

WETLAND/WATERS DELINEATION REPORT

HARMONY ROAD TOWNHOMES
WETLAND/WATERS DELINEATION REPORT

DECEMBER 2017

PREPARED FOR

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Steve Kay, Cascadia Planning and Development Services**

PREPARED BY

SWCA Environmental Consultants

**HARMONY ROAD TOWNHOMES
WETLAND AND WATERS DELINEATION REPORT
TOWNSHIP 1 SOUTH, RANGE 2 EAST, SECTION 31,
TAX LOT 2200, MILWAUKIE, CLACKAMAS COUNTY,
OREGON**

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1 INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a wetland delineation on the subject site, which consists of Tax Lot 2200 on Tax Map 1 2E 31D, located approximately 500 feet west of the intersection of SE Harmony Road and SE Railroad Avenue, at 6115 SE Harmony Road, in Milwaukie, Oregon (Figures 1–3). Based on the tax lot map, the site is 1.18 acres. The delineation of one wetland and one stream is presented in this report. The wetland and stream extend off-site to the east and west.

2 LANDSCAPE SETTING AND LAND USE

The site is within the Kellogg Creek watershed (Hydrologic Unit Code [HUC] 12: 170900120102) (Oregon Explorer 2017). The site is bordered by SE Harmony Road to the south; an apartment complex to the west; riparian forest, open meadow, the Union Pacific railroad, and SE Railroad Avenue to the north; and an abandoned residence to the east. Land use adjacent to the site is primarily light industry to the south and residential to the west, north, and east. Surrounding topography is relatively flat and gently undulating. Site topography slopes gently to the north and then steeply down to the creek drainage. Minthorn Creek flows across the site from west to east and is a tributary of Mt. Scott Creek. The area north of the creek is relatively flat and then slopes gently to the north toward the railroad tracks.

The southern portion of the property consists of a cleared, grassy area with a row of trees along SE Harmony Road. Trees include dawn redwood (*Metasequoia glyptostroboides*), Douglas-fir (*Pseudotsuga menziesii*), bird cherry (*Prunus avium*), and big-leaf maple (*Acer macrophyllum*). The understory beneath the row of trees is predominantly Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*). Vegetation immediately south of the creek is dominated by invasive species such as English laurel (*Prunus laurocerasus*), Himalayan blackberry, and English ivy.

The northern portion of the site is riparian forest dominated by Oregon ash (*Fraxinus latifolia*) and black cottonwood (*Populus trichocarpa*), with a mid-story of red-osier dogwood (*Cornus alba*), English hawthorn (*Crataegus monogyna*), and snowberry (*Symphoricarpos albus*). English ivy is abundant throughout the corridor and a thornless blackberry variety (*Rubus* sp.) is spreading into the site from a nearby clearing to the west. Yellow-flag iris (*Iris pseudacorus*) borders the creek, with occasional patches of skunk cabbage (*Lysichiton americanus*).

3 SITE ALTERATIONS

A single-family residence and surrounding trees were removed from the site in 2010. A sewer line runs along the northern property boundary and crosses the stream along the eastern property boundary, with a manhole located south of the stream in an upland area. There is a small gravel pad in the southwest corner of the property, adjacent to SE Harmony Road.

There is a large culvert upstream, west of the site, and a concrete dam and weir downstream, east of the site. The dam impounds the stream, which backs up water onto the subject site. Aerial photographs of the site are included in Appendix A.

4 PRECIPITATION DATA AND ANALYSIS

The Oregon City (OR6334) WETS (short for wetlands climate analysis) table was used to determine historic rainfall averages. Oregon City receives an average of 43.07 inches of rainfall each year. The WETS table describes the growing season as extending from approximately January 30 to December 24 of each year, for a total of 328 days.

Precipitation data were obtained from the Portland KGW-TV weather station via the National Oceanic and Atmospheric Administration (NOAA) Regional Climate Centers (RCC) Applied Climate Information System (ACIS) AgACIS website (NOAA 2017). Precipitation data are shown in Table 1, and raw data are included in Appendix B. Tables 1, 2, and 3 show the monthly precipitation averages according to the WETS station for the 3 months prior to the August 25, 2016; October 17, 2017; and December 5, 2017 site visits, respectively. Table 4 provides information on rainfall to the date of each field visit.

Table 1. Precipitation Data for August 25, 2016, Site Visit

Month	Average (inches)	30% Chance Will Have		Observed Precipitation (inches)	Within Normal Range?
		Less Than (inches)	More Than (inches)		
July	0.59	0.35	0.93	0.75	Above Normal (127%)
June	1.69	0.85	1.94	1.11	Below Normal (66%)
May	2.55	1.59	3.12	1.30	Below Normal (51%)

Source: Portland KGW-TV, OR WETS table and precipitation data for 2016.

Note: Monthly averages based on the climate period 1971–2000.

Table 2. Precipitation Data for October 17, 2017 Site Visit

Month	Average (inches)	30% Chance Will Have		Observed Precipitation (inches)	Within Normal Range?
		Less Than (inches)	More Than (inches)		
September	1.54	0.82	2.06	2.53	Above Normal (164%)
August	0.71	0.32	1.17	0.09	Below Normal (13%)
July	0.59	0.35	0.93	0.00	Below Normal (0%)

Source: Portland KGW-TV, OR WETS table and precipitation data for 2016.

Note: Monthly averages based on the climate period 1971–2000.

Table 3. Precipitation Data for December 5, 2017 Site Visit

Month	Average (inches)	30% Chance Will Have		Observed Precipitation (inches)	Within Normal Range?
		Less Than (inches)	More Than (inches)		
November	6.74	4.40	7.90	7.90	Above Normal (117%)
October	3.42	1.85	4.14	5.19	Above Normal (152%)
September	1.54	0.82	2.06	2.53	Above Normal (164%)

Source: Portland KGW-TV, OR WETS table and precipitation data for 2016.

Note: Monthly averages based on the climate period 1971–2000.

Table 4. Precipitation Data Summary

Date of Field Visit	Day of Field Visit (inches)	Two Weeks Prior	WYTD* (inches)	Percent of Normal for WYTD	CYTD* (inches)	Percent of Normal for CYTD
August 25, 2016	0.00	0.00	53.81	130%	25.20	105%
October 17, 2017	0.00	0.83	0.83	65%	37.68	139%
December 5, 2017	0.00	3.06	13.65	122%	50.50	137%

Source: Portland KGW-TV precipitation data for 2016 and 2017.

Note: WYTD = Water Year to Date, CYTD = Current Year to Date

Using the typical template for antecedent rainfall (Appendix B), these data show that the overall preceding rainfall was within the normal range for the August 2016 and October 2017 field visits, and wetter than normal for the December 2017 site visit. Preceding precipitation did not alter our wetland delineation approach.

5 METHODS

The methodology used for determining the presence of wetlands followed the *Corps of Engineers 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)* (U.S. Army Corps of Engineers [USACE] 2010), used by both the Oregon Department of State Lands (DSL) and the USACE. Fieldwork for documenting site conditions and delineating the wetland boundary was conducted on August 28, 2016, by C. Mirth Walker, Professional Wetland Scientist (PWS), and Evan Dulin, wetland scientist/biologist, and on October 17, 2017, and December 5, 2017, by C. Mirth Walker and Tom Dee, PWS. Soils, vegetation, and hydrology were documented at nine sample plot locations (Appendix C). Wetland boundaries were flagged in the field with pink wetland delineation pin flags and pink wetlands boundary streamers, and sample plots were marked with yellow pin flags with red streamers. Representative ground-level site photographs are included in Appendix D. A list of vegetation observed on-site and wetland indicator status is included in Appendix E.

Non-wetland waters were delineated according to Regulatory Guidance Letter 05-05 (USACE 2005) and Oregon Administrative Rules (OAR) (DSL 2016aa). Ordinary High Water Line (OHWL) determinations were based on observations of scour, sediment deposition, debris wracks, and other readily observable indicators. The OHWL was marked in the field with red streamers.

According to the Natural Resources Conservation Service (NRCS), soils on the majority of the site are mapped as Wapato silty clay loam (Unit 84), with a small portion of Woodburn silt loam, 3%–8% slopes (Unit 91B) in the southwestern corner and Salem silt loam, 0%–7% slopes (Unit 76B) in the northwestern corner of the property (NRCS 2016) (Figure 4). Wapato soils are hydric and Salem soils are upland soils. Woodburn soils are upland soils with small hydric inclusions of Huberly and Dayton soils.

The Local Wetland Inventory (LWI) map, National Wetland Inventory (NWI) map, and the City of Milwaukie’s preliminary Water Quality Resource (WQR) mapping provided by Metro are shown in Figures 5, 6, and 7.

6 DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

6.1 Wetlands

Wetland A

There is one wetland within the study area (Wetland A), which is a small, approximately 0.12-acre (5,410-square-foot) wetland on the north side of Minthorn Creek (Figure 6). The wetland is classified as palustrine forested (PFO) using the *Classification of Deepwater Habitats of the United States* (Cowardin et al. 1979), and as valley slope (SV) and riverine flow-through (RFT) using the *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles* (Adamus 2001).

Wetland determination data forms are provided in Appendix C. The wetland was dominated by Oregon ash, red osier dogwood, English Hawthorn, colonial bentgrass (*Agrostis capillaris*), taper-fruit short-scale sedge (*Carex leptopoda*), skunk cabbage, yellow-flag iris, and soft rush (*Juncus effusus*). Soils met the Redox Dark Surface (F6) and Depleted Matrix (F3) hydric soil indicators. The Saturation (A3) wetland hydrology indicator was observed at Plot 6 during the October 2017 site visit.

Wetland A receives hydrology from the hyporheic zone associated with Minthorn Creek and surface flow from the slope to the northwest. The wetland is contiguous with the stream and occasionally receives overbank flooding during seasonal precipitation events. The dam or weir to the east of the study area causes the stream to back up and inundate portions of the wetland. The wetland extends off-site to the east and west.

6.2 Non-wetland Waters

Minthorn Creek

There is one non-wetland water within the study area. Minthorn Creek is a freshwater, perennial stream that flows across the center of the site from west to east (Figure 8). Minthorn Creek occupies approximately 0.16 acre (6,988 square feet) within the study area, and extends off-site to the east and west. Minthorn Creek is a tributary of Mt. Scott Creek.

The OHWL of Minthorn Creek was delineated based on evidence of high water, such as drift deposits (including sediment on tires and some Styrofoam debris), debris wracks, sparse vegetation, soil cracks, and changes in topography and plant communities. The bed and banks were composed of silt loam. The channel is relatively stable due to the abundant root systems of adjacent vegetation. Minthorn Creek overtops its banks seasonally. Floodplain roughness is high, due to abundant riparian vegetation and large woody debris. There is a small concrete dam or weir approximately 50 feet east and downstream of the eastern site boundary. The dam impounds water that backs up into the site throughout much of the year.

6.3 Uplands

Uplands on the site were typified by a rise in elevation and a change in plant community to less hydrophytic vegetation. The upland area north of the creek was dominated by big-leaf maple and English laurel in the tree canopy, by English hawthorn and English laurel in the mid-story, and by English ivy and Himalayan blackberry in the understory. The upland area south of the creek was dominated by perennial ryegrass (*Lolium perenne*), with a few mature trees, including western red cedar (*Thuja plicata*), Douglas-fir, and dawn redwood. Sample plots in upland areas lacked hydric soils and indicators of wetland

hydrology, except for Plot 9 in the northeast corner of the site, which displayed a high water table during our December 2017 site visit.

7 DEVIATION FROM LWI OR NWI

The LWI conducted by SRI/Shapiro (1994) does not depict any wetlands or streams within the study area (Figure 5). SWCA's wetland and waters delineation results do not concur with the LWI mapping. The NWI is shown in Figure 6 and shows Minthorn Creek as a riverine upper perennial unconsolidated bottom deepwater habitat with a permanently flooded water regime (R3UBH). The City of Milwaukie's preliminary WQR mapping provided by Metro is shown in Figure 7 (City of Milwaukie 2017). There are no Habitat Conservation Areas (HCA) on the site. Plots 8 and 9 disprove the presence of a railroad side ditch along the northern property boundary.

8 MAPPING METHOD

The wetland boundary, OHWL flags, and sample plot locations (with the exception of Plots 6–9) were professionally land surveyed by Summit Land Surveyors. The surveyed delineation map is shown on Figure 6.

9 ADDITIONAL INFORMATION

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 41005C0036D indicates there is no 100-year floodplain within the site (FEMA 2017). The DSL Essential Salmonid Habitat (ESH) mapper (DSL 2017) illustrates Mt. Scott Creek, approximately 400 feet south of the site, as ESH containing coho salmon (*Oncorhynchus kisutch*) and winter steelhead (*O. mykiss*). Minthorn Creek is not mapped as ESH, and it is assumed that there are fish passage barriers present. The Oregon Department of Fish and Wildlife (ODFW) Fish Passage Barrier mapper does not depict a barrier at the confluence with Mt. Scott Creek (ODFW 2017).

10 RESULTS AND CONCLUSION

The boundary of one wetland (0.12 acre) and one non-wetland water (0.16 acre) were delineated within the study area, and both extend off-site to the east and west. The wetland and non-wetland water will likely be determined to be jurisdictional by DSL and the USACE. The wetland is classified as SV/RFT and PFO. The non-wetland water is classified as riverine impounding because of the dam just downstream. The centroid latitude and longitude of Wetland A are 45.432332 and -122.600578.

11 REQUIRED DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon DSL in accordance with Oregon Administrative Rules 141-090-0005 through 141-090-0055.

12 LIST OF PREPARERS

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T. Dee



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Wetland Scientist

13 LITERATURE CITED AND REVIEWED

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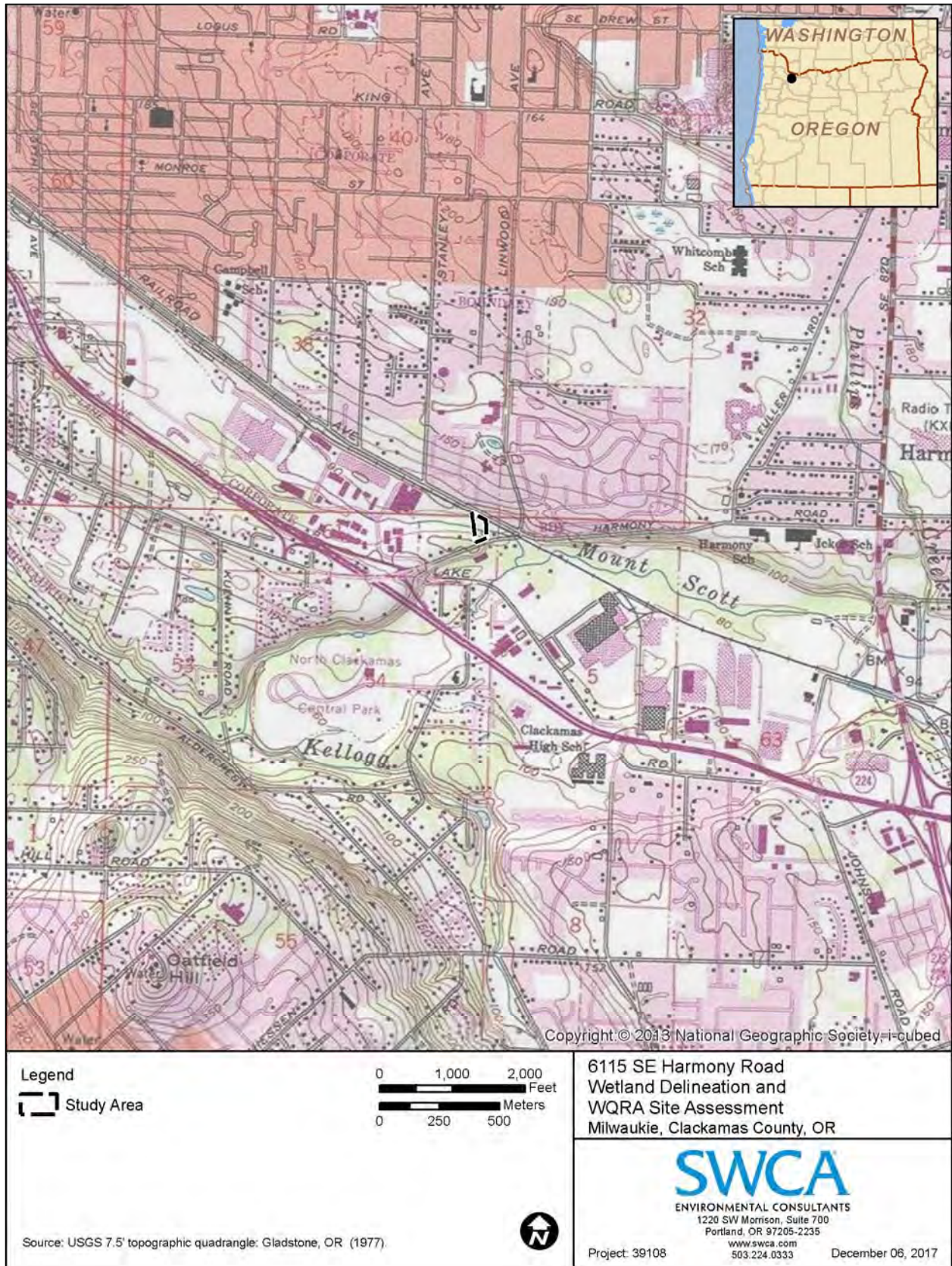


Figure 1. Site location map.



Figure 2. Tax lot map with aerial photograph.

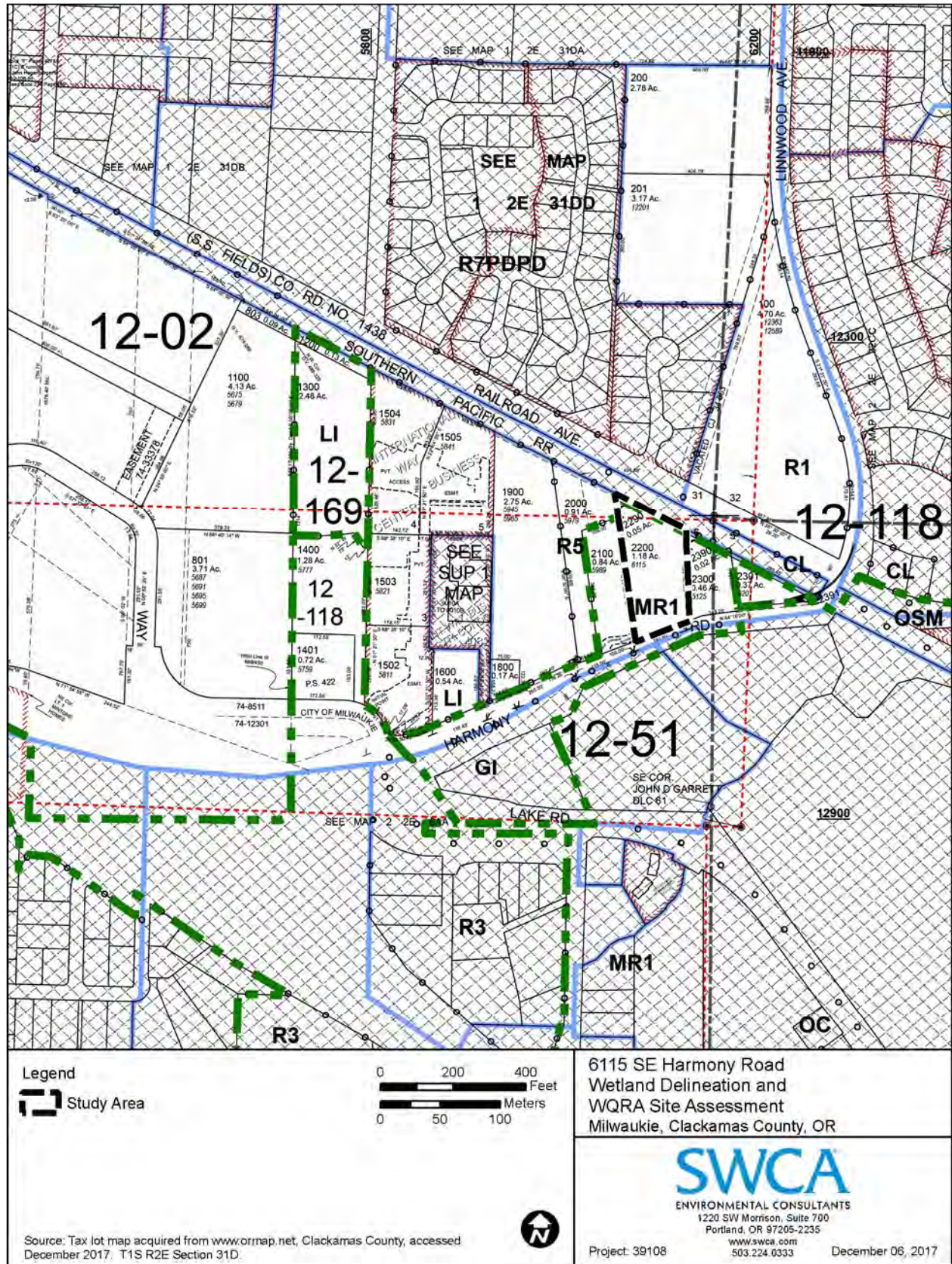


Figure 3. Tax lot map from ORmap with paper base.



Figure 4. Soils map.

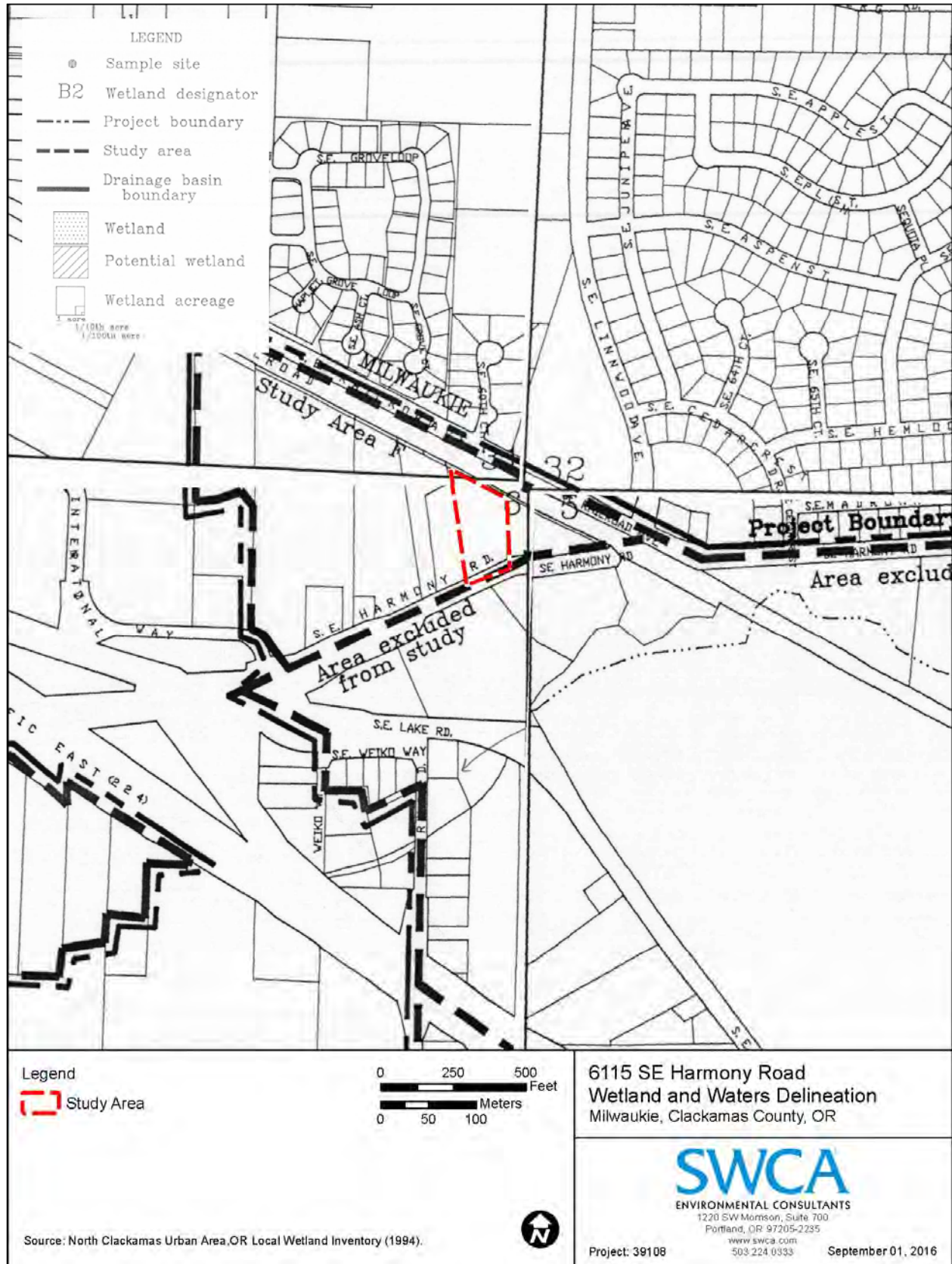


Figure 5. Local Wetland Inventory map.

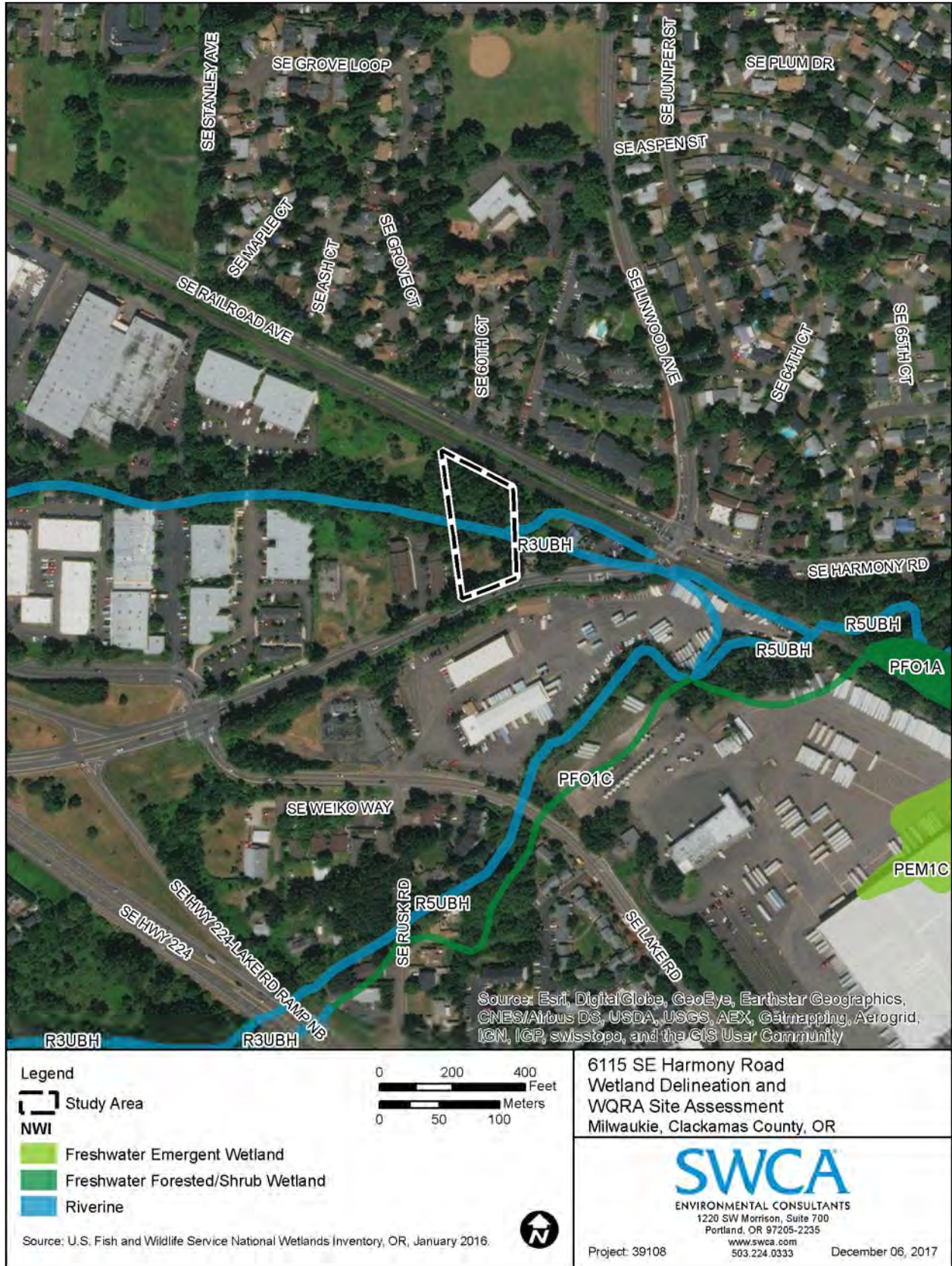


Figure 6. National Wetland Inventory map.

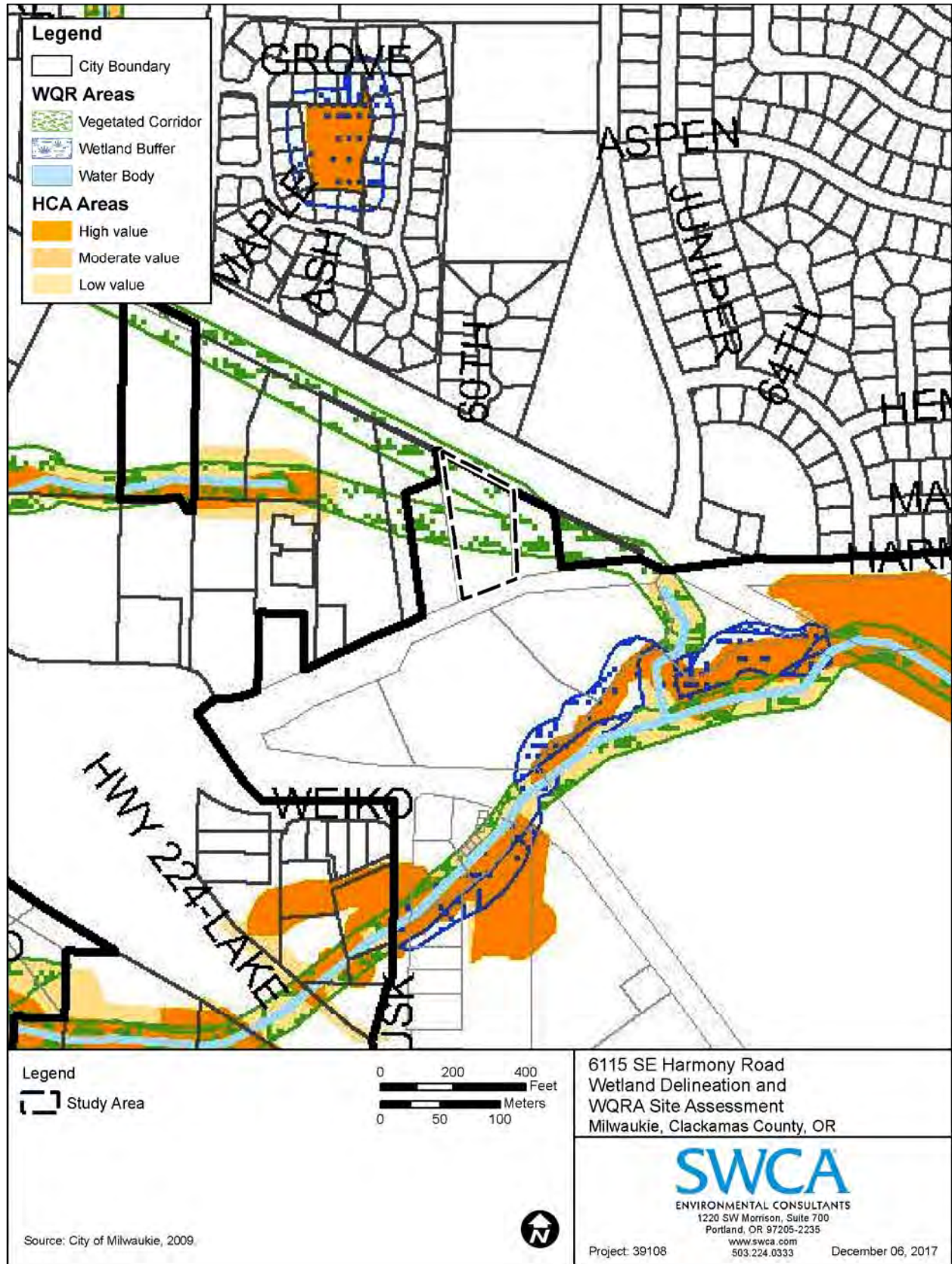
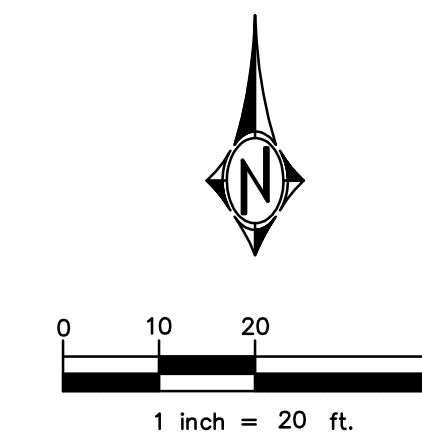
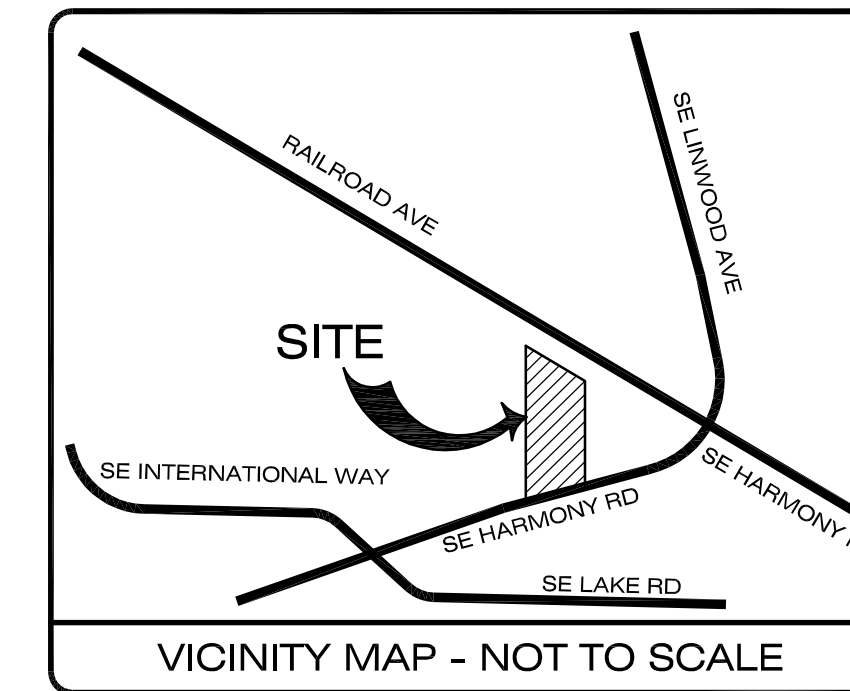
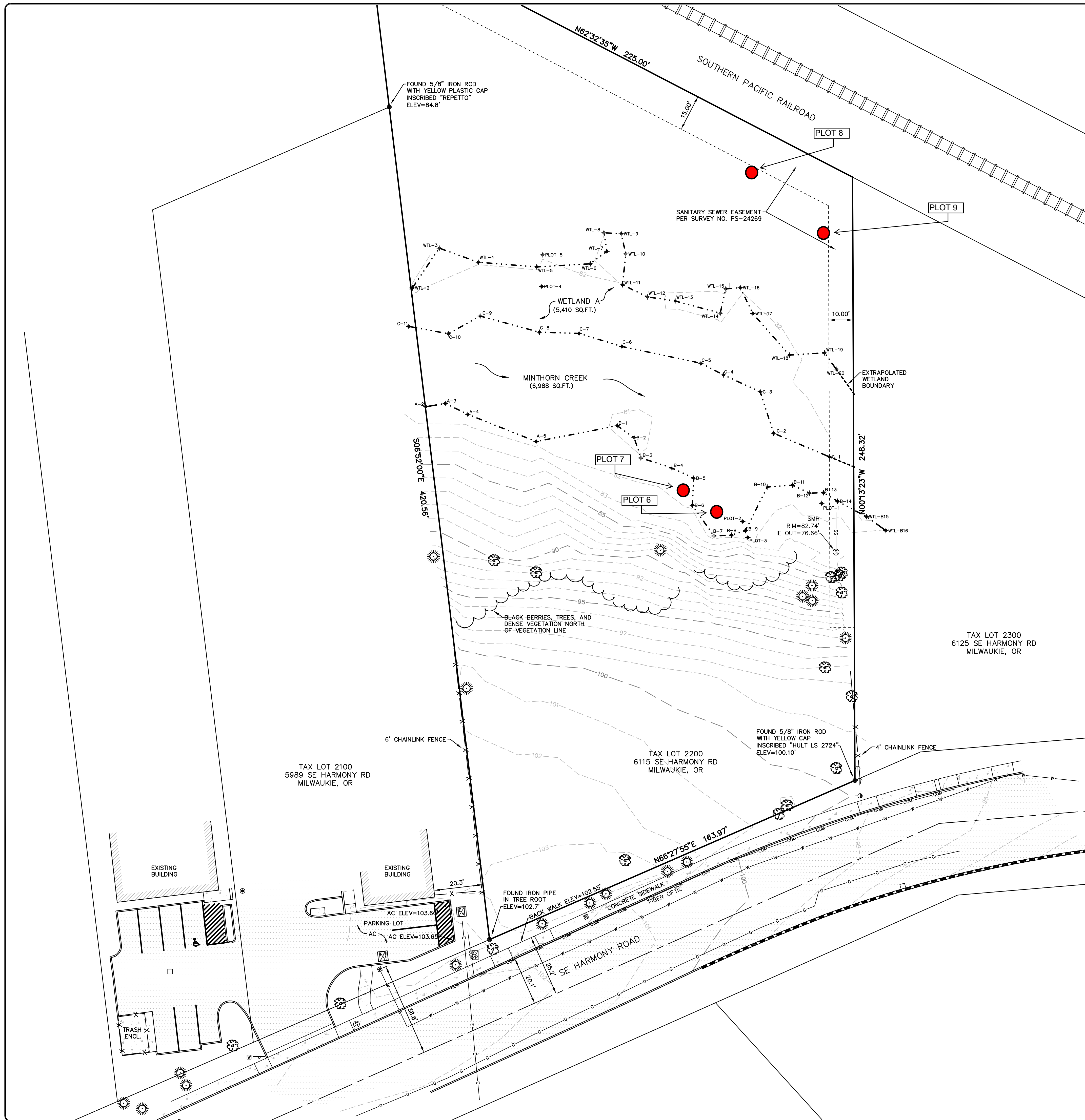


Figure 7. City of Milwaukie Water Quality Resource area map.



	CONCRETE WALL
	RAIL ROAD
	FENCE
	MINOR CONTOUR
	MAJOR CONTOUR
	WETLAND DELINEATION
	SANITARY SEWER LINE
	GAS LINE
	WATER LINE
	WATER METER/SERVICE
	WATER VALVE
	CATCH BASIN / AREA DRAIN
	SANITARY SEWER MANHOLE
	UTILITY GUY POLE
	UTILITY GUY WIRE
	ELECTRIC VAULT
	COMMUNICATIONS PEDESTAL
	DECIDUOUS TREE
	EVERGREEN TREE
	SURVEY FOUND MONUMENT

GENERAL NOTES:

- BENCHMARK INFORMATION. 3-1/2" BRONZE DISK IN SIDEWALK PER USBT 2001-040. BEING THE NORTHEAST CORNER OF JOHN GARRETT DLC NO. 61, ALSO BEING THE SOUTHEAST CORNER OF JOHN GARRETT DLC NO. 38 ON THE NORTH LINE OF SECTION 5. SEE CLACKAMAS COUNTY SN 2004-356 SHEET 4 OF 14. ELEVATION = 85.30'
- THE BOUNDARY DEPICTED HERE ON IS PRELIMINARY AND IS SUBJECT TO CHANGE. IF ADDITIONAL MONUMENTS ARE FOUND ALONG THE NORTH LINE, THE BOUNDARY RETRACEMENT WILL BE REVISED ACCORDINGLY.
- THE PURPOSE OF THIS SURVEY WAS TO PROVIDE A TOPOGRAPHIC BASE MAP OF TAX LOT 2200 TAX MAP 1S 2E 31D SHOWING EXISTING CONDITIONS ALONG WITH THE WETLAND DELINEATION AND MARKERS. THE AREA NORTH OF THE HEAVY VEGETATION DEMARKATION HAS NOT BEEN ACCURATELY SURVEYED, OTHER THAN THE WETLAND MARKERS DEPICTED HEREON.
- AS OF THE DATE OF THIS MAPPING, THERE WERE NO UNDERGROUND UTILITY PAINT MARKINGS TO MAP THE SUBSURFACE UTILIZES.
- MANHOLES SHOWN HEREON ARE TO CENTER OF MANHOLE LID, NOT CENTER OF STRUCTURE.
- THE WETLAND, WATER BOUNDARIES AND SAMPLE PLOT LOCATIONS, DELINEATED WITH EITHER FLAGS IN SOIL OR FLAGGING TIED TO BRANCHES, HAVE A HORIZONTAL MAPPING ACCURACY OF ±1'.
- PLOTS 6-9 WERE GPS-SURVEYED BY SWCA AND HAVE A HORIZONTAL MAPPING ACCURACY OF ±1 M (3.28 FEET).

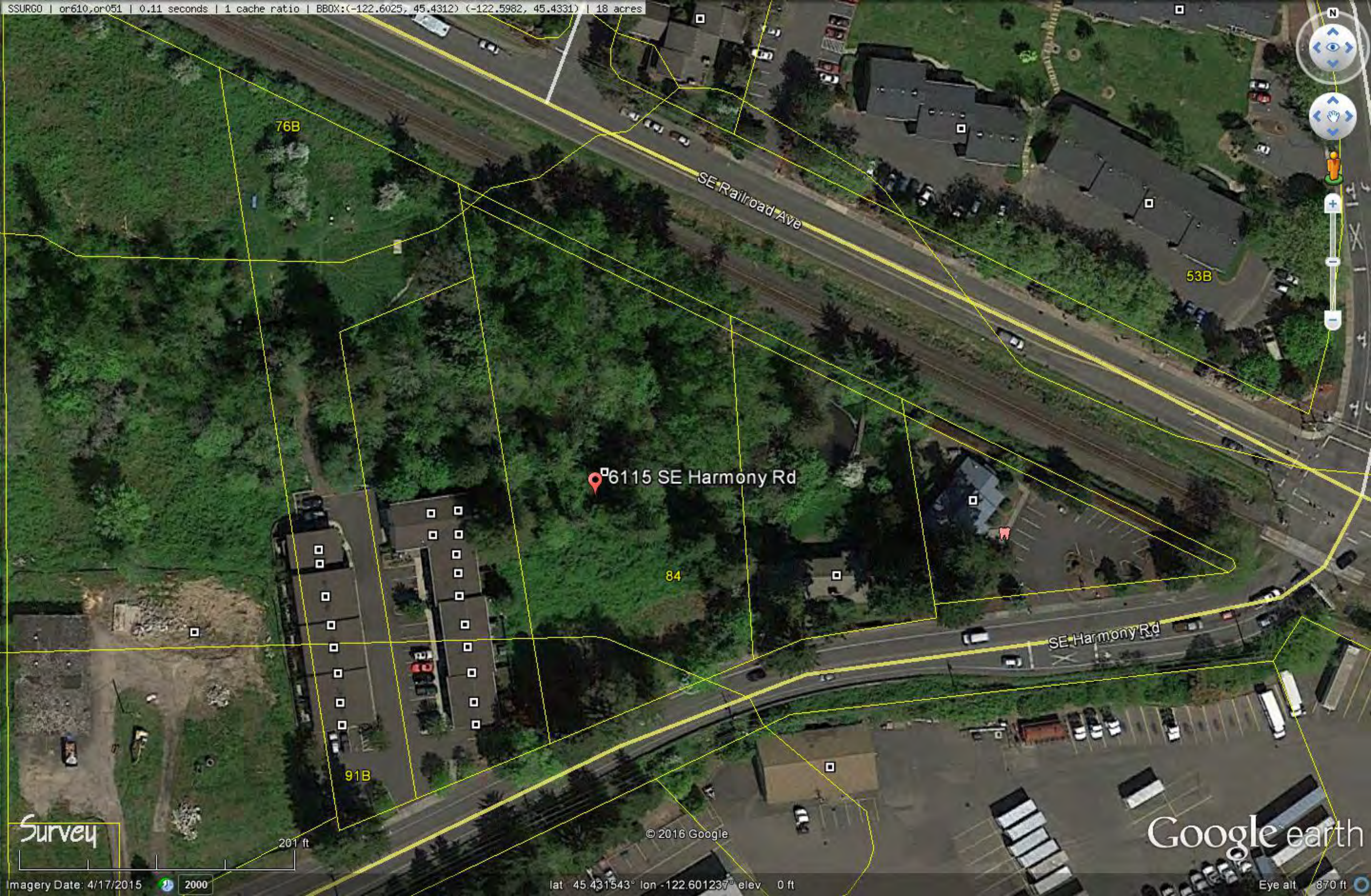
SHEET

8

Summit LAND SURVEYORS

12950 SW RANGER MILWAUKIE, OREGON 97223 SUITE 255
PHONE & FAX: 503.826.5889
www.summitlandsurveyors.com

APPENDIX A
Aerial Photographs



76B

53B

6115 SE Harmony Rd

84

91B

SE Harmony Rd

SE Railroad Ave

Survey

201 ft

© 2016 Google

Google earth

May 2017

6115 SE Harmony Rd

SE Railroad Ave

SE Harmony Rd

APPENDIX B
Precipitation Data

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)									Climate Period	
WETS Station: Portland KGW-TV, 1971-2000									1981-2010	
Measured Rainfall: Portland KGW-TV 2015-2016 Water Year									Oct. 1	Jan. 1
Prior Month		WETS Rainfall Percentile		Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns	Departure from Normal*	Departure from Normal*
Most Recent First		-----inches-----							12.71	1.20
1st	July	0.35	0.93	0.75	Normal	2	3	6	WYTD*	CYTD*
2nd	June	0.85	1.94	1.11	Normal	2	2	4	53.81	25.20
3rd	May	1.59	3.12	1.30	Dry	1	1	1	Normal	Normal
				3.16					41.10	24.00
					<i>Normals</i>				*As Of Survey On: 8/25/2016	
	Jan-16	3.77	7.31	8.93	6.14					
	Feb-16	3.57	6.32	4.87	4.63					
	Mar-16	3.39	5.17	5.71	4.50					
	Apr-16	2.18	3.71	2.46	3.40					
	May-16	1.59	3.12	1.30	2.55					
	Jun-16	0.85	1.94	1.11	1.69					
	Jul-16	0.35	0.93	0.75	0.59					
	Aug-16	0.32	1.17	0.16	0.71					
	Sep-16	0.82	2.06		1.54					
	Oct-15	1.85	4.14	4.39	3.42					
	Nov-15	4.40	7.90	5.61	6.74					
	Dec-15	4.43	7.71	18.61	6.94					
		27.52	51.48	53.90	42.85		Sum	11		
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18)									Normal	

WETS Table: <http://agacis.rcc-acis.org/?fips=41051>
Daily/Monthly Normals: <http://agacis.rcc-acis.org/?fips=41051>
Daily Data for a Month: <http://agacis.rcc-acis.org/?fips=41051>

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)								Climate Period	
WETS Station: Portland KGW-TV, 1971-2000								1981-2010	
Measured Rainfall: Portland KGW-TV 2016-2017 Water Year								Oct. 1	Jan. 1
Prior Month Most Recent First	WETS Rainfall Percentile		Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns	Departure from Normal*	Departure from Normal*
	30th	70th						-0.45	10.65
1st September	0.82	2.06	2.53	Wet	3	3	9	WYTD*	CYTD*
2nd August	0.32	1.17	0.09	Dry	1	2	2	0.83	37.68
3rd July	0.35	0.93	0.00	Dry	1	1	1	Normal	Normal
			2.62					1.28	27.03
				<i>Normals</i>				*As Of Survey On: 10/17/2017	
Jan-17	3.77	7.31	5.65	6.14					
Feb-17	3.57	6.32	12.18	4.63					
Mar-17	3.39	5.17	8.40	4.50					
Apr-17	2.18	3.71	4.63	3.40					
May-17	1.59	3.12	2.25	2.55					
Jun-17	0.85	1.94	1.12	1.69					
Jul-17	0.35	0.93	0.00	0.59					
Aug-17	0.32	1.17	0.09	0.71					
Sep-17	0.82	2.06	2.53	1.54					
Oct-17	1.85	4.14	5.19	3.42					
Nov-17	4.40	7.90		6.74					
Dec-17	4.43	7.71		6.94					
	27.52	51.48	42.04	42.85		Sum	12		
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18)								Normal	

WETS Table: <http://agacis.rcc-acis.org/?fips=41051>
Daily/Monthly Normals: <http://agacis.rcc-acis.org/?fips=41051>
Daily Data for a Month: <http://agacis.rcc-acis.org/?fips=41051>

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)								Climate Period		
WETS Station: Portland KGW-TV, 1971-2000								1981-2010		
Measured Rainfall: Portland KGW-TV 2016-2017 Water Year								Oct. 1	Jan. 1	
Prior Month		WETS Rainfall Percentile		Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns	Departure from Normal*	Departure from Normal*
Most Recent First		30th	70th						-----inches-----	2.44
1st	November	4.40	7.90	7.90	Normal	2	3	6	WYTD*	CYTD*
2nd	October	1.85	4.14	5.19	Wet	3	2	6	13.65	50.50
3rd	September	0.82	2.06	2.53	Wet	3	1	3	Normal	Normal
				15.62					11.21	36.96
					<i>Normals</i>				*As Of Survey On: 12/5/2017	
	Jan-17	3.77	7.31	5.65	6.14					
	Feb-17	3.57	6.32	12.18	4.63					
	Mar-17	3.39	5.17	8.40	4.50					
	Apr-17	2.18	3.71	4.63	3.40					
	May-17	1.59	3.12	2.25	2.55					
	Jun-17	0.85	1.94	1.12	1.69					
	Jul-17	0.35	0.93	0.00	0.59					
	Aug-17	0.32	1.17	0.09	0.71					
	Sep-17	0.82	2.06	2.53	1.54					
	Oct-17	1.85	4.14	5.19	3.42					
	Nov-17	4.40	7.90	7.90	6.74					
	Dec-17	4.43	7.71		6.94					
		27.52	51.48	49.94	42.85		Sum	15		
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18)								Wetter than Normal		

WETS Table: <http://agacis.rcc-acis.org/?fips=41051>
Daily/Monthly Normals: <http://agacis.rcc-acis.org/?fips=41051>
Daily Data for a Month: <http://agacis.rcc-acis.org/?fips=41051>

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2016-08-01	77	54	0	0	0
2016-08-02	75	56	0	0	0
2016-08-03	78	54	0	0	0
2016-08-04	87	61	0	0	0
2016-08-05	79	60	0	0	0
2016-08-06	72	54	0	0	0
2016-08-07	73	57	0	0	0
2016-08-08	70	57	0.14	0	0
2016-08-09	68	56	0.02	0	0
2016-08-10	77	56	0	0	0
2016-08-11	86	60	0	0	0
2016-08-12	96	65	0	0	0
2016-08-13	91	66	0	0	0
2016-08-14	86	58	0	0	0
2016-08-15	86	59	0	0	0
2016-08-16	83	58	0	0	0
2016-08-17	79	57	0	0	0
2016-08-18	95	61	0	0	0
2016-08-19	98	69	0	0	0
2016-08-20	98	66	0	0	0
2016-08-21	77	57	0	0	0
2016-08-22	72	52	0	0	0
2016-08-23	82	55	0	0	0
2016-08-24	89	61	0	0	0
2016-08-25	92	65	0	0	0
2016-08-26	94	64	0	0	0
2016-08-27	82	62	0	0	0
2016-08-28	83	56	0	0	0
2016-08-29	84	58	0	0	0
2016-08-30	72	56	0	0	0
2016-08-31	68	58 T		0	0
Average Sun	82.2	59	0.16	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-07-01	74	55	0	0	0
2017-07-02	79	54	0	0	0
2017-07-03	76	56	0	0	0
2017-07-04	82	55	0	0	0
2017-07-05	90	59	0	0	0
2017-07-06	89	56	0	0	0
2017-07-07	77	56	0	0	0
2017-07-08	85	53	0	0	0
2017-07-09	84	58	0	0	0
2017-07-10	77	56	0	0	0
2017-07-11	77	52	0	0	0
2017-07-12	81	55	0	0	0
2017-07-13	75	56	0	0	0
2017-07-14	84	56	0	0	0
2017-07-15	79	56	0	0	0
2017-07-16	72	54	0	0	0
2017-07-17	79	55	0	0	0
2017-07-18	84	56	0	0	0
2017-07-19	80	54	0	0	0
2017-07-20	73	58	0	0	0
2017-07-21	82	56	0	0	0
2017-07-22	88	60	0	0	0
2017-07-23	81	64	0	0	0
2017-07-24	86	58	0	0	0
2017-07-25	87	61	0	0	0
2017-07-26	84	59	0	0	0
2017-07-27	75	58	0	0	0
2017-07-28	80	55	0	0	0
2017-07-29	85	54	0	0	0
2017-07-30	86	61	0	0	0
2017-07-31	88	55	0	0	0
Average Sun	81.3	56.5	0	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-08-01	94	66	0	0	0
2017-08-02	100	70	0	0	0
2017-08-03	103	72	0	0	0
2017-08-04	94	67	0	0	0
2017-08-05	88	58	0	0	0
2017-08-06	87	61	0	0	0
2017-08-07	86	63	0	0	0
2017-08-08	89	60	0	0	0
2017-08-09	90	62	0	0	0
2017-08-10	87	61	0	0	0
2017-08-11	84	61	0	0	0
2017-08-12	77	58 T		0	0
2017-08-13	73	57	0.09	0	0
2017-08-14	72	51	0	0	0
2017-08-15	80	54	0	0	0
2017-08-16	83	55	0	0	0
2017-08-17	77	60	0	0	0
2017-08-18	79	56	0	0	0
2017-08-19	77	58	0	0	0
2017-08-20	78	56	0	0	0
2017-08-21	86	60	0	0	0
2017-08-22	88	63	0	0	0
2017-08-23	81	60	0	0	0
2017-08-24	73	60	0	0	0
2017-08-25	79	55	0	0	0
2017-08-26	88	58	0	0	0
2017-08-27	94	63	0	0	0
2017-08-28	97	65	0	0	0
2017-08-29	86	64	0	0	0
2017-08-30	79	60	0	0	0
2017-08-31	80	62	0	0	0
Average Sun	84.8	60.5	0.09	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-09-01	89	60	0	0	0
2017-09-02	95	60	0	0	0
2017-09-03	92	67	0	0	0
2017-09-04	88	65	0	0	0
2017-09-05	90	70	0	0	0
2017-09-06	82	65	0	0	0
2017-09-07	82	65	0	0	0
2017-09-08	73	64	0	0	0
2017-09-09	79	62	0.04	0	0
2017-09-10	75	58	0	0	0
2017-09-11	89	58	0	0	0
2017-09-12	83	63	0	0	0
2017-09-13	72	52	0	0	0
2017-09-14	74	54	0	0	0
2017-09-15	79	52	0	0	0
2017-09-16	77	56	0	0	0
2017-09-17	64	55	0.08	0	0
2017-09-18	59	51	0.44	0	0
2017-09-19	62	51	0.3	0	0
2017-09-20	60	49	1.44	0	0
2017-09-21	63	47	0.01	0	0
2017-09-22	67	48	0	0	0
2017-09-23	71	51	0	0	0
2017-09-24	72	50	0	0	0
2017-09-25	65	54 T		0	0
2017-09-26	77	55	0	0	0
2017-09-27	84	57	0	0	0
2017-09-28	86	60	0	0	0
2017-09-29	69	53	0.1	0	0
2017-09-30	64	49	0.12	0	0
Average Sun	76.1	56.7	2.53	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-10-01	63	51	0.13	0	0
2017-10-02	62	48	0.12	0	0
2017-10-03	69	48	0	0	0
2017-10-04	69	45	0	0	0
2017-10-05	73	45	0	0	0
2017-10-06	72	46	0	0	0
2017-10-07	63	53	0.01	0	0
2017-10-08	63	48	0.01	0	0
2017-10-09	65	44	0	0	0
2017-10-10	56	45	0.03	0	0
2017-10-11	57	45	0.24	0	0
2017-10-12	56	46	0.45	0	0
2017-10-13	55	42	0.09	0	0
2017-10-14	58	39	0	0	0
2017-10-15	66	42	0	0	0
2017-10-16	66	42	0	0	0
2017-10-17	57	45	0.02	0	0
2017-10-18	63	48	0.04	0	0
2017-10-19	59	49	1.19	0	0
2017-10-20	53	47	0.14	0	0
2017-10-21	59	45	1.61	0	0
2017-10-22	62	50	1.09	0	0
2017-10-23	63	47	0	0	0
2017-10-24	69	49	0	0	0
2017-10-25	64	46	0	0	0
2017-10-26	69	50	0	0	0
2017-10-27	72	49	0	0	0
2017-10-28	70	50	0	0	0
2017-10-29	56	41	0.02	0	0
2017-10-30	62	49	0	0	0
2017-10-31	62	40	0	0	0
Average Sun	63	46.3	5.19	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-11-01	58	46	T	0	0
2017-11-02	54	44	0.2	0	0
2017-11-03	48	41	0.01	0	0
2017-11-04	49	40	0.07	0	0
2017-11-05	51	39	0.4	0	0
2017-11-06	49	39	0	0	0
2017-11-07	46	40	0	0	0
2017-11-08	46	42	0.4	0	0
2017-11-09	54	41	0.28	0	0
2017-11-10	49	43	0.51	0	0
2017-11-11	53	43	0.12	0	0
2017-11-12	55	47	0.18	0	0
2017-11-13	54	45	0.42	0	0
2017-11-14	56	45	0.04	0	0
2017-11-15	55	43	1.1	0	0
2017-11-16	47	42	0.29	0	0
2017-11-17	49	41	0.27	0	0
2017-11-18	52	38	T	0	0
2017-11-19	49	37	0.15	0	0
2017-11-20	55	45	0.96	0	0
2017-11-21	54	44	0.52	0	0
2017-11-22	62	51	0.32	0	0
2017-11-23	61	48	0.23	0	0
2017-11-24	55	43	0	0	0
2017-11-25	50	40	0.13	0	0
2017-11-26	56	45	0.73	0	0
2017-11-27	49	41	T	0	0
2017-11-28	45	43	0.44	0	0
2017-11-29	50	41	0	0	0
2017-11-30	45	39	0.13	0	0
Average Sun	51.9	42.5	7.9	0	0

Date	Max Temperature	Min Temperature	Precipitation	Snowfall	Snow Depth
2017-12-01	48		44	0.09 M	M
2017-12-02	48		42	0.45 M	M
2017-12-03	47		40	0.02 M	M
2017-12-04	44		37 T	M	M
2017-12-05	50		35	0 M	M
2017-12-06	52		40	0 M	M
2017-12-07	M	M	M	M	M
2017-12-08	M	M	M	M	M
2017-12-09	M	M	M	M	M
2017-12-10	M	M	M	M	M
2017-12-11	M	M	M	M	M
2017-12-12	M	M	M	M	M
2017-12-13	M	M	M	M	M
2017-12-14	M	M	M	M	M
2017-12-15	M	M	M	M	M
2017-12-16	M	M	M	M	M
2017-12-17	M	M	M	M	M
2017-12-18	M	M	M	M	M
2017-12-19	M	M	M	M	M
2017-12-20	M	M	M	M	M
2017-12-21	M	M	M	M	M
2017-12-22	M	M	M	M	M
2017-12-23	M	M	M	M	M
2017-12-24	M	M	M	M	M
2017-12-25	M	M	M	M	M
2017-12-26	M	M	M	M	M
2017-12-27	M	M	M	M	M
2017-12-28	M	M	M	M	M
2017-12-29	M	M	M	M	M
2017-12-30	M	M	M	M	M
2017-12-31	M	M	M	M	M
Average Sun	48.2		39.7	0.56 M	M

Normals -POR KGW

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.19	0.16	0.18	0.13	0.08	0.08	0.03	0.02	0.03	0.07	0.17	0.27
2	0.2	0.16	0.18	0.12	0.09	0.08	0.03	0.01	0.04	0.07	0.17	0.26
3	0.2	0.17	0.17	0.13	0.08	0.07	0.03	0.02	0.04	0.07	0.19	0.27
4	0.2	0.17	0.17	0.13	0.09	0.07	0.02	0.01	0.04	0.06	0.19	0.25
5	0.2	0.18	0.16	0.13	0.08	0.07	0.03	0.02	0.04	0.07	0.2	0.24
6	0.21	0.17	0.16	0.12	0.09	0.07	0.02	0.01	0.04	0.07	0.2	0.25
7	0.2	0.17	0.15	0.13	0.09	0.08	0.03	0.02	0.04	0.07	0.21	0.24
8	0.21	0.18	0.15	0.12	0.08	0.06	0.02	0.02	0.04	0.08	0.21	0.24
9	0.22	0.17	0.15	0.13	0.08	0.07	0.03	0.02	0.04	0.08	0.22	0.22
10	0.21	0.17	0.15	0.12	0.08	0.07	0.02	0.02	0.05	0.07	0.22	0.23
11	0.2	0.18	0.14	0.12	0.08	0.06	0.02	0.02	0.04	0.08	0.22	0.22
12	0.21	0.17	0.14	0.12	0.08	0.07	0.02	0.02	0.05	0.09	0.22	0.22
13	0.2	0.16	0.15	0.11	0.08	0.06	0.02	0.02	0.05	0.09	0.22	0.23
14	0.2	0.17	0.15	0.12	0.08	0.06	0.02	0.02	0.04	0.1	0.22	0.22
15	0.2	0.16	0.15	0.12	0.08	0.06	0.02	0.03	0.05	0.1	0.22	0.22
16	0.2	0.15	0.14	0.11	0.07	0.06	0.01	0.02	0.05	0.11	0.22	0.23
17	0.2	0.16	0.15	0.12	0.08	0.05	0.02	0.03	0.05	0.11	0.22	0.22
18	0.2	0.17	0.14	0.11	0.08	0.06	0.02	0.02	0.06	0.13	0.23	0.22
19	0.2	0.16	0.14	0.11	0.08	0.05	0.01	0.03	0.05	0.12	0.23	0.23
20	0.2	0.17	0.13	0.12	0.08	0.05	0.02	0.02	0.06	0.13	0.23	0.22
21	0.19	0.16	0.14	0.11	0.08	0.05	0.01	0.03	0.06	0.14	0.24	0.22
22	0.19	0.15	0.13	0.1	0.08	0.04	0.02	0.02	0.06	0.13	0.24	0.21
23	0.19	0.16	0.14	0.11	0.09	0.04	0.01	0.03	0.06	0.14	0.24	0.22
24	0.2	0.16	0.13	0.1	0.08	0.04	0.02	0.02	0.06	0.14	0.25	0.21
25	0.2	0.16	0.13	0.1	0.09	0.04	0.01	0.03	0.07	0.15	0.25	0.21
26	0.19	0.17	0.13	0.09	0.08	0.04	0.01	0.02	0.06	0.14	0.26	0.2
27	0.19	0.16	0.13	0.1	0.09	0.04	0.02	0.03	0.07	0.15	0.26	0.2
28	0.19	0.16	0.13	0.09	0.08	0.03	0.01	0.03	0.07	0.16	0.25	0.19
29	0.18	-	0.13	0.09	0.09	0.04	0.01	0.03	0.07	0.16	0.27	0.2
30	0.19	-	0.13	0.09	0.08	0.03	0.02	0.04	0.06	0.17	0.27	0.19
31	0.18	-	0.13	-	0.08	-	0.01	0.03	-	0.17	-	0.19

WETS Station: PORTLAND KGW-TV, OR

Requested years: 1971 - 2000

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	46.2	36.4	41.3	6.05	3.77	7.31	12	1.2
Feb	50.6	38.5	44.5	5.29	3.57	6.32	12	0.9
Mar	56.2	40.7	48.5	4.44	3.39	5.17	12	0.1
Apr	61.4	43.9	52.6	3.13	2.18	3.71	9	0
May	67.3	48.6	57.9	2.58	1.59	3.12	8	0
Jun	73.2	53.1	63.2	1.59	0.85	1.94	4	0
Jul	79.1	57	68.1	0.78	0.35	0.93	2	0
Aug	79.5	57.4	68.5	1.02	0.32	1.17	2	0
Sep	74.9	54.1	64.5	1.75	0.82	2.06	4	0
Oct	63.4	47.5	55.5	3.39	1.85	4.14	7	0
Nov	52.2	41.4	46.8	6.59	4.4	7.9	14	0.4
Dec	46.1	36.8	41.4	6.46	4.43	7.71	13	0.9
Annual:					38.24	48.02		
Average	62.5	46.3	54.4	-	-	-	-	-
Total	-	-	-	43.07			100	3.5

GROWING SEASON DATES

Years with missing data:	24 deg = 6	28 deg = 6	32 deg = 6
Years with no occurrence:	24 deg = 15	28 deg = 4	32 deg = 0
Data years used:	24 deg = 24	28 deg = 24	32 deg = 24
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	1/30 to 12/24: 328 days	2/20 to 11/29: 282 days
70 percent *	No occurrence	1/19 to 1/4: 350 days	2/12 to 12/8: 299 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

APPENDIX C
Wetland Determination Data Sheets

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

Project/Site: Harmony Road Townhomes City/County: - / Clackamas Sampling Date: 8/25/2016
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P1
 Investigator(s): C. Mirth Walker, Evan Dulin Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR): A, Northwest Forests and Coast Lat: 45.432065 Long: -122.600305 Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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 <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>	
Precipitation prior to fieldwork: <u>No rainfall 2 weeks prior, 6.41" above normal for WYTD, 2.06" below normal for CYTD.</u>			
Remarks:			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus latifolia</u>	<u>30%</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</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>80%</u> (A/B)
2. <u>Alnus rubra</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Salix lasiandra</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>50%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus armeniacus</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>93</u> x 3 = <u>279</u> FACU species <u>95</u> x 4 = <u>380</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>238</u> (A) <u>789</u> (B) Prevalence Index = B/A = <u>3.32</u>
2. <u>Prunus laurocerasus</u>	<u>10%</u>	<u>No</u>	<u>NOL</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>90%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Hedera helix</u>	<u>95%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u> </u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u> </u> <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> <u>5</u> - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u>Ranunculus repens</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>98%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>2%</u>				

Remarks: Trees are narrow diameter at breast height: Oregon ash is 10", alder 7", willow 5". Entered by: NED QC by: cmw

SOIL

Sampling Point: **P1**

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		
0-2	10YR 3/2	100					SiL	
2-7+	10YR 3/2	96	7.5YR 3/3	4	C	M	SiL	faint redox

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.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No <u>X</u>
Type: <u>None</u>	
Depth (inches): <u>N/A</u>	

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal at 7" from large buried rock.

HYDROLOGY

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

Field Observations:	Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>N/A</u>	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>>7</u>	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>>7</u> (includes capillary fringe)	

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

Remarks: No indicators of hydrology. Entered by: NED QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: - / Clackamas Sampling Date: 8/25/2016
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P2
 Investigator(s): C. Mirth Walker, Evan Dulin Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Stream floodplain Local relief (concave, convex, none): Concave Slope (%): <2
 Subregion (LRR): A, Northwest Forests and Coast Lat: 45.432050 Long: -122.600420 Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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> </u>	No <u>X</u>	Is the Sampled Area within a Wetland? Water Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>	
Precipitation prior to fieldwork: <u>No rainfall 2 weeks prior, 6.41" above normal for WYTD, 2.06" below normal for CYTD.</u>			
Remarks: Sample plot was taken below the OHWM of Minthorn Creek. Area is considered a water and not a wetland.			

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>0</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>0%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>95</u> x 5 = <u>475</u> Column Totals: <u>98</u> (A) <u>484</u> (B) Prevalence Index = B/A = <u>4.94</u>
1. <u>Prunus laurocerasus</u>	<u>95%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Rubus armeniacus</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>98%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 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> </u> No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>100%</u>				

Remarks: _____ Entered by: NED QC by: cmw
Prunus laurocerasus is rooted upslope of floodplain area but shades the floodplain area. Rubus armeniacus is rooted at the OHWM boundary.

SOIL

Sampling Point: **P2**

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		
0-9	10YR 3/1	100					SiL	pebbly
9-15+	10YR 3/1	67	7.5YR 4/4	3	C	M	SiL	pebbly, ~mucky
			10YR 3/2	30	C	M	SiL	pebbly, faint redox
@25	2.5Y 3/1	90	10YR 3/2	10	C	M	SiL	faint redox

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.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present): Type: <u>None</u> Depth (inches): <u>N/A</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Rounded and broken rocks up to 3" diameter with organics in soil profile. Soil was moist. Probed below 15 inches.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>N/A</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>15</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>25</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sediments on tires along OHWM boundary. Entered by: NED QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: - / Clackamas Sampling Date: 8/25/2016
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P3
 Investigator(s): C. Mirth Walker, Evan Dulin Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): 3
 Subregion (LRR): A, Northwest Forests and Coast Lat: 45.432019 Long: -122.600394 Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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> </u>	No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>	
Precipitation prior to fieldwork: <u>No rainfall 2 weeks prior, 6.41" above normal for WYTD, 2.06" below normal for CYTD.</u>			
Remarks: <u>Sample plot located about 8' SE of P2.</u>			

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>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>95</u> x 5 = <u>475</u> Column Totals: <u>100</u> (A) <u>490</u> (B) Prevalence Index = B/A = <u>4.90</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Prunus laurocerasus</u>	<u>95%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>100%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>100%</u>				
Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>				
Remarks: _____ Entered by: <u>NED</u> QC by: <u>cmw</u>				

SOIL

Sampling Point: **P3**

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		
0-10+	10YR 3/2	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"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

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

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

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)
Shovel refusal at 10" from buried rocks.

HYDROLOGY

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>10</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>10</u>	
(includes capillary fringe)			

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

Remarks: _____ Entered by: NED QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: - / Clackamas Sampling Date: 8/25/2016
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P4
 Investigator(s): C. Mirth Walker, Evan Dulin Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2
 Subregion (LRR): A, Northwest Forests and Coast Lat: 45.432292 Long: -122.600752 Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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 <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>	
Precipitation prior to fieldwork: <u>No rainfall 2 weeks prior, 6.41" above normal for WYTD, 2.06" below normal for CYTD.</u>			
Remarks: <u>Sample plot located on north side of stream.</u>			

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>5</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>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>70%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>70%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>103</u> x 2 = <u>206</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>196</u> (A) <u>488</u> (B) Prevalence Index = B/A = <u>2.49</u>
1. <u>Fraxinus latifolia</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Cornus alba</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Crataegus monogyna</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>30%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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 <u> </u>
1. <u>Agrostis capillaris</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Carex leptopoda</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Equisetum arvense</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Mentha arvensis</u>	<u>10%</u>	<u>No</u>	<u>FACW</u>	
5. <u>Bidens frondosa</u>	<u>3%</u>	<u>No</u>	<u>FACW</u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>93%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus leucodermis</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>3%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>7%</u>				

Remarks: Lysichiton americanus and Iris pseudacorus (both OBL) also occur nearby in the wetland area. Entered by: NED QC by: cmw

SOIL

Sampling Point: **P4**

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		
0-4	10YR 2/2	100					SiL	
4-12	10YR 3/1	90	5YR 3/4	10	C	M, PL	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.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):	
Type: <u>None</u>	
Depth (inches): <u>N/A</u>	
	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal at 12" from large living roots.

HYDROLOGY

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

Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>X</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>12</u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>12</u>	
(includes capillary fringe)	

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

Remarks: Entered by: NED QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: - / Clackamas Sampling Date: 8/25/2016
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P5
 Investigator(s): C. Mirth Walker, Evan Dulin Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <2
 Subregion (LRR): A, Northwest Forests and Coast Lat: 45.432317 Long: -122.600797 Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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> </u>	No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>	
Precipitation prior to fieldwork: <u>No rainfall 2 weeks prior, 6.41" above normal for WYTD, 2.06" below normal for CYTD.</u>			
Remarks: <u>Sample plot is located about 15' North of P4.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Populus balsamifera</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: 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)
2. <u>Thuja plicata</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Abies grandis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Fraxinus latifolia</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
<u>50%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Crataegus monogyna</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>110</u> x 4 = <u>440</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>185</u> (A) <u>660</u> (B) Prevalence Index = B/A = <u>3.57</u>
2. <u>Ilex aquifolium</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Prunus caroliniana</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>45%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Hedera helix</u>	<u>80%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
2. <u>Polystichum munitum</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>85%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus leucodermis</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>5%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>15%</u>				
Remarks: <u>Fraxinus latifolia is rooted at boundary overhanging the sample plot.</u>				Entered by: <u>NED</u> QC by: <u>cmw</u>

SOIL

Sampling Point: **P5**

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		
0-3	10YR 3/1	100					SiL	
3-9+	10YR 3/1	99	10YR 3/2	1	C	M	SiL	faint redox

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"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? Yes No

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)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>N/A</u>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>9</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>9</u>	
(includes capillary fringe)			

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

Remarks: Entered by: NED QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: Milwaukie / Clackamas Sampling Date: 10/17/2017
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P6
 Investigator(s): C. Mirth Walker, Tom Dee Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Floodplain bench Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Wapato silty clay loam (84) 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 _____	No <u>X</u>	Is the Sampled Area within a Wetland? Water _____ Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: Remarks: <u>Below OHWM of Minthorn Creek; 2 feet downslope of P2</u>			

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>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. <u>Salix lasiandra</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. <u>Prunus laurocerasus</u>	<u>40%</u>	<u>Yes</u>	<u>NOL</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>65</u> (A) <u>270</u> (B) Prevalence Index = B/A = <u>4.15</u>
2. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>45%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Galium aparine</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Solanum dulcamara</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>90%</u>				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 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.
Remarks: _____ Entered by: <u>KL</u> QC by: <u>cmw</u>				

SOIL

Sampling Point: **P6**

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		
0-5	10YR 3/1	100					SiCL	w/ rounded gravel
5-11	10YR 4/1	85	10YR 5/8	10	C	M	SiCL	w/ rounded gravel
			2.5YR 4/8	5	C	M		
11-20	10YR 4/1	100					SiCL	w/ rounded gravel

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.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):	
Type: <u>None</u>	
Depth (inches): <u>N/A</u>	
	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

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)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>12</u>	

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

Remarks: Glistering peds at 12"; moist to surface. Laurel rooted upslope of depression. Entered by: KL QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: Milwaukie / Clackamas Sampling Date: 10/17/2017
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P7
 Investigator(s): C. Mirth Walker, Tom Dee Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Wapato silty clay loam (84) 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 _____	No <u>X</u>	Is the Sampled Area within a Wetland? Water 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: Remarks: Upslope of P6 to West.			

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>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. <u>Alnus rubra</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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>20</u> x 3 = <u>60</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>80</u> (A) <u>340</u> (B) Prevalence Index = B/A = <u>4.25</u>
1. <u>Prunus laurocerasus</u>	<u>40%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Rubus armeniacus</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>50%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 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.
1. <u>Hedera helix</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Polystichum munitum</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>20%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>80%</u>				
Entered by: <u>KL</u> QC by: <u>cmw</u>				

SOIL

Sampling Point: **P7**

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		
0-11	10YR 4/2	100					SiL	w/ 5" rounded river rock
11-18	10YR 5/3	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.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):	
Type: <u>None</u>	
Depth (inches): <u>N/A</u>	
	Hydric Soil Present? Yes _____ No <u>X</u>

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)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	

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

Remarks: Entered by: KL QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: Milwaukie / Clackamas Sampling Date: 12/5/2017
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P8
 Investigator(s): C. Mirth Walker, Tom Dee Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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 _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.48 inches 2 weeks prior (Portland); 1.94" above normal WYTD; 11.73" above normal CYTD.</u>			
Remarks: <u>Central north sewer easement.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Populus balsamifera</u>	60%	Yes	FAC	Dominance Test worksheet: 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)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
_____	_____	_____	_____		
<u>60%</u> = Total Cover				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
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>25</u> x 2 = <u>50</u> FAC species <u>71</u> x 3 = <u>213</u> FACU species <u>104</u> x 4 = <u>416</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>210</u> (A) <u>729</u> (B) Prevalence Index = B/A = <u>3.47</u>
1. <u>Fraxinus latifolia</u>	20%	Yes	FACW		
2. <u>Prunus laurocerasus</u>	10%	Yes	NOL		
3. <u>Crataegus monogyna</u>	5%	No	FAC		
4. <u>Corylus cornuta</u>	2%	No	FACU		
5. <u>Ilex aquifolium</u>	2%	No	FACU	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 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.	
<u>39%</u> = Total Cover + 2 = 41%					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Hedera helix</u>	95%	Yes	FACU		
2. <u>Polypogon monspeliensis</u>	5%	No	FACW		
3. <u>Equisetum arvense</u>	1%	No	FAC		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>101%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
1. <u>Rubus ursinus</u>	5%	Yes	FACU		
2. <u>Rubus armeniacus</u>	5%	Yes	FAC		
<u>10%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____ Entered by: <u>KL</u> QC by: <u>cmw</u>					
Sapling/Shrub Stratum also has 1% each <u>Thuja plicata</u> (FAC) and <u>Cornus alba</u> (FACW)					

SOIL

Sampling Point: **P8**

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		
0-4	10YR 3/2	100					SiL	
4-14+	10YR 4/1	98	10YR 4/6	2	C	M	gr SiL	and rounded cobbles

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.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present): Type: <u>None</u> Depth (inches): <u>N/A</u>	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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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)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

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? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist throughout. Entered by: KL QC by: cmw

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

Project/Site: Harmony Road Townhomes City/County: Milwaukie / Clackamas Sampling Date: 12/5/2017
 Applicant/Owner: Cascadia Planning & Dev. Svcs/Old Time Investments, Inc. State: OR Sampling Point: P9
 Investigator(s): C. Mirth Walker, Tom Dee Section, Township, Range: 31D, T1S, R2E, TL 2200
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: NAD 1983
 Soil Map Unit Name: Wapato silty clay loam (84) 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 _____	No <u>X</u>	Is the 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 _____	
Precipitation prior to fieldwork: <u>3.48 inches 2 weeks prior (Portland); 1.94" above normal WYTD; 11.73" above normal CYTD.</u>			
Remarks: <u>NE corner of site.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Populus balsamifera</u>	<u>70%</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>70%</u> = Total Cover				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>89</u> x 3 = <u>267</u> FACU species <u>120</u> x 4 = <u>480</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>224</u> (A) <u>777</u> (B) Prevalence Index = B/A = <u>3.47</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. <u>Symphoricarpos albus</u>	<u>20%</u>	Yes	FACU	
2. <u>Crataegus monogyna</u>	<u>10%</u>	Yes	FAC	
3. <u>Physocarpus capitatus</u>	<u>5%</u>	No	FACW	
4. <u>Fraxinus latifolia</u>	<u>5%</u>	No	FACW	
5. <u>Thuja plicata</u>	<u>4%</u>	No	FAC	
<u>44%</u> = Total Cover + 1 = 45%				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Hedera helix</u>	<u>95%</u>	Yes	FACU	
2. <u>Juncus patens</u>	<u>5%</u>	No	FACW	
3. <u>Equisetum arvense</u>	<u>5%</u>	No	FAC	
4. <u>Polystichum munitum</u>	<u>5%</u>	No	FACU	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>110%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Entered by: <u>KL</u> QC by: <u>cmw</u>				
Remarks: <u>Ilex aquifolium 1% FACU in S/S Stratum.</u>				

SOIL

Sampling Point: **P9**

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		
0-12	10YR 4/1	99	10YR 4/6	1	C	M	SiL	Rounded cobbles

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.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present): Type: <u>Rock refusal</u> Depth (inches): <u>12</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Tiny shard of broken glass in pit. Very rocky.

HYDROLOGY

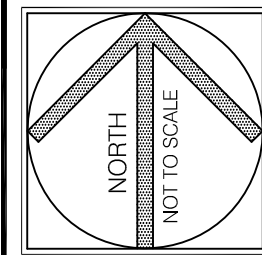
Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

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

Remarks: Entered by: KL QC by: cmw
 Winter High Water Table; dam/weir on Minthorn Creek may back-up water into soil. Very slight small depression, not a linear feature, no geomorphic position.

APPENDIX D
Ground-level Site Photographs



CITY OF MILWAUKIE LAND USE APPLICATION
HARMONY PARK TOWNHOMES PH II
 6115 SE HARMONY ROAD
 MILWAUKIE, OR 97222
 TAX LOT 2200 TAX MAP 1S2E31D
 CLACKAMAS COUNTY, OREGON

AERIAL PHOTOGRAPH
 DECEMBER 18, 2017

REVISIONS
 △
 △
 △

SWCA ENVIRONMENTAL CONSULTANTS
 PHOTO LOCATION MAP



Photo 1. View north of western portion of riparian corridor. Photo date October 17, 2017.



Photo 2. View north of central portion of riparian corridor. Photo date October 17, 2017.



Photo 3. View north of eastern portion of riparian corridor. Photo date October 17, 2017.



Photo 4. View east of lot. Photo date October 17, 2017.



Photo 5. View northwest of manhole. Photo date August 25, 2016.



Photo 6. View west of typical condition riparian corridor. Photo date October 17, 2017.



Photo 7. View north of Plot 6, below ordinary high water line of Minthorn Creek. Photo date October 17, 2017.



Photo 8. View northeast of Minthorn Creek from eastern property line. Photo date October 17, 2017.



Photo 9. View west of Minthorn Creek. Photo date August 25, 2016.



Photo 10. View east of Minthorn Creek. Photo date August 25, 2016.



Photo 11. View east of Wetland A and northern bank of Minthorn Creek. Photo date August 25, 2016.



Photo 12. View north of northern wetland boundary. Photo date August 25, 2016.



Photo 13. View east near Plot 2. Photo date August 25, 2016.



Photo 14. Plot 2. Photo date August 25, 2016.

APPENDIX E
Vegetation List

**6115 SE Harmony Road
Site Vegetation List
August 25, 2016, and October 17 and December 5, 2017**

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
NATIVE			
grand fir	<i>Abies grandis</i>	FACU	native
big-leaf maple	<i>Acer macrophyllum</i>	FACU	native
red alder	<i>Alnus rubra</i>	FAC	native
devil's-pitchfork	<i>Bidens frondosa</i>	FACW	native
taper-fruit short-scale sedge	<i>Carex leptopoda</i>	FAC	native
red osier dogwood	<i>Cornus alba</i>	FACW	native
beaked hazelnut	<i>Corylus cornuta</i>	FACU	native
field horsetail	<i>Equisetum arvense</i>	FAC	native
Oregon ash	<i>Fraxinus latifolia</i>	FACW	native
sticky-willy	<i>Galium aparine</i>	FACU	native
lamp rush	<i>Juncus effusus</i>	FACW	native
spreading rush	<i>Juncus patens</i>	FACW	native
yellow-skunk-cabbage	<i>Lysichiton americanus</i>	OBL	native
American wild mint	<i>Mentha arvensis</i>	FACW	native
Pacific ninebark	<i>Physocarpus capitatus</i>	FACW	native
western or pineland sword fern	<i>Polystichum munitum</i>	FACU	native
balsam poplar (black cottonwood)	<i>Populus balsamifera</i>	FAC	native
Oregon white oak	<i>Quercus garryana</i>	FACU	native
white-stem raspberry	<i>Rubus leucodermis</i>	FACU	native
California dewberry	<i>Rubus ursinus</i>	FACU	native
Pacific willow	<i>Salix lasiandra</i>	FACW	native
giant sequoia	<i>Sequoiadendron giganteum</i>	NOL	native (to California)
common snowberry	<i>Symphoricarpos albus</i>	FACU	native
western arborvitae (western red cedar)	<i>Thuja plicata</i>	FAC	native
squashberry	<i>Viburnum edule</i>	FACW	native
NON-NATIVE			
horse chestnut*	<i>unknown species</i>	unknown species	unknown species
colonial bent	<i>Agrostis capillaris</i>	FAC	non-native
English hawthorn*	<i>Crataegus monogyna</i>	FAC	non-native
English ivy*	<i>Hedera helix</i>	FACU	invasive, noxious
English holly*	<i>Ilex aquifolium</i>	FACU	non-native
spotted touch-me-not	<i>Impatiens capensis</i>	FACW	non-native
pale-yellow iris (yellow flag)*	<i>Iris pseudacorus</i>	OBL	noxious
European privet*	<i>Ligustrum vulgare</i>	FACU	non-native
perennial rye grass	<i>Lolium perenne</i>	FAC	non-native
dawn redwood	<i>Metasequoia glyptostroboides</i>	NOL	non-native
Portuguese laurel*	<i>Prunus lusitanica</i>	NOL	non-native
English laurel*	<i>Prunus laurocerasus</i>	NOL	non-native
creeping buttercup	<i>Ranunculus repens</i>	FAC	non-native
Himalayan blackberry*	<i>Rubus armeniacus</i>	FAC	invasive, noxious
thornless blackberry	<i>Rubus species</i>	-	non-native
climbing (bittersweet) nightshade*	<i>Solanum dulcamara</i>	FAC	invasive
NATIVE STATUS UNKNOWN			
knotweed or smartweed	<i>Polygonum species</i>	OBL to NOL	-
rose	<i>Rosa species</i>	FAC to UPL	-

*Priority target non-native species for removal; all are on the City of Portland Nuisance Plant List.

Wetland Indicator Status and taxonomy for the Western Mountains, Valleys, and Coast Region per the National Wetland Plant List 2016 v3.3.

Accessed May 3, 2016.

<http://rsgisias.crrel.usace.army.mil/NWPL/>

Portland Plant List. Available at:

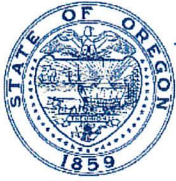
<https://www.portlandoregon.gov/citycode/article/322280>

Accessed September 22, 2016 and November 7, 2017

WETLAND INDICATOR STATUS (WIS)	
OBL	Obligate Wetland Plant - Almost always occurs in wetlands (hydrophyte), rarely in uplands
FACW	Facultative Wetland Plant - Usually occur in wetlands (hydrophyte), but may occur found in non-wetlands
FAC	Facultative Plant - Occurs in wetlands (hydrophyte) and uplands (nonhydrophyte)
FACU	Facultative Upland Plant - Usually occur in non-wetlands (non-hydrophyte), but may occur in wetlands
UPL	Upland Plant - Almost always occurs in uplands (non-hydrophyte), almost never occurs in wetlands. UPL plants have a WIS in other regions
NOL	Not Listed - Plants that are not on the National Wetland Plant List are assumed to be UPL and have no WIS in any region

**DEPARTMENT OF STATE LANDS WETLAND
DELINEATION CONCURRENCE LETTER**

EXHIBIT 7



Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

State Land Board

Kate Brown

Governor

Dennis Richardson

Secretary of State

Tobias Read

State Treasurer

March 27, 2018

Old Time Investments, Inc.
Attn: Ed Williams
16479 SE Oak Meadow Court
Damascus, OR 97089

Re: WD # 2017-0559 Wetland Delineation Report for the Proposed
Harmony Road Townhomes, Clackamas County;
T 1S R 2E S 31D Tax Lot 2200
North Urban Area Local Wetlands Inventory, Minthorn Creek

Dear Mr. Williams:

The Department of State Lands has reviewed the wetland delineation report prepared by SWCA Environmental Consultants for the site referenced above. Based upon the information presented in the report and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in Figure 8 of the report. Within the study area, one wetland (totaling approximately 0.12 acres) and a segment of Minthorn Creek were identified.

The wetland and creek are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of a waterway (or 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 decide jurisdiction for purposes of the Clean Water Act at the time that a report 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.

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 are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the


Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5232 if you have any questions.

Sincerely,


Peter Ryan, PWS
Jurisdiction Coordinator

Approved by


Kathy Verble, CPSS
Aquatic Resource Specialist

Enclosures

ec: C. Mirth Walker, PWS, SWCA Environmental Consultants
Steve Kay, AICP, Cascadia Planning & Development Services
Clackamas County Planning Department (Map enclosed for updating LWI)
Dominic Yballe, Corps of Engineers
Anita Huffman, DSL

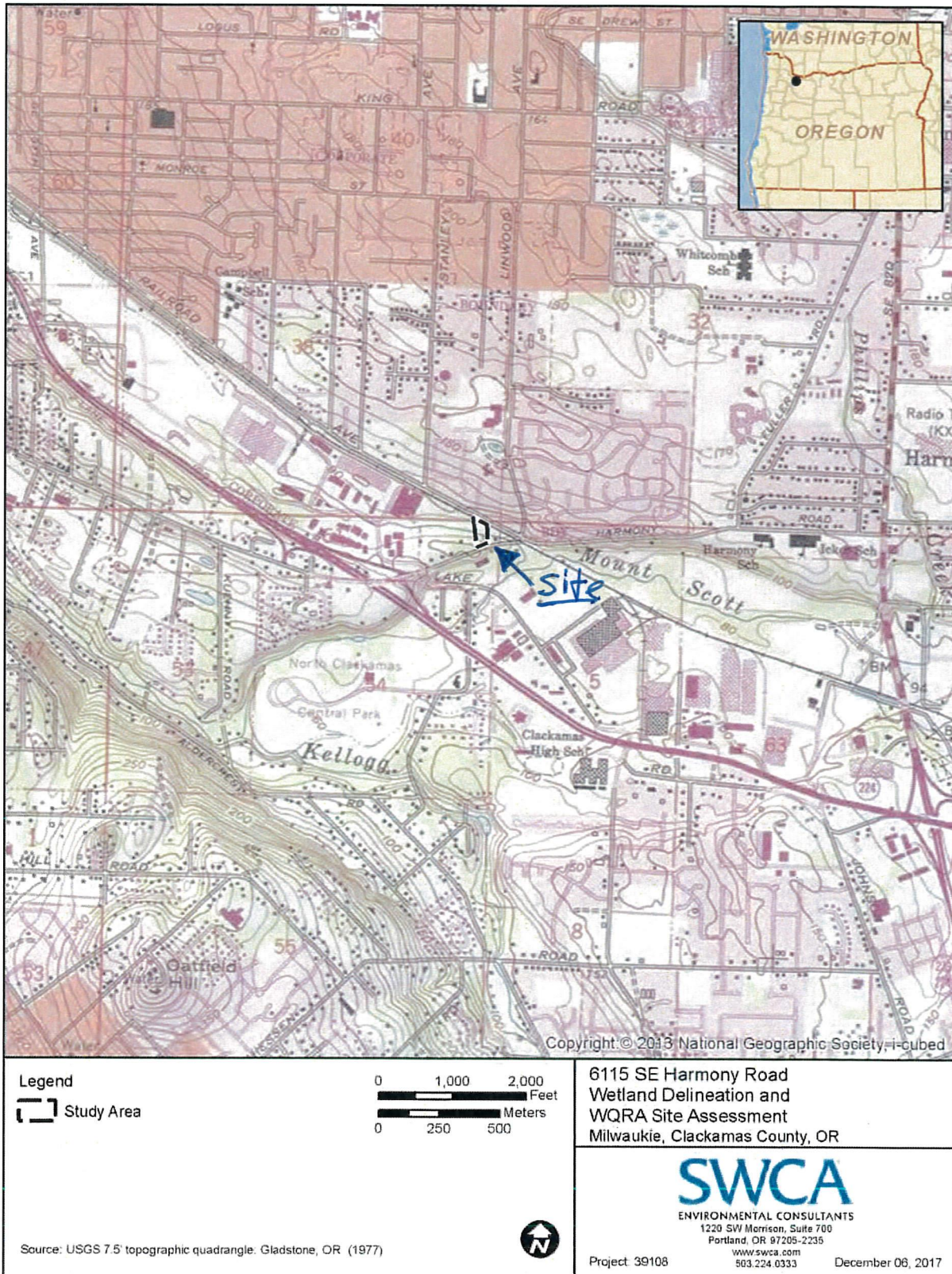


Figure 1. Site location map.

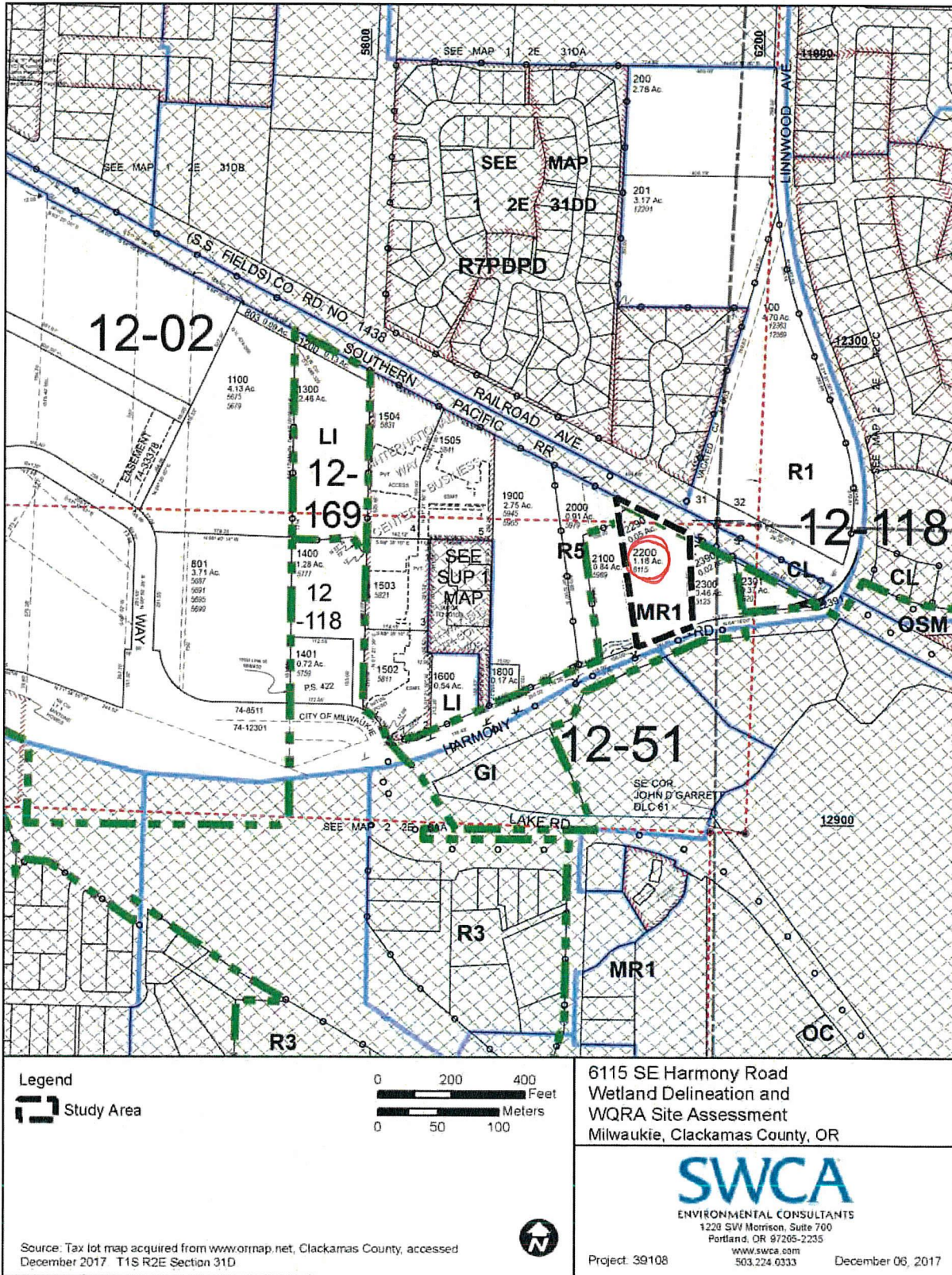
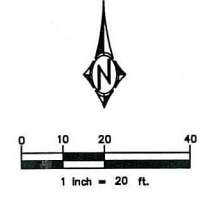
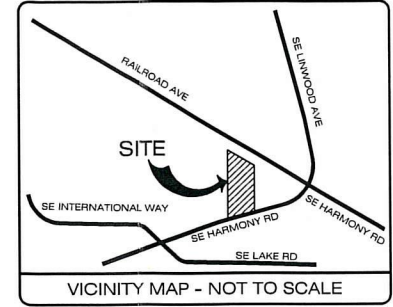
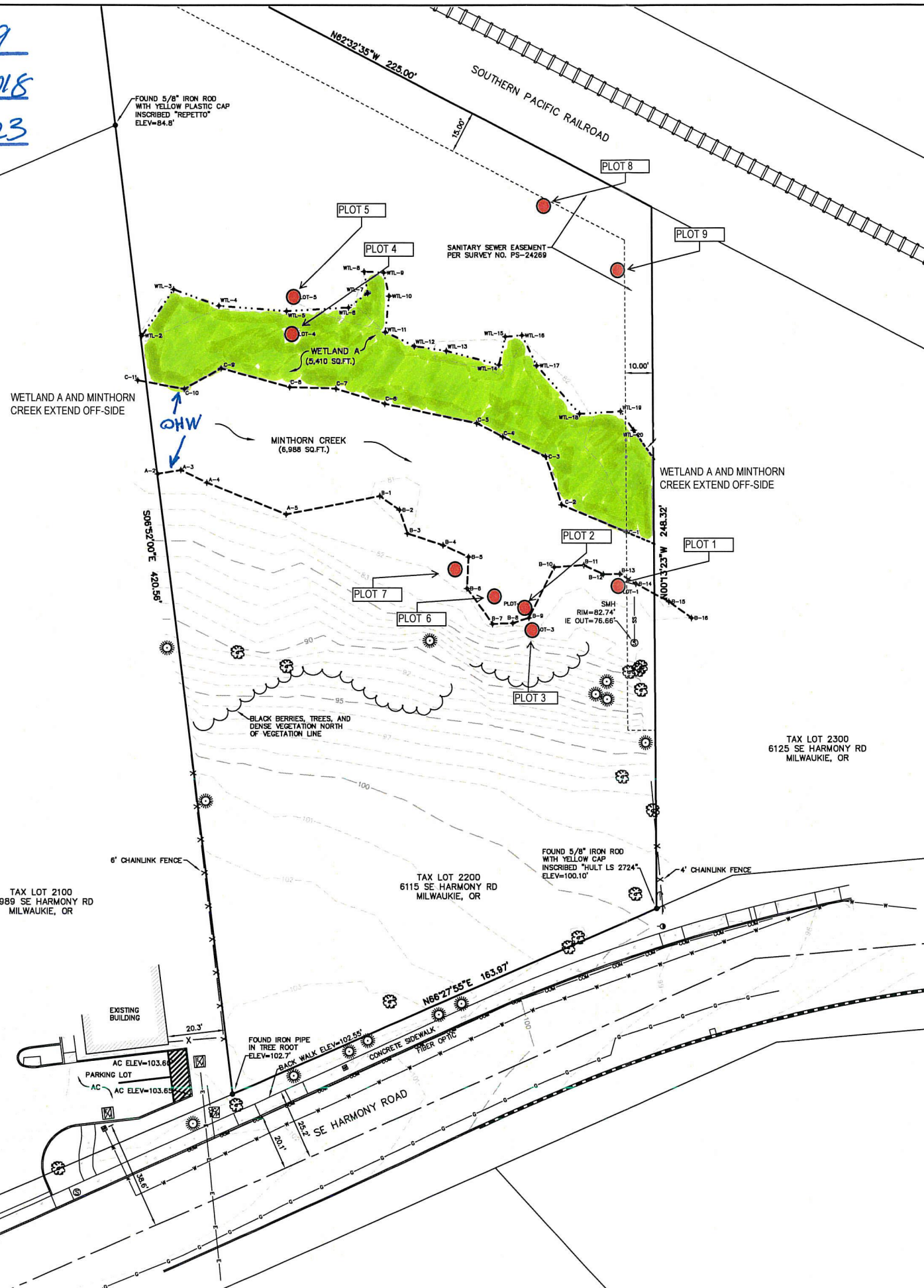


Figure 3. Tax lot map from ORmap with paper base.

DSL WD # 2017-0559
 Approval Issued 3/27/2018
 Approval Expires 3/27/2023



SURVEY LEGEND - EXISTING FEATURES

	CONCRETE WALL
	RAIL ROAD
	FENCE
	MINOR CONTOUR
	MAJOR CONTOUR
	WETLAND DELINEATION
	SANITARY SEWER LINE
	GAS LINE
	WATER LINE
	WATER METER/SERVICE
	WATER VALVE
	CATCH BASIN / AREA DRAIN
	SANITARY SEWER MAN-HOLE
	UTILITY GUY POLE
	UTILITY GUY WIRE
	ELECTRIC VAULT
	COMMUNICATIONS PEDESTAL
	DECIDUOUS TREE
	EVERGREEN TREE
	SURVEY FOUND MONUMENT

GENERAL NOTES:

- BENCHMARK INFORMATION: 3-1/2" BRONZE DISK IN SIDEWALK PER USBT 2001-040, BEING THE NORTHEAST CORNER OF JOHN GARRETT DLC NO. 61, ALSO BEING THE SOUTHEAST CORNER OF JOHN GARRETT DLC NO. 38 ON THE NORTH LINE OF SECTION 5. SEE CLACKAMAS COUNTY SN 2004-386 SHEET 4 OF 14. ELEVATION = 85.30'
- THE BOUNDARY DEPICTED HERE ON IS PRELIMINARY AND IS SUBJECT TO CHANGE. IF ADDITIONAL MONUMENTS ARE FOUND ALONG THE NORTH LINE, THE BOUNDARY RETRACEMENT WILL BE REVISED ACCORDINGLY.
- THE PURPOSE OF THIS SURVEY WAS TO PROVIDE A TOPOGRAPHIC BASE MAP OF TAX LOT 2200 TAX MAP 1S 2E 31D SHOWING EXISTING CONDITIONS ALONG WITH THE WETLAND DELINEATION AND MARKERS. THE AREA NORTH OF THE HEAVY VEGETATION DEMARKATION HAS NOT BEEN ACCURATELY SURVEYED, OTHER THAN THE WETLAND MARKERS DEPICTED HEREON.
- AS OF THE DATE OF THIS MAPPING, THERE WERE NO UNDERGROUND UTILITY PAINT MARKINGS TO MAP THE SUBSURFACE UTILITIES.
- MANHOLES SHOWN HEREON ARE TO CENTER OF MANHOLE LID, NOT CENTER OF STRUCTURE.
- THE WETLAND, WATER BOUNDARIES AND SAMPLE PLOT LOCATIONS, DELINEATED WITH EITHER FLAGS IN SOIL OR FLAGGING TIED TO BRANCHES, HAVE A HORIZONTAL MAPPING ACCURACY OF ±1'.

SUMMIT JOB NO.:	998-187
TOPOGRAPHIC SURVEY	SE HARMONY RD TOPO
PREPARED BY:	ED WILLIAMS
SURVEY DATE:	9/19/16
DRAWN BY:	CLM
MODIFIED:	12/28/17 - CLM - ADDED WETLAND BUFFER LINES
	12/28/17 - CLM - ADDED ADJL TOPO IN OFFSITE PARKING AREA ON TL 2100
	02/28/18 - CLM - MODIFIED SENSITIVE AREA LINETYPES

EXISTING CONDITIONS
 TAX LOT 2200
 TAX MAP 1S 2E 31D
 CLACKAMAS COUNTY, OREGON



SHEET **FIGURE**
08