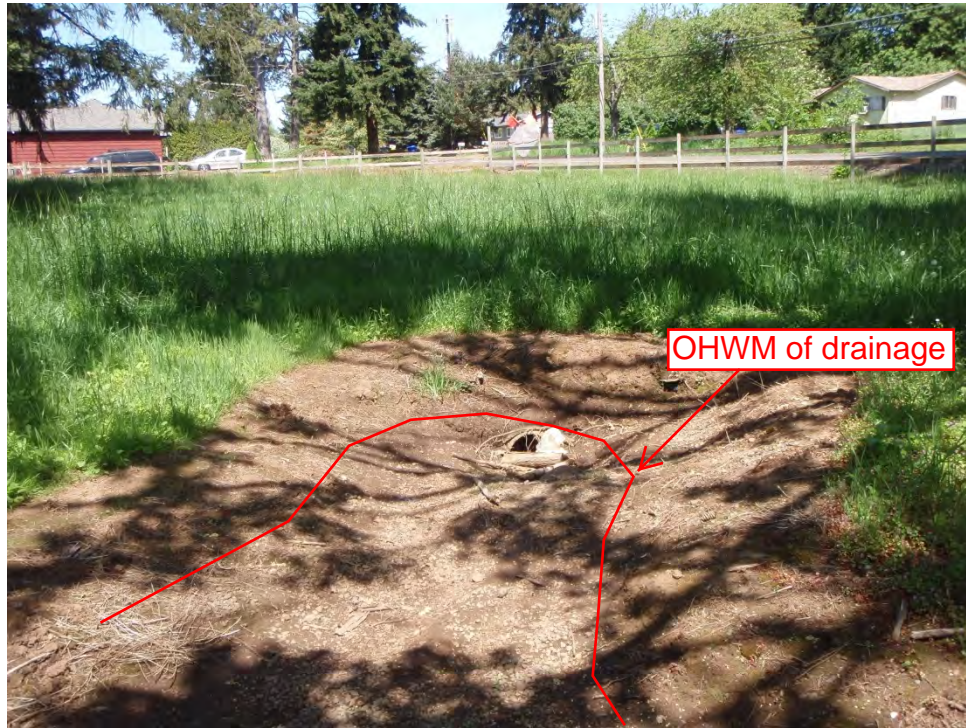


Photo A. View northwest of culvert outlet on tax lot 1206.



Photo B. View north of Plot 1.



Photo C. View north of culvert.



Photo D. View south of field. Channel is piped subsurface northern portion of through site.

Ellis Estates
NROD / Vegetated Corridor Enhancement Planting Specification Table
March 10, 2014

Mitigation Planting Area: 2,000 square feet

Scientific Name	Common Name	Size*	Spacing/Seeding Rate	Quantity
Trees (total 20)				
<i>Acer macrophyllum</i>	big leaf maple	2 gallon	7 feet on center	10
<i>Pseudotsuga menziesii</i>	Douglas fir	2 gallon	7 feet on center	10
Shrubs (total 100)				
<i>Holodiscus discolor</i>	oceanspray	1 gallon	8-10 feet on center	50
<i>Mahonia aquifolium</i>	tall Oregon grape	1 gallon	8-10 feet on center	25
<i>Symphoricarpos alba</i>	snowberry	1 gallon	8-10 feet on center	25
Seed Mix				
<i>Bromus carinatus</i>	native California brome	seed	10 lbs pls/acre	As needed for bare soil areas >25 sq. ft. following invasive species removal
<i>Elymus glaucus</i>	blue wildrye	seed	10 lbs pls/acre	
<i>Festuca rubra</i> var. <i>rubra</i>	native red fescue	seed	5 lbs pls/acre	
<i>Lupinus polyphyllus</i>	large-leafed lupine	seed	8 lbs pls/acre	

* Bare root plants may be substituted for container plants based on availability. If bare root plants are used, they must be planted during the late winter/early spring dormancy period.

Note: This is only a recommended list of species. Final selection of plants may be revised, but plants must be native, selected from the City of Oregon City's Native Plant List and planted at densities consistent with the City's planting requirements.

Planting Notes (per Section 17.49.180 Mitigation Standards of Oregon City Natural Resource Overlay District Code):

- 1) Plantings should preferably be installed between February 1 and May 1 for bare roots and seeds and between October 1 and November 15 for containers. Plants may be installed at other times of the year; however, additional measures may be necessary to ensure plant survival. Irrigation or other water practices (i.e. polymer, plus watering) shall be used during the two-year maintenance period. Watering shall be provided at a rate of at least one inch per week between June 15 and October 15.
- 2) Plantings shall be mulched a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth around newly installed plant material.
- 3) Irrigation may be required to ensure plant survival.

Maintenance and Monitoring Plan:

- 1) The City of Oregon requires a five-year monitoring and maintenance period for the NROD/vegetated corridor mitigation enhancement area. The mitigation area is to be inspected annually, a minimum of two times during the growing season, by June 1 and September 30.
- 2) Plant survival: The City of Happy Valley's success criterion for mitigation is 80% survival of all tree and shrubs plantings on the fifth anniversary of the date that the mitigation plantings are complete. If any mortality is noted on the site, the factor likely to have caused mortality of plantings is to be determined and corrected immediately if possible. If survival falls below 80% at the end of the five-year maintenance period, any of the dead plants shall be replaced, and other corrective measures, such as mulching or irrigation, may need to be implemented.

Ellis Estates
NROD / Vegetated Corridor Enhancement Planting Specification Table
March 10, 2014

- 3) Invasive species control is to be conducted as needed based upon the site inspections. Invasive species include: Himalayan and evergreen blackberry (*Rubus discolor* and *R. laciniatus*), reed canarygrass (*Phalaris arundinacea*), teasel (*Dipsacus fullonum*), Canada and bull thistle (*Cirsium arvense* and *C. vulgare*), Scotch broom (*Cytisus scoparius*), purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), morning glory (*Convolvulus* species), giant hogweed (*Heracleum mantegazzianum*), English ivy (*Hedera helix*), nightshade (*Solanum* species), and clematis (*Clematis ligusticifolia* and *C. vitalba*).