WETLAND DETERMINATION AND DELINEATION REPORT

for the

Mistkawi Property

City of Salem

Polk County, Oregon

ZION
Natural Resources Consulting

Prepared for:

Bonaventure
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Submitted by:

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ZNR Project #: 1495

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A. Landscape Setting and Land Use

At the request of Bonaventure; Zion Natural Resources Consulting performed a wetland delineation on a 39.46 acre parcel located at west of Doaks Ferry Road and north of Orchard Heights Road NW in Salem, OR (T7S, R3W, Sec. 17 WM, tax lots 400, 900, and 1100). The site currently contains two single family residences and the remainder of the study area consisting of a prune orchard and agricultural land. The east central and northeast portions of the site contain a mature upland forest likely avoided recently by agricultural activities due to the steep terrain. The study area is on a hillslope from a 420 foot elevation in the northwest down to 280 feet along Doaks Ferry Road. The majority of the study area has been an orchard or in agricultural production since 1935 according to the aerial photographs. Surrounding land consists of Straub Nature Park to the east, West Salem High School to the south, single family residential to the west, and rural residences to the north.

B. Possible Site Alterations

Wetland B and C are connected by a culvert that is located near the plots of SP-2 and SP-3. There is also an overflow drain pipe in the center of the pond that daylights at the beginning of wetland A. The pond appears to be excavated before 1956 and after 1935 according to the historic aerial photographs (Figures 5a-5e). There is also a 30" culvert beneath Doaks Ferry Road in which Wilark Brook continues offsite to the northeast. These historic alterations have affected the location of waters and wetlands onsite.

C. Precipitation Data and Analysis

The precipitation on the day of site investigation and the precipitation approximately 1-2 weeks before the dates of the field investigation are listed below.

	Sep. 13, 2018	**9/1-9/12**
National Weather Service – Salem, OR	0.02 inches	0.12 inches

The percent of normal precipitation for the water year to date and the monthly percent of normal precipitation were obtained through the NRCS WETS table for the county. The precipitation for the three months preceding the field investigation was obtained for the Salem area through the National Weather Service and is listed below.

Since January 1st: 18.92 inches
Since October 1st: 34.02 inches
% of normal precipitation for the water year-to-date (October 1): 88%

Month	Avg	WETS Rainfall Percentile (in)		Measured Rainfall	Departure from Normal	% of Normal Precipitation
		30th	70th			
June	1.45	0.88	1.76	0.56	-0.89	**63%**
July	0.57	0.17	0.63	T	-0.57	**0%**
August	0.68	0.21	0.72	T	-0.68	**0%**

D. SITE-SPECIFIC / FIELD METHODOLOGY

Site observations were made using the "Routine Onsite" delineation method from the 1987 U.S. Army Corps of Engineers Wetland Delineation manual along with the Regional Supplement for Western Mountains, Valleys, and Coast. A total of 8 sample plots were established on September 13th, 2018 to document wetland and upland conditions within the project area. Plot locations were placed on all sides of the contiguous wetland area. The number of sample plots documented is believed to be representative of the change in plant communities, soil features, or level of groundwater hydrology found within the study area.

Subtle topographic features and other visible features such as vegetation density, plant stress, and surface saturation were also used in determining the location of the wetland boundaries. After the soil pits were excavated and soil data was recorded, the pits were left open long enough to allow the water table to equilibrate within the hole.

E. WETLAND / WATERS OF THE STATE DESCRIPTION

The USDA Natural Resource Conservation Service has mapped the following soil series within the study area.

Soil Series	Drainage Class	Hydric	Hydric Inclusions
27C Dupee silt loam 3 to 12 percent slopes	Somewhat poorly drained	No	None
27D Dupee silt loam 12 to 20 percent slopes	Somewhat poorly drained	No	None
36C Jory silty clay loam 2 to 12 percent slopes	Well drained	No	None
36E Jory silty clay loam 20 to 30 percent slopes	Well drained	No	None
52C Nekia silty clay loam 2 to 12 percent slopes	Well drained	No	None
61C Ritner gravelly silty clay loam 3 to 12 percent slopes	Well drained	No	None
61E Ritner gravelly silty clay loam 30 to 60 percent slopes	Well drained	No	None

Stream A (0.11 ac / 225 linear feet)
This feature is an emergent and forested perennial stream identified as Wilark Brook. This site is considered the headwaters of this stream. The stream meander is dominated by dense shrubs and trees with little herbaceous vegetation. The bed narrows and widens based on local topography. The stream width on average is three feet with a 2:1 bank slope and a one foot depth or less. The stream did not have an obvious ordinary high water line largely due to the lack of stream morphology. Hydrology originates from wetland B and C to the south. This stream flows to the north and enters into a 30" concrete culvert beneath Doaks Ferry Road where it continues offsite to the northeast.

Dominant wetland plant communities included *Cornus alba*, FACW; and *Crataegus monogyna*, FAC. Dominant upland plant communities consist of *Ilex opaca*, NOL; *Hedera helix*, FACU; *Polystichum munitum*, FACU; *Cornus alba*, FACW; and *Crataegus monogyna*, FAC.

Wetland B (0.12 ac)
This wetland is an emergent wetland located in the southcentral portion of the study area. Hydrology appears to come from a spring that provides a dry season water table. The hydrology exits the site through a culvert to the northeast draining into wetland C. Dominant wetland plant communities included *Solanum nigrum*, FACU; *Phalaris arundinacea*, FACW; *Dipsacus fullonum*, FAC; and *Juncus effusus*, FACW. Dominant upland plant communities consist of *Phalaris arundinacea*, FACW.

Wetland C (0.22 ac)
This is a freshwater pond located in the southcentral portion of the study area. The pond was excavated sometime before 1956. The hydrology appears to come from precipitation, a culvert connected to wetland B, and groundwater hydrology. Dominant wetland and upland plant communities consist of *Vitis californica*, FACU and *Phalaris arundinacea*, FACW.

F. Deviation From National and/or Local Wetlands Inventory

There are wetland/waters of the state associated with this site as depicted on the National Wetland Inventory (NWI) Map (Figure 3a). The NWI identified Wilark Brook (R4SBc) and the freshwater pond (PUBHh). Both these polygons were photo interpreted using 1:58,000 scale, color infrared imagery from 1982. This delineation did not identify the segment of Wilark Brook south of wetland B.

A Local Wetland Inventory was not available for this site. The study area boundary is located just west of the LWI boundary (Figure 3b).

G. Mapping Method and Estimated Accuracy

Wetland areas were established and flagged by Zion Natural Resources Consulting and were field surveyed with a Trimble Robotic Total Station to an accuracy of 0.02 foot.

H. Additional Information to Help Establish State Jurisdiction

According to the Essential Salmonid Habitat Map (2010-2015) this creek is not listed as containing essential salmonid habitat. Wilark Brook connects to Gibson Creek and Glenn Creek before eventually reaching the Willamette River to the northeast.

Datasheet Information: According to the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region; hydrophytic vegetation with a wetland indicator status of "Not on List" (NOL) is calculated as having an upland indicator status unless other wise noted as a different status based on the best professional judgment of the consultant. Hydrophytic vegetation identified with a wetland indicator status of "No regional indicator" (NI) or "no known occurrence" (NO) will have the nearest adjacent regional indicator applied to it (for western Oregon, the nearest regional indicator is California). If no adjacent regional indicator status exists the vegetation species will be listed on the datasheets but will not be utilized in the calculations for the dominance test or the prevalence test.

I. Results and Conclusions

Based upon our site reconnaissance and sampling of the three required wetland criteria (wetland hydrology, hydric soils, and hydrophytic vegetation), ZNR has identified approximately 0.34 acres of potentially jurisdictional wetlands classified as palustrine emergent wetlands (PEMC) and a freshwater pond (PUBHh). As well as approximately 400 linear feet (0.11 acres) of Wilark Brook (R4SBc). Figure 6 depicts the location of the potentially jurisdictional wetlands and sample sites. Upland in most instances is quite apparent and somewhat topographically defined (Photos 1-4).

J. Limitations and Required Disclaimer

This report was prepared for the use of the client, its affiliates, lenders and assigns, their consultants and various governmental agencies. Any results and conclusions within this report represent our professional judgment based on the most recent information provided from publications, maps aerial photos, and field investigations as defined within the scope of services.

This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best knowledge of ZNR. 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 Department of State Lands in accordance with OAR 141-090-0005 through 141-09-0055. The review process must be completed and the boundary concurred with, prior to any detailed site planning or construction activities take place.

APPENDIX A:

Criteria, Methodology, and Definitions

I. CRITERIA, METHODOLOGY, AND DEFINITIONS

A. WETLAND AND WATERS OF THE STATE DEFINITION

The ACOE (Federal Register 1982) and the Environmental Protection Agency (EPA) (Federal Register 1980) jointly define wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Except under certain situations defined in the ACOE Wetlands Delineation Manual, evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination".

Waters of the State are defined as "natural waterways including all tidal and non-tidal bays, intermittent streams, continually flowing streams, lakes, wetlands and other bodies of water in this state, navigable and non-navigable…" "Natural waterways" is further defined as waterways created naturally by geological and hydrological processes, waterways that would be natural but for human-caused disturbances (i.e. channelized or culverted streams, partially drained wetlands or ponds created in wetlands)…" (DSL 1995).

B. CRITERIA 1 - WETLAND HYDROLOGY

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface or within the major portion of the root zone (usually above 12 inches) at some time (typically at least 12.5%) during the growing season.

1987 Manual defines the "growing season" as the portion of the year when soil temperature (measured 20 inches below the surface) is above biological zero (5 degrees Celsius, or 41 degrees Fahrenheit). This period can be approximated by the number of frost free days based on air temperature. Data for the growing season can be acquired via the Natural Resources Conservation Service (NRCS).

Indicators of hydrologic conditions that occur in wetlands may include, but are not limited to: drainage patterns, drift lines, sediment deposits, watermarks, stream gage data and flood predictions, historic records, visual observation of saturated soils, visual observation of inundation, and oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils.

C. CRITERIA 2 - HYDRIC SOILS

The definition of a hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are

sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some series, designated as hydric, have phases that are not hydric depending on water table, flooding, and ponding characteristics.

Soil field indicators are characteristics which are documented to be strictly associated only with hydric soils and are an efficient on-site means to confirm the presence of hydric soil. The indicators are designed to identify soils which meet the hydric soil definition without further data collection. Some hydric soils exist for which no field indicators have yet been recorded and documented, and to identify these soils as hydric, evidence must be gathered to demonstrate that the definition is met.

Soil field indicators include: organic content of greater that 50% by volume, sulfidic material or "rotten egg" odor, and/or presence of redoximorphic features and dark soil matrix as determined by the use of a Munsell Soil Color Chart. This chart establishes chroma, value, and hue of soils based on comparison with the color chips. The field data is then brought in-house and compared to the site-specific soils data mapped by the NRCS.

D. CRITERIA 3 - WETLAND VEGETATION

Wetland vegetation is more specifically termed hydrophytic vegetation. This type of plant life occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils to influence the plant species present. Vegetation that is not hydrophytic lack the morphological and physiological adaptations to grow, effectively compete, or persist in areas that are subject to prolonged inundation or saturated soil conditions.

Plant indicators, along with their definitions and indicator codes are listed in Table 2. Once plants are identified in the field they are researched through the U.S. Fish and Wildlife Service Region 9 (encompasses all of Oregon) Plant list to identify their corresponding indictor status. Wetland vegetation criteria are met when the percent dominant species is OBL, FACW, and/or FAC.

Table 2. Plant Indicator categories and definitions.

Indicator Symbol	Indicator Category	Definition
OBL	Obligate wetland	Plants that occur almost always in wetlands (>99%).
FACW	Facultative wetland	Plants that occur usually in wetlands (67-99%).
FAC	Facultative	Plants that occur in equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland	Plants that occur sometimes in wetlands (1-33%).
UPL	Obligate upland	Plants that occur rarely in wetlands (>99%).
NOL	Not on list	Has not yet received a wetland indicator status.

E. DELINEATION METHODOLOGY

Prior to beginning field work, Zion Natural Resources Consulting will review available information in order to ascertain where potential wetlands may exist on-site and to facilitate the gathering of data. This review includes the U.S. Geological Survey (USGS) topographic quadrangle, the Natural Resource Conservation Service soil series maps, the list of Oregon hydric soils by County, and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map. If available, a Local Wetland Inventory map (LWI) will also be obtained as well as any public records for prior wetland determinations at or near the property.

Zion Natural Resources Consulting evaluated the site utilizing the routine on-site method as described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). Data sheets were completed at each sample plot documenting the vegetation, soils, and hydrology. Areas in which wetland hydrology, hydric soils, and hydrophytic vegetation were all simultaneously present would likely be considered wetlands by the U.S. Army Corps of Engineers (ACOE) or Oregon Department of State Lands (DSL).

Approximately one-foot diameter soil pits were excavated to a depth of 16 inches in selected locations. The soil profiles were examined for wetland hydrology and hydric soil field indicators. In addition, a visual percent-cover estimate of the dominant species of the plant community was performed using the soil pit locations as the center of reference. Dominant plant species are based on estimates of percent cover for shrub/scrub and herbaceous species within a 5-foot radius of the sample point and a basal area cover for tree species within a 30-foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20%, are not considered to be dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species.

F. REGULATORY JURISDICTION

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

The principal regulatory reference material for wetland delineations within Oregon is the Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (Environmental Laboratory 1987) which is recognized by both ACOE and DSL.

APPENDIX B:

Literature and Data Sources

LITERATURE AND DATA SOURCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S.D.I. Fish and Wildlife Service. FWS/OBS-79/31.45 pp.

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Natural Resource Conservation Service, USDA, 2018 (Soil Survey Data and Hydric Soils by County). Soil Data Mart, http://soildatamart.nrcs.usda.gov.

NOAA National Weather Service Forecast Office, Portland OR, 2018 (Climatological Data). http://newweb.wrh.noaa.gov/climate/index.php?wfo=pqr.

Oregon Department of Revenue, The Oregon Map, 2018 (County Tax Lot Maps). ORMAP Online Maps http://www.ormap.org/maps/maps.htm.

Reed, P.B. Jr. 1988. National List of Plant Species That Occur in Wetlands: Northwest (Region 9). USDI Fish and Wildlife Service, Biological Report 88 (26.9). 89 pp.

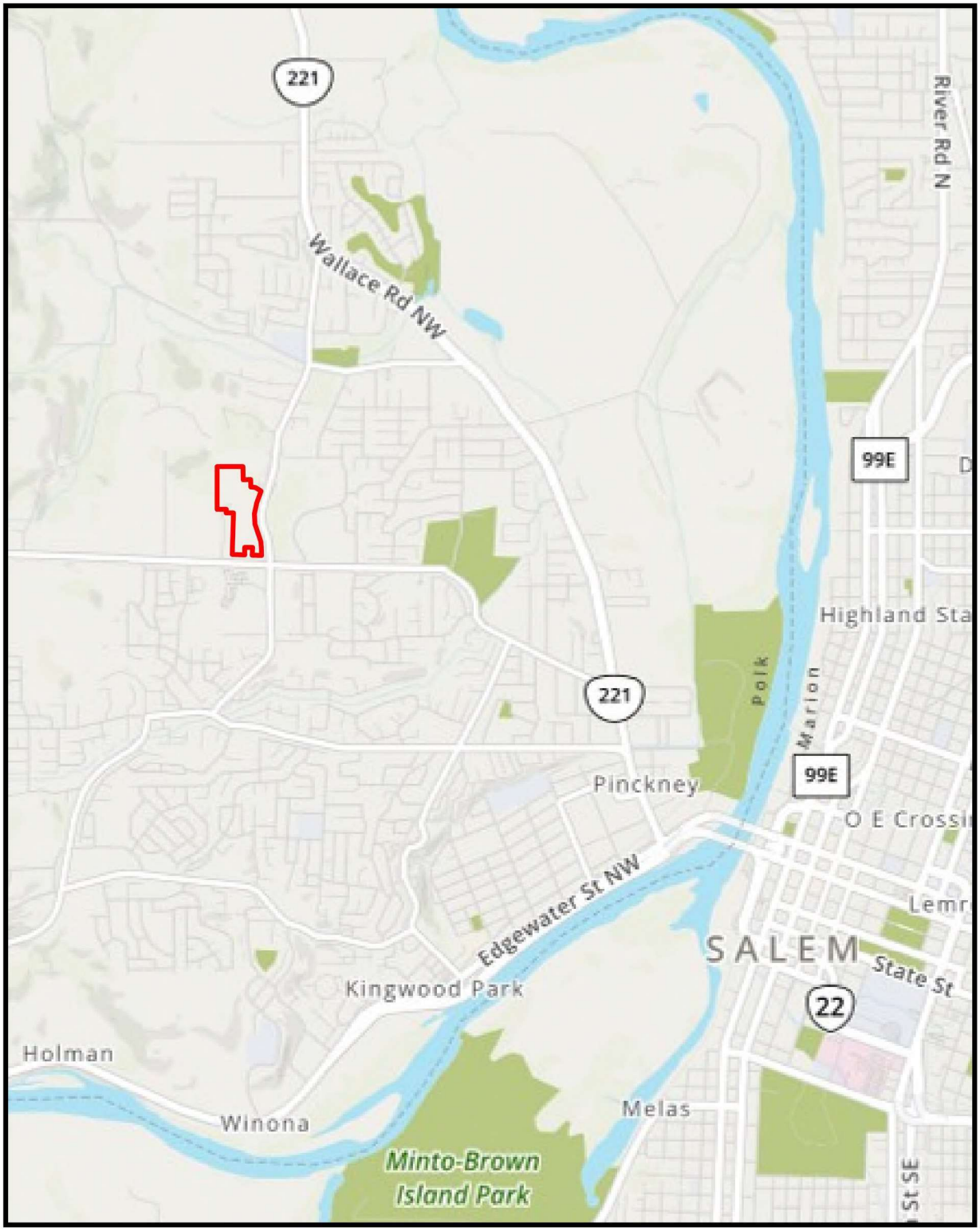
Reed, P.B. Jr. 1993. 1993 Supplement to List of Plant Species that Occur in Wetlands: Northwest (Region 9). U.S.D.I. Fish and Wildlife Service, Supplement to Biological Report 88 (26.0). 11 pp.

TerraServer USA, Microsoft Corporation, 2018 (USGS topographic maps and USGS aerial imagery). TerraServer 6.0 http://terraserver.microsoft.com/.

US Fish and Wildlife Service, Branch of Wildlife Habitat Assessment, National Wetlands Inventory, 2018. NWI Wetlands Mapper http://wetlandsfws.er.usgs.gov/.

APPENDIX C:

Site Figures



ZION Natural Resources Consulting

FIGURE 1
Vicinity Map

Project: Mistkawi Property

N
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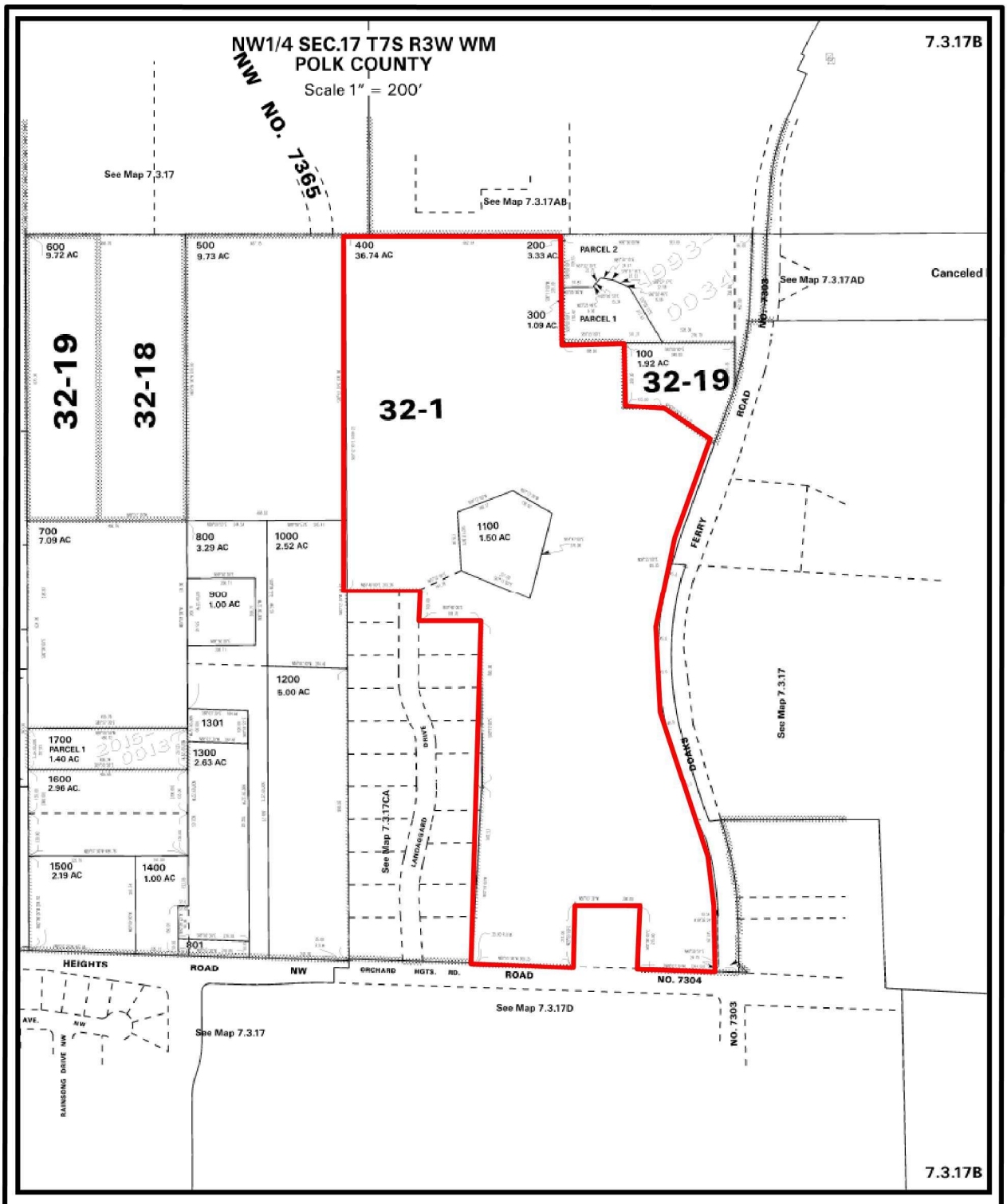

ZION Natural Resources Consulting

FIGURE 2
Tax Lot Map

Project: Mistkawi Property

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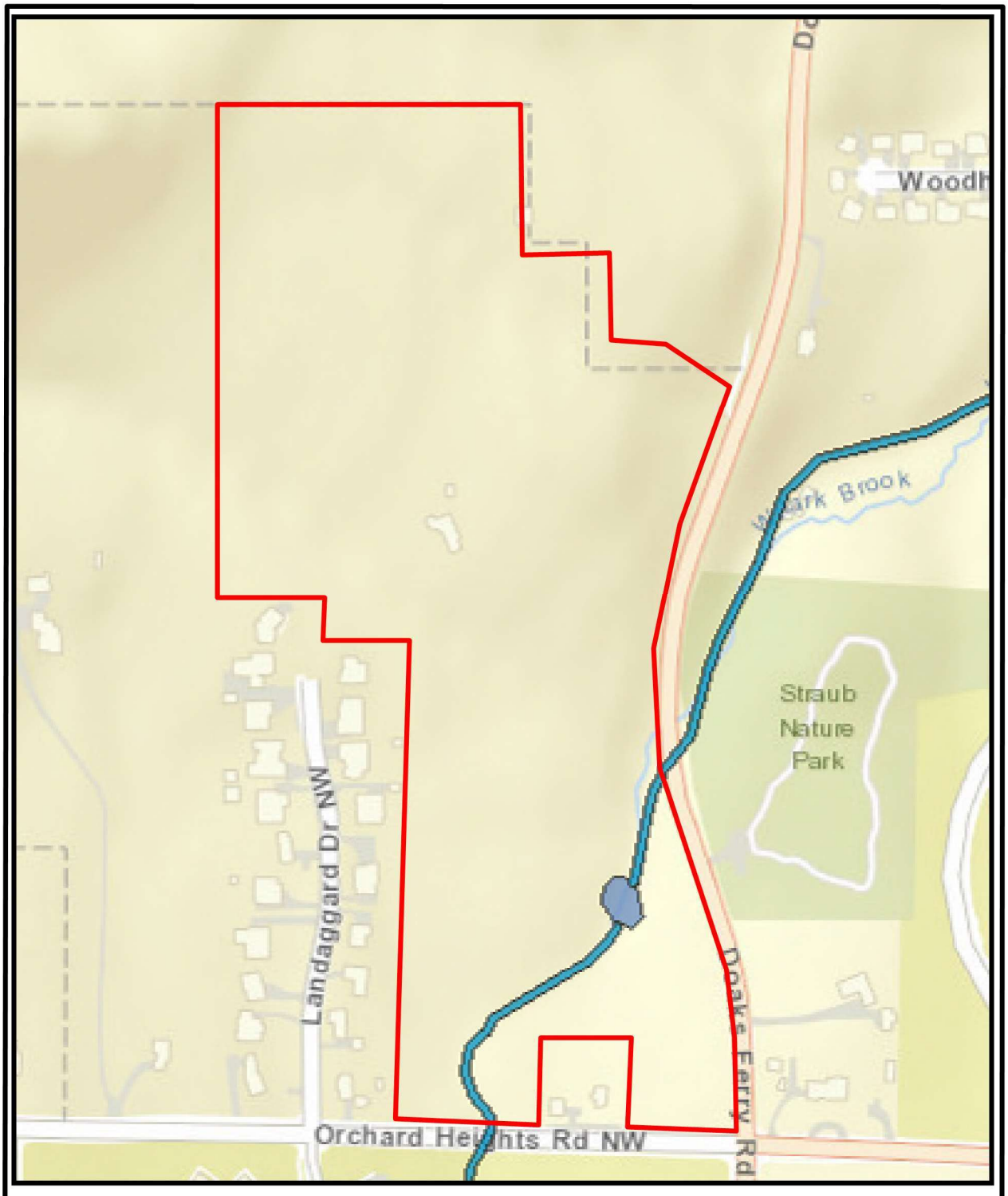
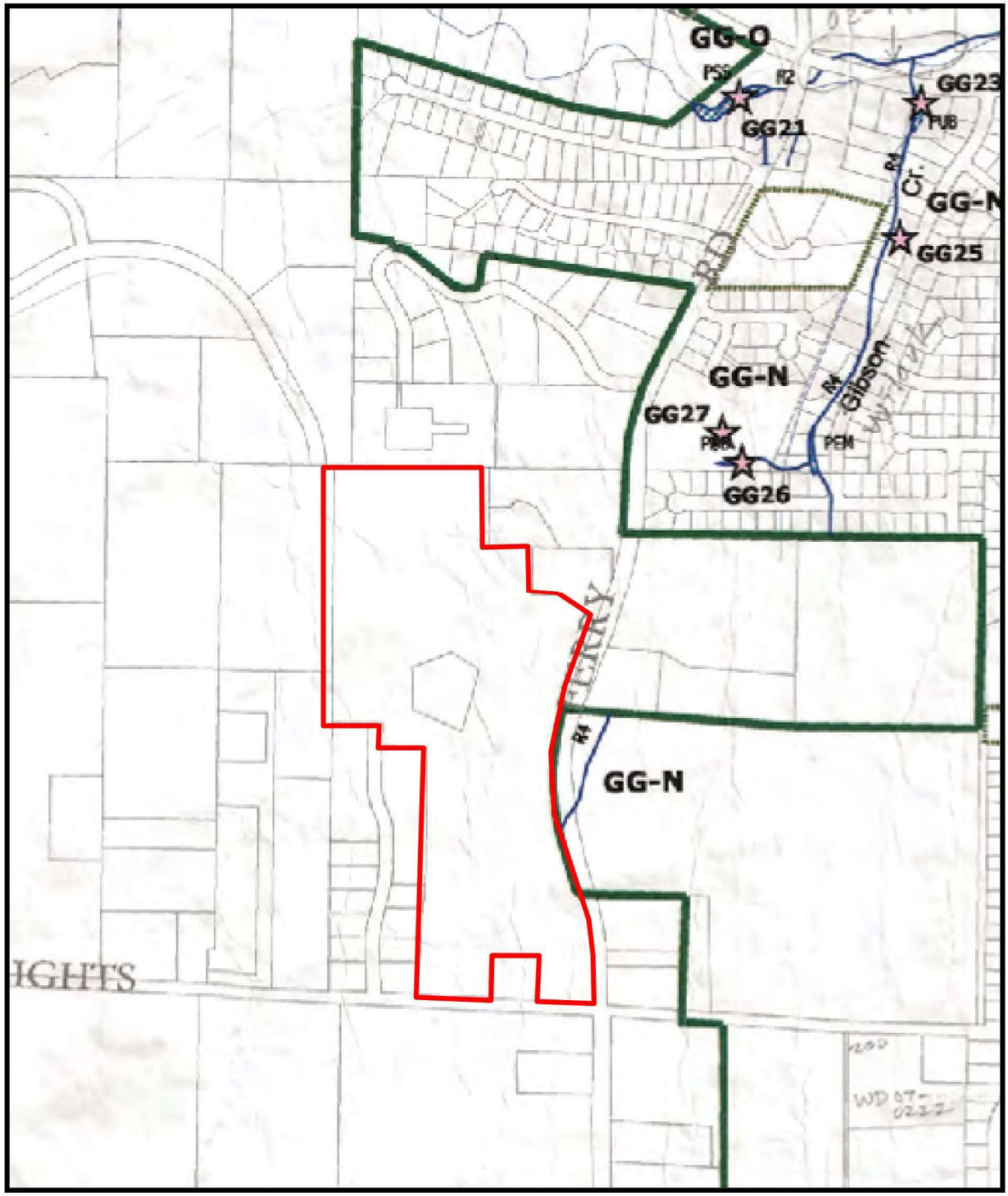


ZION
Natural Resources Consulting

FIGURE 3a
National Wetlands Inventory Map

Project: Mistkawi Property



ZION Natural Resources Consulting

FIGURE 3b
Local Wetlands Inventory Map

Project: Mistkawi Property

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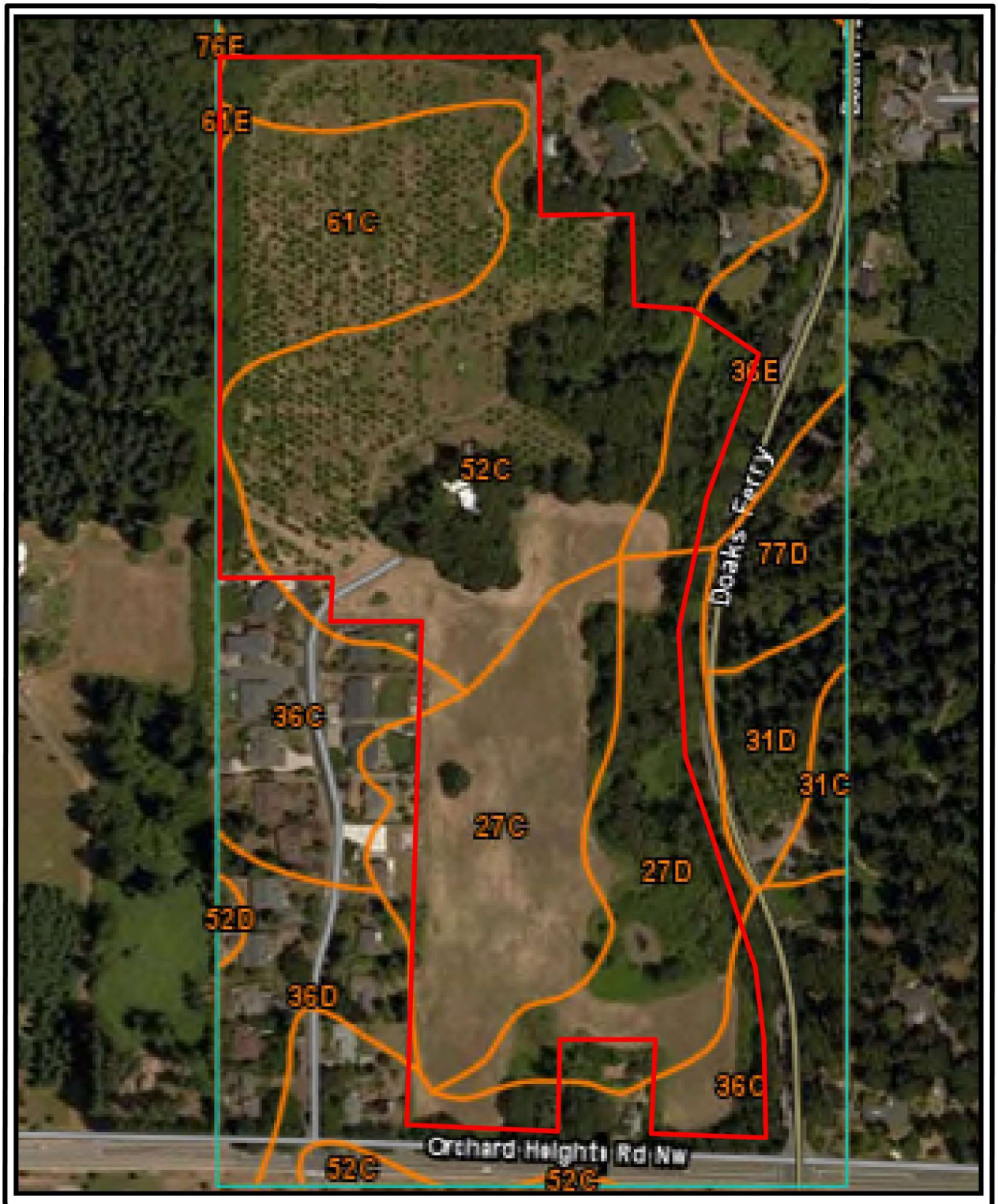

ZION Natural Resources Consulting

FIGURE 4
County Soils Survey Map - NRCS

Project: Mistkawi Property

N W E S

ZION
Natural Resources Consulting

FIGURE 5a
Aerial Photo – 7/26/2018

Project: Mistkawi Property

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ZION
Natural Resources Consulting

FIGURE 5b
Aerial Photo – 2/29/2008

Project: Mistkawi Property

N
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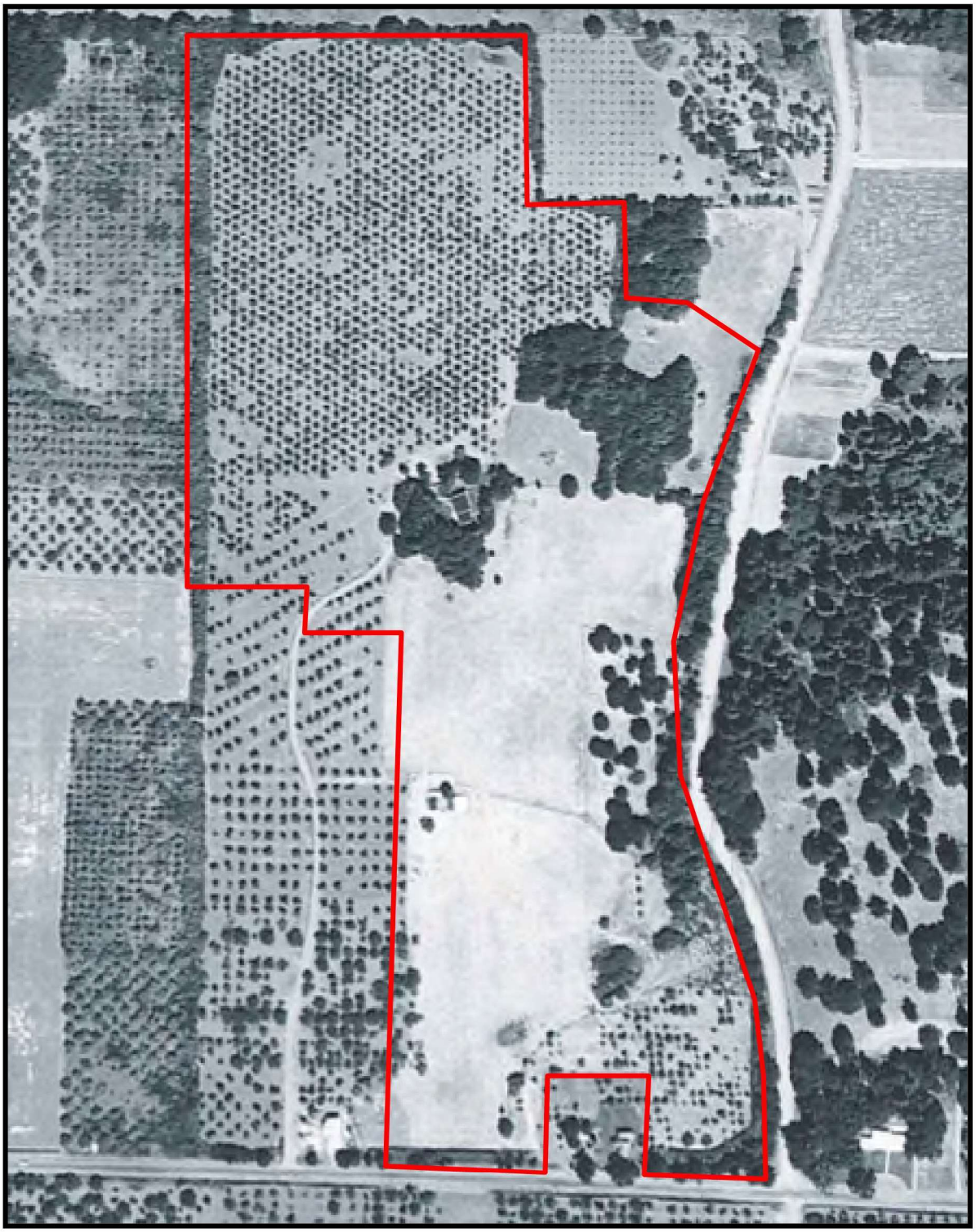
ZION Natural Resources Consulting

FIGURE 5c
Aerial Photo – 12/31/2004

Project: Mistkawi Property

N W E S



ZION
Natural Resources Consulting

FIGURE 5d
Aerial Photo – ACOE 1956

Project: Mistkawi Property

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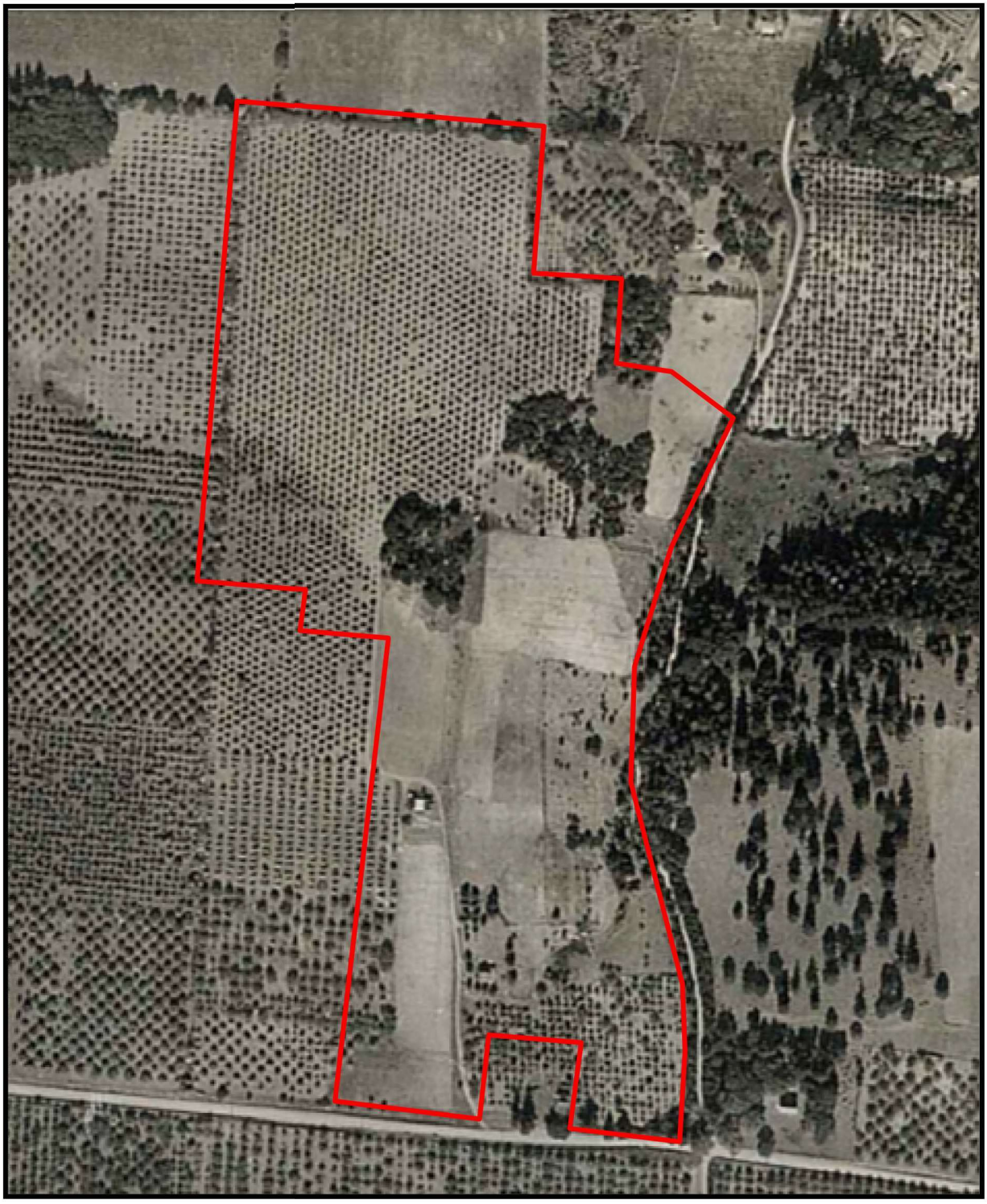

ZION
Natural Resources Consulting

FIGURE 5e
Aerial Photo – ACOE 1935

Project: Mistkawi Property

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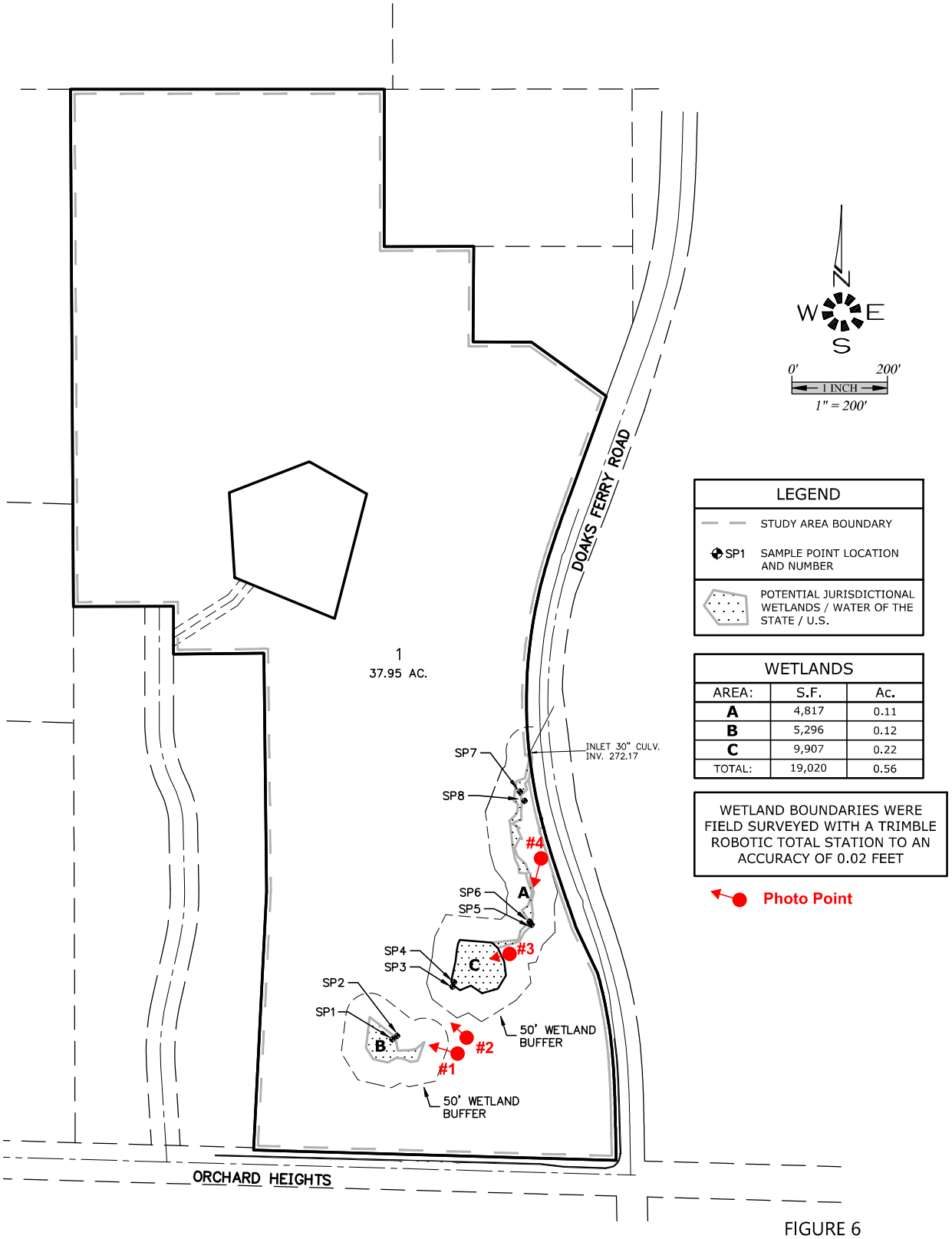
MISTKAWI PROPERTY

SEC. 17, T. 7 S., R. 3 W., W.M.
CITY OF SALEM
POLK COUNTY, OREGON
STUDY AREA BOUNDARY: 39.46 Ac.
TAX MAP: 37.95 AC
TAX LOT No. 1212



LEGEND	
	STUDY AREA BOUNDARY
SP1	SAMPLE POINT LOCATION AND NUMBER
	POTENTIAL JURISDICTIONAL WETLANDS / WATER OF THE STATE / U.S.

WETLANDS		
AREA:	S.F.	Ac.
A	4,817	0.11
B	5,296	0.12
C	9,907	0.22
TOTAL:	19,020	0.56

WETLAND BOUNDARIES WERE FIELD SURVEYED WITH A TRIMBLE ROBOTIC TOTAL STATION TO AN ACCURACY OF 0.02 FEET

Photo Point

FIGURE 6
WETLAND DELINEATION MAP

6773 : 6773wet.dwg : WETLANDS : 11/05/2018

APPENDIX D:

Site Photographs

Photo Point #1 – Located in the southcentral portion of the study area looking northwest at wetland B.

Photo Point #2 – Located in the south central portion of the site looking northwest at the uplands separating wetland B and C.

Photo Point #3 – Located in the southcentral portion of the site looking across the freshwater pond in a southwesterly direction. The pond overflow drain is located in the center of the frame.

Photo Point #4 – Located within the area of Wilark Brook looking upstream to the southwest.

APPENDIX E:

Climatological Data

WETS Station: SALEM MCNARY FLD, OR

Requested years: 1971 - 2000

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max	Avg daily min	Avg daily mean	Avg	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall
					less than	more than		
Jan	47.0	33.4	40.2	5.83	3.64	7.04	12	1.2
Feb	51.2	34.7	43.0	5.09	3.35	6.11	12	2.0
Mar	56.2	36.6	46.4	4.17	3.02	4.92	11	0.1
Apr	61.1	38.8	50.0	2.76	1.88	3.29	8	0.0
May	67.5	43.6	55.5	2.13	1.27	2.58	6	0.0
Jun	74.0	48.4	61.2	1.45	0.88	1.76	4	0.0
Jul	81.5	52.0	66.8	0.57	0.17	0.63	2	0.0
Aug	81.9	52.1	67.0	0.68	0.21	0.72	2	0.0
Sep	76.6	47.7	62.2	1.43	0.53	1.68	4	0.0
Oct	64.5	41.3	52.9	3.03	1.61	3.70	7	0.0
Nov	52.4	37.9	45.1	6.39	4.26	7.65	13	0.4
Dec	46.4	33.9	40.2	6.46	4.40	7.71	13	1.9
Annual:					34.92	44.12		
Average	63.4	41.7	52.5	-	-	-	-	-
Total	-	-	-	39.99			93	5.7

Climatological Report (Daily)

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CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
447 AM PDT FRI SEP 14 2018


.....................................

...THE SALEM OR CLIMATE SUMMARY FOR SEPTEMBER 13 2018...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 1892 TO 2018


WEATHER ITEM   OBSERVED TIME   RECORD YEAR NORMAL DEPARTURE LAST
                VALUE   (LST)  VALUE       VALUE  FROM      YEAR
                                                   NORMAL
.............................................................
TEMPERATURE (F)
 YESTERDAY
  MAXIMUM         69    203 PM  96    1951  78     -9       77
  MINIMUM         49    315 AM  28    1970  49      0       51
  AVERAGE         59                        64     -5       64

PRECIPITATION (IN)
  YESTERDAY        0.02          0.65 1955   0.03  -0.01     0.00
  MONTH TO DATE    0.12                      0.43  -0.31     0.02
  SINCE OCT 1     34.02                     38.82  -4.80    56.77
  SINCE JAN 1     18.92                     22.43  -3.51    33.47
```

WFO Monthly/Daily Climate Data

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: SALEM OR
MONTH: AUGUST
YEAR: 2018
LATITUDE: 44 55 N
LONGITUDE: 123 0 W

TEMPERATURE IN F:							:PCPN:	SNOW:		WIND			:SUNSHINE:			SKY	:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
									12Z	AVG	MX	2MIN						
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	89	56	73	4	0	8	0.00	0.0	0	5.2	17	260	M	M	2		21	250
2	75	55	65	-4	0	0	0.00	0.0	0	5.0	15	290	M	M	7		17	300
3	78	60	69	0	0	4	0.00	M	M	5.3	12	320	M	M	7		17	270
4	86	55	71	2	0	6	0.00	M	M	5.7	15	290	M	M	0		19	290
5	90	54	72	3	0	7	0.00	M	M	3.3	15	280	M	M	1		19	300
6	91	58	75	6	0	10	0.00	0.0	0	3.3	13	290	M	M	1		17	290
7	94	59	77	8	0	12	0.00	0.0	0	3.6	13	30	M	M	0		16	20
8	94	62	78	10	0	13	0.00	0.0	0	2.5	10	210	M	M	0		13	220
9	96	57	77	9	0	12	0.00	0.0	0	3.1	9	320	M	M	0		14	360
10	91	60	76	8	0	11	0.00	0.0	0	7.4	16	280	M	M	1		20	240
11	78	59	69	1	0	4	T	0.0	0	7.3	17	320	M	M	7		21	260
12	81	54	68	0	0	3	0.00	0.0	0	7.7	20	360	M	M	1		25	340
13	92	57	75	7	0	10	0.00	0.0	0	5.5	14	340	M	M	0		18	350
14	92	58	75	7	0	10	0.00	0.0	0	3.5	13	290	M	M	0	8	18	320
15	88	57	73	5	0	8	0.00	0.0	0	4.1	14	290	M	M	0	8	16	300
16	84	57	71	3	0	6	0.00	0.0	0	4.9	15	290	M	M	0	8	20	290
17	82	50	66	-2	0	1	0.00	0.0	0	4.3	14	320	M	M	0		17	20
18	88	50	69	1	0	4	0.00	0.0	0	5.4	14	20	M	M	0		20	340
19	88	55	72	5	0	7	0.00	0.0	0	3.6	15	270	M	M	0		18	290
20	82	55	69	2	0	4	0.00	0.0	0	3.1	12	20	M	M	2	8	15	30
21	95	58	77	10	0	12	0.00	0.0	0	7.4	22	10	M	M	3	18	26	10
22	93	56	75	8	0	10	0.00	M	M	5.0	15	270	M	M	2	8	20	270
23	70	53	62	-5	3	0	0.00	M	M	3.7	12	290	M	M	8	18	14	290
24	73	53	63	-4	2	0	0.00	0.0	M	5.7	13	300	M	M	5	8	18	320
25	75	47	61	-6	4	0	0.00	M	M	4.4	14	300	M	M	3		19	310
26	70	60	65	-1	0	0	T	M	M	5.9	14	220	M	M	10		17	210
27	78	60	69	3	0	4	T	0.0	M	6.9	16	20	M	M	6	1	21	20
28	90	51	71	5	0	6	0.00	0.0	M	5.0	15	360	M	M	0		20	340
29	86	53	70	4	0	5	0.00	0.0	M	6.3	20	310	M	M	0		29	320
30	75	54	65	-1	0	0	0.00	0.0	M	3.7	13	140	M	M	6		17	140
31	80	57	69	3	0	4	0.00	0.0	M	5.8	14	20	M	M	6		18	360
SM	2624	1730			9	181	T		0.0	153.6			M		78			
AV	84.7	55.8								5.0	FASTST		M	M	3		MAX(MPH)	
								MISC ---->		# 22	10						# 29	320

[TEMPERATURE DATA]

AVERAGE MONTHLY: 70.2
DPTR FM NORMAL: 2.6
HIGHEST: 96 ON 9
LOWEST: 47 ON 25

[PRECIPITATION DATA]

TOTAL FOR MONTH: T
DPTR FM NORMAL: -0.45
GRTST 24HR T ON 27-27

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE

WFO Monthly/Daily Climate Data

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: SALEM OR
MONTH: JULY
YEAR: 2018
LATITUDE: 44 55 N
LONGITUDE: 123 0 W

TEMPERATURE IN F:							:PCPN:	SNOW:		WIND			:SUNSHINE:		SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
									12Z	AVG	MX	2MIN						
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	81	56	69	4	0	4	0.00	0.0	0	8.2	18	310	M	M	5		22	320
2	72	50	61	-4	4	0	0.00	0.0	0	7.0	18	310	M	M	7		25	310
3	78	46	62	-3	3	0	0.00	0.0	0	6.4	16	350	M	M	2		21	10
4	76	58	67	1	0	2	T	0.0	0	4.1	15	210	M	M	3		18	210
5	88	53	71	5	0	6	0.00	0.0	0	5.8	17	280	M	M	2		22	280
6	80	55	68	2	0	3	0.00	0.0	0	7.4	21	290	M	M	2		24	260
7	82	52	67	1	0	2	0.00	0.0	0	4.6	13	340	M	M	2		16	20
8	86	54	70	4	0	5	0.00	0.0	0	6.4	18	290	M	M	0		23	290
9	70	52	61	-6	4	0	T	M	M	3.3	12	330	M	M	7		13	320
10	81	55	68	1	0	3	0.00	M	M	6.7	18	30	M	M	6		23	10
11	90	56	73	6	0	8	0.00	M	M	10.6	20	10	M	M	0		25	360
12	99	63	81	14	0	16	0.00	M	M	9.3	18	350	M	M	0		23	10
13	95	61	78	10	0	13	0.00	0.0	0	4.9	16	280	M	M	0		19	280
14	94	59	77	9	0	12	0.00	0.0	0	5.1	13	20	M	M	0		18	20
15	99	59	79	11	0	14	0.00	0.0	0	3.1	15	320	M	M	0		17	320
16	98	61	80	12	0	15	0.00	0.0	0	4.9	15	290	M	M	0		21	290
17	91	60	76	8	0	11	0.00	0.0	0	5.2	16	290	M	M	0		21	290
18	87	58	73	5	0	8	0.00	0.0	0	7.0	17	360	M	M	1		23	360
19	76	57	67	-1	0	2	0.00	0.0	0	9.8	21	350	M	M	4	8	27	360
20	81	50	66	-2	0	1	0.00	0.0	0	10.2	18	360	M	M	1		25	10
21	83	50	67	-2	0	2	0.00	0.0	0	6.6	15	350	M	M	0		22	340
22	93	53	73	4	0	8	0.00	0.0	0	4.5	14	290	M	M	0		18	300
23	95	58	77	8	0	12	0.00	0.0	0	4.1	12	300	M	M	0	8	16	290
24	97	58	78	9	0	13	0.00	0.0	0	4.5	14	320	M	M	0		19	20
25	98	58	78	9	0	13	0.00	0.0	0	4.2	14	350	M	M	0		17	10
26	98	60	79	10	0	14	0.00	0.0	0	3.9	16	290	M	M	0		21	290
27	92	58	75	6	0	10	0.00	0.0	0	4.8	13	280	M	M	0		16	290
28	92	54	73	4	0	8	0.00	M	M	3.3	13	300	M	M	0		16	310
29	99	60	80	11	0	15	0.00	0.0	0	4.0	16	290	M	M	0		21	280
30	92	62	77	8	0	12	0.00	0.0	0	4.3	14	290	M	M	0		17	290
31	92	57	75	6	0	10	0.00	0.0	0	5.9	13	330	M	M	0		16	340
SM	2735	1743			11	242	T		0.0	180.1			M		42			
AV	88.2	56.2								5.8	FASTST		M	M	1		MAX(MPH)	
							MISC ---->			# 21	290						# 27	360

[TEMPERATURE DATA]

AVERAGE MONTHLY: 72.2
DPTR FM NORMAL: 4.6
HIGHEST: 99 ON 29,15
LOWEST: 46 ON 3

[PRECIPITATION DATA]

TOTAL FOR MONTH: T
DPTR FM NORMAL: -0.46
GRTST 24HR T ON 9- 9

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE

WFO Monthly/Daily Climate Data

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: SALEM OR
MONTH: JUNE
YEAR: 2018
LATITUDE: 44 55 N
LONGITUDE: 123 0 W

TEMPERATURE IN F:							:PCPN:		SNOW:	WIND			:SUNSHINE:			SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
									12Z	AVG	MX	2MIN							
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX		SPD	DR
1	74	43	59	0	6	0	0.00	0.0	0	3.4	13	320	M	M	2			16	320
2	84	46	65	6	0	0	0.00	0.0	0	3.7	15	310	M	M	0			19	310
3	74	51	63	4	2	0	T	0.0	0	6.9	18	280	M	M	3			22	280
4	72	52	62	2	3	0	0.00	0.0	0	5.6	15	310	M	M	5			17	330
5	74	43	59	-1	6	0	0.00	0.0	0	5.9	14	290	M	M	0			18	290
6	78	46	62	2	3	0	0.00	0.0	0	4.2	15	270	M	M	0			19	260
7	72	52	62	2	3	0	0.00	0.0	0	6.2	14	290	M	M	6			17	200
8	69	52	61	1	4	0	0.19	0.0	0	6.6	16	140	M	M	9	18		20	170
9	63	49	56	-4	9	0	0.04	M	0	7.5	21	290	M	M	6	1		28	290
10	58	49	54	-6	11	0	0.30	M	0	6.6	17	190	M	M	10			22	180
11	72	50	61	0	4	0	0.03	0.0	0	6.5	14	20	M	M	5			17	10
12	81	46	64	3	1	0	0.00	M	M	4.5	13	280	M	M	0			15	280
13	65	53	59	-2	6	0	T	M	M	8.7	21	200	M	M	10			26	200
14	69	55	62	1	3	0	0.00	M	M	6.0	15	20	M	M	7			18	30
15	72	55	64	3	1	0	0.00	M	M	6.7	16	310	M	M	9			19	300
16	79	52	66	4	0	1	T	M	M	8.8	18	30	M	M	5			25	30
17	91	53	72	10	0	7	T	0.0	0	5.5	23	70	M	M	1			33	80
18	85	57	71	9	0	6	0.00	0.0	0	6.0	13	180	M	M	0			16	180
19	92	53	73	11	0	8	0.00	0.0	0	3.6	15	330	M	M	0			17	360
20	87	60	74	12	0	9	0.00	0.0	0	6.1	17	250	M	M	2			23	280
21	76	59	68	6	0	3	0.00	0.0	0	6.2	14	320	M	M	7			16	330
22	78	60	69	6	0	4	0.00	0.0	0	6.1	15	290	M	M	8			20	280
23	78	59	69	6	0	4	0.00	0.0	0	7.3	16	360	M	M	5			24	40
24	91	56	74	11	0	9	T	0.0	0	7.4	22	290	M	M	0			28	290
25	73	55	64	1	1	0	0.00	0.0	0	8.8	18	320	M	M	6			23	290
26	77	45	61	-3	4	0	0.00	0.0	0	7.3	18	30	M	M	1			26	10
27	79	48	64	0	1	0	T	M	0	7.2	20	320	M	M	1			23	320
28	77	53	65	1	0	0	0.00	0.0	0	4.5	15	290	M	M	3			19	290
29	83	50	67	3	0	2	0.00	0.0	0	5.4	17	330	M	M	0			21	320
30	85	53	69	4	0	4	0.00	0.0	0	7.0	17	270	M	M	4			22	280
SM	2308	1555			68	57	0.56		0.0	186.2			M		115				
AV	76.9	51.8								6.2	FASTST		M	M	4		MAX(MPH)		
								MISC ---->		# 23	70						# 33	80	

[TEMPERATURE DATA]

AVERAGE MONTHLY: 64.4
DPTR FM NORMAL: 2.8
HIGHEST: 92 ON 19
LOWEST: 43 ON 5, 1

[PRECIPITATION DATA]

TOTAL FOR MONTH: 0.56
DPTR FM NORMAL: -0.99
GRTST 24HR 0.30 ON 10-10

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE

APPENDIX F:

Wetland Determination Datasheets

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-1

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification:

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: Located on the edge of the field border.

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1					
2					
3					
4					
5					
			0	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Solanum nigrum, FACU		30	Y	FACU
2	Phalaris arundinacea, FACW		40	Y	FACW
3	Dipsacus fullonum, FAC		20	Y	FAC
4	Juncus effusus, FACW		10	N	FACW
5					
6					
7					
8					
9					
10					
11					
12					
13					
			100	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	0			

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	67%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	50	x 2 =	100
FAC species	20	x 3 =	60
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	100	(A) (B)	280

Prevalence Index = B/A = **2.8**

Hydrophytic Vegetation Indicators:

	1- Rapid Test for Hydrophytic Vegetation
X	2 - Dominance Test is >50%
X	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, unless disturbed or problematic.

Hydrophytic Vegetation Present?	**Yes**	X
	No	

Remarks: FAC neutral test X

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 4/2	70	10YR 4/6	30	C	PL/M	Silty clay loam	
- "								
- "								
- "								
- "								
- "								
- "								
- "								

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2) 0-12"
- ☒ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☒ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☒ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☒ No ☐ Depth (inches): 1"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-2

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification:

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks: Located at the edge of the field border.

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1					
2					
3					
4					
5					
			0	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Phalaris arundinacea, FACW		100	Y	FACW
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			100	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	0			

Dominance Test Worksheet:		
Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:			
Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100	(A) (B)	200
Prevalence Index = B/A =		**2.0**	

Hydrophytic Vegetation Indicators:	
	1- Rapid Test for Hydrophytic Vegetation
X	2 - Dominance Test is >50%
X	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, unless disturbed or problematic.

Hydrophytic Vegetation Present?	**Yes**	X
	No	

Remarks: FAC neutral test X

SOIL

Sampling Point: SP-2

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

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

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2) 0-12"
- ☐ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-3

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification:

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☒	
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

VEGETATION – Use scientific names of plants.

			Absolute % Cover	Dominant Species?	Indicator Status
	Tree Stratum (Plot size):	5MR			
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1	Rubus armeniacus, FAC		10	Y	FAC
2					
3					
4					
5					
			10	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Vitis californica, FACU		100	Y	FACU
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			100	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	0			

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	110	(A) (B)	430

Prevalence Index = B/A = **3.9**

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, unless disturbed or problematic.

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

Remarks: FAC neutral test

SOIL

Sampling Point: SP-3

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

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

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2) 0-12"
- ☐ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-4

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification: PUBHh

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: Located near the culvert outlet. Culvert originating from wetland B to the southwest. Pond surface water 8' to the northeast.

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1					
2					
3					
4					
5					
			0	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Phalaris arundinacea, FACW		80	Y	FACW
2	Vitis californica, FACU		20	Y	FACU
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			100	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	0			

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	50%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	100	(A) (B)	240

Prevalence Index = B/A = **2.4**

Hydrophytic Vegetation Indicators:

	1- Rapid Test for Hydrophytic Vegetation
	2 - Dominance Test is >50%
X	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, unless disturbed or problematic.

Hydrophytic Vegetation Present?	**Yes**	X
	No	

Remarks: FAC neutral test

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 3/3	100					Silt loam	
2-16"	10YR 4/2	80	10YR 4/6	20	C	PL/M	Silty clay loam	
- "								
- "								
- "								
- "								
- "								
- "								

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2) 0-12"
- ☒ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☒ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☒ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☒ No ☐ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 3"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-5

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 20%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification:

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1	Cornus alba, FACW		70	Y	FACW
2	Ilex opaca, NOL		20	Y	NOL
3	Crataegus monogyna, FAC		10	N	FAC
4					
5					
			100	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Polystichum munitum, FACU		20	Y	FACU
2	Ilex opaca, NOL		5	Y	NOL
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			25	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	75			

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	25%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	70	x 2 =	140
FAC species	10	x 3 =	30
FACU species	20	x 4 =	80
UPL species	25	x 5 =	125
Column Totals:	125	(A) (B)	375

Prevalence Index = B/A = **3.0**

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X / No

Remarks: FAC neutral test

SOIL

Sampling Point: SP-5

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

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

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2) 0-12"
- ☐ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-6

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification: R4SBc

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	**Is the Sampled Area within a Wetland? Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: Wilark Brook

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1	Cornus alba, FACW		60	Y	FACW
2	Crataegus monogyna, FAC		40	Y	FAC
3					
4					
5					
			100	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			0	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	100			

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	60	x 2 =	120
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100	(A) (B)	240

Prevalence Index = B/A = **2.4**

Hydrophytic Vegetation Indicators:

	1- Rapid Test for Hydrophytic Vegetation
X	2 - Dominance Test is >50%
X	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, unless disturbed or problematic.

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

Remarks: FAC neutral test X

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1"	10YR 4/4	100						Iron deposit
1-16"	10YR 4/2	70	10YR 5/8	30	C	M	Silty clay loam	
- "								
- "								
- "								
- "								
- "								
- "								

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2) 0-12"
- ☒ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☒ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☒ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☒ No ☐ Depth (inches): 1"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-7

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): stream Local relief (concave, convex, none): Concave Slope (%): 5%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification: R4SBc

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	**Is the Sampled Area within a Wetland? Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: Wilark Brook

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1	Cornus alba, FACW		100	Y	FACW
2					
3					
4					
5					
			100	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			0	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	100			
	Remarks:				

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100	(A) (B)	200

Prevalence Index = B/A = **2.0**

Hydrophytic Vegetation Indicators:

	1- Rapid Test for Hydrophytic Vegetation
X	2 - Dominance Test is >50%
X	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, unless disturbed or problematic.

Hydrophytic Vegetation Present?	**Yes**	X
	No	

FAC neutral test X

SOIL

Sampling Point: SP-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 4/2	70	10YR 5/8	30	C	M	Silty clay	
- "								
- "								
- "								
- "								
- "								
- "								
- "								

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☒ Surface Water (A1)
- ☒ High Water Table (A2) 0-12"
- ☒ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☒ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☒ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 1"
Water Table Present?	Yes ☒	No ☐	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Mistkawi Site City/County: Salem / Polk Sampling Date: 9/13/2018

Applicant/Owner: Bonaventure State: OR Sampling Point: SP-8

Investigators(s): Eric Henning Section, Township, Range: T7S, R3W, Sec. 17, tax lot 400 & 1100

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10%

Subregion (LRR): A Lat: 44.962 Long: -123.081 Datum: NAV 88

Soil Map Unit Name: 27D - Dupee silt loam (12 to 20 percent slopes) NWI Classification:

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

Are vegetation ☐, Soil ☐ or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

VEGETATION – Use scientific names of plants.

	Tree Stratum (Plot size):	5MR	Absolute % Cover	Dominant Species?	Indicator Status
1					
2					
3					
4					
			0	= Total Cover	
	Sapling/Shrub Stratum (Plot size):	3MR			
1	Cornus alba, FACW		100	Y	FACW
2					
3					
4					
5					
			100	= Total Cover	
	Herb Stratum (Plot size):	1MR			
1	Polystichum munitum, FACU		10	Y	FACU
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
			10	= Total Cover	
	Woody Vine Stratum (Plot Size):				
1					
2					
			0	= Total Cover	
	% Bare Ground in Herb Stratum	90			

Dominance Test Worksheet:		
Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That are OBL,FACW, or FAC:	50%	(A/B)

Prevalence Index worksheet:			
Total % Cover of:		Multiply by:	
OBL species	0	x 1=	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	110	(A) (B)	240
Prevalence Index = B/A =			**2.2**

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ☐

Remarks: FAC neutral test

SOIL

Sampling Point: SP-8

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

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

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

Hydric Soil Indicators: (Applicable to all LRRs, inless other wise noted.)

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2) 0-12"
- ☐ Saturation (A3) 0-12"
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1) 0-12"
- ☐ Oxidized Rhizospheres along Living Roots (C3) 0-12"
- ☐ Presence of Reduced Iron (C4) 0-12"
- ☐ Recent Iron Reduction in Tilled Soils (C6) 0-12"
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2) 0-12"
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) 0-24"
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**) 6"+ high
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: