270 Pullman to Idaho State Line (Sunshine Road) Mitigation Site

USACE IP 200500225

Eastern Region

2018 MONITORING REPORT

Wetlands Program

Issued March 2019
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270 Pullman to Idaho State Line (Sunshine Road) Mitigation Site
USACE IP 200500225

<table>
<thead>
<tr>
<th>General Site Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>USACE IP Number</td>
</tr>
<tr>
<td>Ecology WQC#</td>
</tr>
<tr>
<td>Mitigation Location</td>
</tr>
<tr>
<td>LLID Number</td>
</tr>
<tr>
<td>Construction Date</td>
</tr>
<tr>
<td>Monitoring Period</td>
</tr>
<tr>
<td>Year of Monitoring</td>
</tr>
<tr>
<td>Type of Impact</td>
</tr>
<tr>
<td>Area of Project Impact¹</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Type of Mitigation</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Planned Area of Mitigation²</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

¹ Impact numbers sourced from the USACE permit 200500225 (USACE 2006) and the Water Quality Certification Order #2847 (Ecology 2005).
² The mitigation acreages are referenced from the Final Mitigation Report for Pullman to Idaho State Line (WSDOT 2005).
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Summary of Monitoring Results and Management Activities (2018)

<table>
<thead>
<tr>
<th>Performance Standards</th>
<th>2018 Results&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Management Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland delineation</td>
<td>2.40 acres</td>
<td>300 willows stakes, 100 cottonwood stakes planted (Spring 2018)</td>
</tr>
<tr>
<td></td>
<td>See Appendix 3 for full results</td>
<td>100 1-gallon cottonwoods planted (Fall 2018)</td>
</tr>
<tr>
<td>Native woody species will achieve 60% coverage in the wetland creation areas</td>
<td>26% cover (CI&lt;sub&gt;80%&lt;/sub&gt; = 15-36%)</td>
<td></td>
</tr>
<tr>
<td>Two native woody species will achieve 5% or greater relative cover in the wetland creation areas</td>
<td>Achieved (5 species)</td>
<td></td>
</tr>
<tr>
<td>Native woody species will achieve 50% coverage in the buffer areas</td>
<td>28% cover (CI&lt;sub&gt;80%&lt;/sub&gt; = 21-36%)</td>
<td></td>
</tr>
<tr>
<td>Two native woody plant species will achieve 5% or greater relative cover in buffer areas</td>
<td>Achieved (4 species)</td>
<td></td>
</tr>
<tr>
<td>No more than 30% site coverage by reed canarygrass, non-native blackberries, and Scotch broom</td>
<td>68% cover (CI&lt;sub&gt;80%&lt;/sub&gt; = 59-77%)</td>
<td>3 spraying site visits (May-Aug 2018) 9 brush-cutting/hand-pulling site visits (May-Oct 2018)</td>
</tr>
</tbody>
</table>

Report Introduction

This report summarizes final-year (Year-10) monitoring activities at the 270 Sunshine Road Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, a wetland delineation report, and an evaluation of site success. Monitoring activities included vegetation surveys and photo-documentation on July 23 and 24, 2018. The wetland delineation occurred on April 23 and 24, 2018.

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<sup>3</sup> Estimated values are presented with their corresponding statistical confidence interval. For example, 26% cover (CI<sub>80%</sub> = 15-36% cover) means we are 80% confident that the true cover value is between 15% and 36%.
What is the 270 Sunshine Road Mitigation Site?

This 4.02-acres mitigation site (Figure 1) was created as partial compensation for the loss of 5.91 acres of wetlands due to the widening of SR 270 from the City of Pullman to the Idaho state line. This project was designed to improve capacity and safety through the widening of the highway from a two-lane roadway to a four-lane facility. The Sunshine Road Mitigation Site was designed to improve wetland and riparian functions such as flood flow alteration, sediment and nutrient/toxicant removal, erosion control, habitat suitability, plant richness, stream shading, and production of woody debris. See Appendix 1 for an As-Built planting plan.

Figure 1  Site Sketch

The SR 270 Sunshine Road Mitigation Site consists of 2.90 acres of newly established emergent and scrub-shrub/forested wetland, as well as 1.12 acres of enhanced buffer. Appendix 2 contains site directions.
What are the performance standards for this site?

**Year 10**

**Performance Standard 1**
The wetland area will be delineated using methodology set forth in the Washington State Wetlands Identification and Delineation Manual (Ecology, 1997) to assure that the mitigation site contains no less than created wetland acreage listed in the objective above. [2.90 acres]

**Performance Standard 2**
Native woody species will achieve 60% coverage in scrub-shrub (PSS) and forested (PFO) creation areas.

**Performance Standard 3**
Two native woody species will achieve 5% or greater relative cover in the forested and scrub-shrub wetland creation areas.

**Performance Standard 4**
Native woody species will achieve 50% coverage in the buffer areas.

**Performance Standard 5**
Two native woody plant species will achieve 5% or greater relative cover in buffer areas.

**Performance Standard 6**
No more than 30% coverage by the following non-native invasive species on the entire site: reed canarygrass (*Phalaris arundinacea*), non-native blackberries (*Rubus spp.*), and Scotch broom (*Cytisus scoparius*). Other invasive, non-native species will also be controlled if a problem becomes apparent on the mitigation sites.
How were the performance standards evaluated?

WSDOT staff collected hydrology data and performed a wetland delineation using methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2010) and a Global Positioning System (Trimble Mapping Grade) (Performance Standard 1).

The tables below document the sample method used for the remaining performance standards (PS) as required by the mitigation plan. For additional details on the methods see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

### Placement of Baseline
The 304 meter baseline was placed parallel to the northern site boundary at a bearing of 240°.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>PS 2 &amp; 3</th>
<th>PS 4 &amp; 5</th>
<th>PS 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target population</td>
<td>Cover</td>
<td>Cover</td>
<td>Cover</td>
</tr>
<tr>
<td>Native woody species</td>
<td>Native woody species</td>
<td>Invasive species</td>
<td></td>
</tr>
<tr>
<td>Zone</td>
<td>PSS/PFO</td>
<td>Buffer</td>
<td>Entire site</td>
</tr>
<tr>
<td>Sample method</td>
<td>Line Intercept</td>
<td>Line Intercept</td>
<td>Point Line</td>
</tr>
<tr>
<td>SU length</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>SU width</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Points per SU</td>
<td>n/a</td>
<td>n/a</td>
<td>20</td>
</tr>
<tr>
<td>Total # of SU</td>
<td>16</td>
<td>12</td>
<td>20</td>
</tr>
</tbody>
</table>

**Figure 2  Site Sampling Design (2018)**
Is this site a success?

This site is providing the wetland functions intended to mitigate for the lane widening on SR 270. Breached berms along the southern site boundary have introduced channels throughout the site resulting in greater hydrologic connectivity. This connectivity has improved flood flow alteration by increasing storage in the Paradise Creek floodplain. Emergent pockets within the site have developed into shallow ponds with rings of broadleaf cattail (*Typha latifolia*) along the edges. These pockets were observed to be dry during 2017 monitoring indicating dynamic summer water levels. Small channels connected these emergent pockets.

Greater hydrologic connectivity has also aggravated the challenges of reed canarygrass control on site. While nine 2018 non-native plant control visits were completed, reed canarygrass is still widespread with an estimated 68 percent aerial cover. Channeling on the site is likely serving as a seed dispersal mechanism. Reed canarygrass prevalence may have contributed to lower native woody cover estimates than previous monitoring visits. Native cover estimates for both the buffer and scrub-shrub zones did not exceed 30 percent. Sandbar willow (*Salix exigua*) has been most successful at counteracting reed canarygrass disturbance with 50 percent relative native cover in the scrub-shrub zone.

The site also is providing habitat functions. Eleven avian species were noted on site in addition to deer and coyote scat. Native vegetation in the buffer screens the wetland from highway, trail, and industry influences that are adjacent to the site. While native and non-native performance standards were not met, this site provides an ecological lift from the degraded wetlands originally impacted for this project.
Results for Performance Standard 1
(Wetland delineation):

See Appendix 3 for full delineation report.

Results for Performance Standard 2
(Native woody species will achieve 60 percent coverage in the wetland creation areas):

Native woody cover is estimated at 26 percent cover (CI$_{80\%} = 15\text{-}36\%$). While native vegetation has established, seasonal inundation likely serves as an effective seed dispersal mechanism for reed canarygrass (Photo 1). The 2018 cover estimate decreased by an estimated 27 percent from 2015 sampling.

Results for Performance Standard 3
(Two native woody plant species will achieve five percent or greater relative cover in the wetland creation areas):

Sandbar willow (Salix exigua), Scouler’s willow (Salix scouleriana), Drummond’s willow (Salix drummondiana) and redosier dogwood (Cornus alba) are all estimated to achieve at least five percent relative cover.

Photo 1
Woody vegetation and reed canarygrass in the wetland creation area (July 2018)
Results for Performance Standard 4
(Native woody species will achieve 50% coverage in the buffer areas):

Native woody cover is estimated at 28 percent cover (CI_{80\%} = 21-36%) (Photo 2). Portions of the buffer along the northern site boundary were not sampled due to the presence of a barbed-wire fence running through thick vegetation. This section of the area not sampled is estimated at 90 percent cover. While the cover estimate is below the performance target, the true woody cover is likely greater than the sampled cover estimate.

Results for Performance Standard 5
(Two native woody plant species will achieve five percent or greater relative cover in the buffer):

Four species were estimated to achieve more than five percent cover in the buffer. These woody species included redosier dogwood, snowberry (*Symphoricarpos albus*), Wood’s rose (*Rosa woodsia*), and sandbar willow.

Results for Performance Standard 6
(No more than 30 percent coverage of reed canarygrass, non-native blackberries, and Scotch broom on site):

Reed canary grass is estimated at 68 percent cover (CI_{80\%} = 59-77%) across the entire site. While more prominent in the wetland creation area, reed canarygrass is widespread throughout the site (Photo 3). Breeched berms along Paradise Creek have likely caused a greater influx of reed canarygrass seeds and increased non-native cover.
**What is planned for this site?**

The region will continue to control reed canarygrass.
Appendix 1 – As-Built with Photo Point Locations
(from WSDOT 2008)
Appendix 2 – Photo Points
The photographs below were taken from permanent photo-points on July 24, 2018 and document current site development.

**Photo Point 1a**

**Photo Point 2**

**Photo Point 1b**

**Driving Directions:**
From Pullman, go east on SR 270. The site is between mileposts 7.0 and 7.3. Turn right off the highway onto Sunshine Road (MP 7.3) and the site will be immediately on the right after crossing over the Bill Chipman Palouse Trail.
Appendix 3 – Delineation Report
WETLAND DELINEATION REPORT UPDATE
VERIFICATION OF WETLAND BOUNDARY

SR 270 Patterson Mitigation Site
SR 270 Sunshine Road Mitigation Site

SR 270 Pullman to Idaho State Line
USACE 2005002255
Ecology WQC Order 2847

Whitman County, Washington

Prepared by:
Tatiana Dreisbach
WSDOT Environmental Services Office
Olympia, Washington

March 2019
Introduction

This report was prepared by the Washington State Department of Transportation (WSDOT) to describe the wetland boundary delineation for the SR 270 Patterson and SR 270 Sunshine Road Mitigation Sites. These two mitigation sites, combined with SR 270 Jorstad, which has already been closed out, mitigate unavoidable wetland impacts resulting from the SR 270 Pullman to Idaho State Line Project. The SR 270 Jorstad site is not discussed in this report. Field work was conducted by WSDOT wetland biologists Jennie Husby, Kristen Andrews, Tom Mohagen, and Sean Patrick on April 24, 2018. The delineation identifies 3.81 acres of wetland within the SR 270 Patterson mitigation site boundaries and 2.40 acres of wetland within the SR 270 Sunshine mitigating site boundaries.

The wetlands were previously delineated in April 2012 (WSDOT 2013). The purpose of the 2018 field work was to reevaluate the 2012 wetland boundaries and document any wetland boundary modifications if necessary. The 2018 delineation resulted in minor wetland boundary amendments at the SR 270 Patterson Mitigation Site. The 2018 delineation confirmed the wetland boundary remains unchanged from 2012 to 2018 for SR 270 Sunshine Road.

<table>
<thead>
<tr>
<th>General Information for the SR 270 Mitigation Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USACE Permit Number</strong></td>
</tr>
<tr>
<td><strong>Ecology WQC Order</strong></td>
</tr>
<tr>
<td><strong>Land Resource Region (LRR)</strong></td>
</tr>
<tr>
<td><strong>Major Land Resource Area (MLRA)</strong></td>
</tr>
<tr>
<td><strong>Construction Date</strong></td>
</tr>
<tr>
<td><strong>Monitoring Period</strong></td>
</tr>
<tr>
<td><strong>Year of Monitoring</strong></td>
</tr>
</tbody>
</table>

**Area of Project Impact**: USACE and Ecology regulated wetland impacts 5.18 acres

**Area of Project Impact**: Additional isolated wetlands regulated only by Ecology 0.73 acre

<table>
<thead>
<tr>
<th>Type of Mitigation</th>
<th>Required Establishment Acreage</th>
<th>Required Enhancement Acreage</th>
<th>2018 Delineated Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 270 Patterson</td>
<td>3.48 acres</td>
<td>0.12 acre</td>
<td>3.81</td>
</tr>
<tr>
<td>SR 270 Sunshine Road</td>
<td>2.90 acres</td>
<td>0.00 acre</td>
<td>2.40</td>
</tr>
</tbody>
</table>

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1 Project impact and required acerages from Final Wetland Mitigation Plan with January 6, 2006 updates (WSDOT 2006).
Location

Figure 1. Vicinity Map
Methods

Wetland boundaries within the SR 270 Patterson and SR 270 Sunshine Road Mitigation Sites were verified and amended as necessary using routine methods described in the:

- Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987),
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008)

Wetland boundaries were delineated based on on-site observations of hydrology, soils, and plant communities, in conjunction with background information.

A Global Positioning System (GPS) equipped Panasonic Toughpad paired with a Trimble R2 Global Navigation Satellite System (GNSS) Receiver mapping grade unit was used to

- navigate to prior year delineation boundary
- record 2018 sampling point locations and
- record 2018 wetland boundary amendments where necessary (Figure 2).

Wetland mitigation types were georeferenced for both sites by digitizing the mitigation site as-built planting plan in ArcGIS 10.5.1. Inherent in both GPS and georeferencing are minute errors, resulting in slight inaccuracies in both boundary line placement and acreage calculations. These tools represent the best available methods at the time of the study and report preparation.

Wetland Delineation and Study Area

Study Area
Wetlands described in this report were assessed only within the wetland mitigation site boundary (Figure 2).

Precipitation
The Regional Delineation Supplement Version 2.0 (USACE 2008) recommends using methods described in Chapter 19 in Engineering Field Handbook (NRCS 2015) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. When considering the three prior months as a whole, normal precipitation conditions were present prior to field work, with each of the three months prior to field work within the normal range (Appendix B-1).

Moderate precipitation was recorded in the ten days preceding field work (Appendix B-2).
Growing Season
The following evidence of the growing season was observed at the time of the delineation:

- New vegetative growth was present on some herbaceous plants including reed canarygrass (*Phalaris arundinacea*).
- The leaves on several woody species were partially or fully emerged including golden currant (*Ribes aureum*) and snowberry (*Symphoricarpos albus*).
- Bud break had occurred on willows (*Salix spp.*) and golden currant was in flower.
SR 270 Patterson Delineation Results

Wetland Changes Since 2012
The SR 270 Patterson Mitigation Site remains in similar condition as documented in 2012. Slight variations in the wetland boundary were documented. The 2012 delineation was performed during a period with wetter than normal precipitation; consequently several seeps were expressing water and were included in the 2012 delineation. The 2018 delineation was performed during a period with normal precipitation and the delineation boundary was reduced in one area where the seeps were not evident in 2018 and other wetland indicators were also lacking in that area.

Wetland Boundary Verification
The 2018 delineation verification determined 3.81 acres of wetland were present within the SR 270 Patterson Mitigation Site. Minor wetland boundary amendments were made in 2018 and likely represent minor changes in observable field conditions and variations in yearly precipitation accumulation.

Delineation data were collected at six sampling points and recorded on wetland determination data forms (Appendix A). Paired wetland and upland sample points were used to define the wetland edge and were placed in locations documenting where the wetland boundary has remained unchanged, and in locations where the wetland boundary required adjustment.

Data recorded on wetland determination data forms characterize typical wetland and upland conditions observed on site. Vegetation, soils, and hydrology were examined in many additional sampling locations to determine the wetland boundary.

<table>
<thead>
<tr>
<th>SR 270 Patterson – Location, Mitigation Requirements, and Delineation Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long./Lat. ID Number</strong></td>
</tr>
<tr>
<td><strong>Section, Township, Range</strong></td>
</tr>
<tr>
<td><strong>WSDOT Biologists</strong></td>
</tr>
<tr>
<td><strong>Delineation Date</strong></td>
</tr>
<tr>
<td><strong>Type of Mitigation</strong></td>
</tr>
<tr>
<td>Establishment/Enhancement</td>
</tr>
<tr>
<td>Stream Channel</td>
</tr>
<tr>
<td><strong>Total Delineated Wetland Area</strong></td>
</tr>
</tbody>
</table>
Figure 2. 2018 Delineation and Mitigation Types Map.
## SR 270 Patterson Mitigation Site – Wetland Delineation Summary

<table>
<thead>
<tr>
<th><strong>Total Delineated Wetland Area</strong></th>
<th>3.81 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wetland Determination Data</strong></td>
<td>Appendix A; Sampling Points W1-SP2, W2-SP2, W3-SP1</td>
</tr>
<tr>
<td><strong>Form(s)</strong></td>
<td>Appendix A; Sampling Points W1-SP1, W2-SP1, W3-SP2</td>
</tr>
<tr>
<td><strong>Upland Determination Data</strong></td>
<td>Kristen Andrews, Jennie Husby</td>
</tr>
<tr>
<td><strong>Form(s)</strong></td>
<td>April 24, 2018</td>
</tr>
<tr>
<td><strong>Delineator(s)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Trees – none</td>
</tr>
<tr>
<td></td>
<td>Shrubs – Wood's rose (<em>Rosa woodsii</em>), golden currant (<em>Ribes aureum</em>), snowberry (<em>Symphoricarpos albus</em>)</td>
</tr>
<tr>
<td></td>
<td>Herbs – reed canarygrass (<em>Phalaris arundinacea</em>), bentgrasses (<em>Agrostis spp.</em>),</td>
</tr>
<tr>
<td><strong>Soils</strong></td>
<td>Soils examined to a depth of 16 inches exhibited hydric characteristics. Matrix colors of 10YR 2/1 were observed. Redoximorphic concentrations were observed in lower layers. Indicators Redox Dark Surface (F6) met.</td>
</tr>
<tr>
<td><strong>Hydrology</strong></td>
<td>Areas of inundation to greater than two inches, soils saturated in the upper twelve inches, and a high water table within twelve inches of the surface were observed throughout the wetland. Water in observations pits was observed between 4 to 9 inches below the surface near the wetland boundary. Indicators Surface Water (A1), High Water table (A2), Saturation (A3), Drainage Patterns (B10), and FAC-neutral Test (D5) met. Paradise Creek flows through an incised channel running through the site. This creek has flashy hydrology associated with precipitation events. Overbank flooding provides the dominant source of hydrology for this site. In addition, overland flow and subsurface seeps from surrounding hills also contribute significant sources of hydrology to some areas of this site. Depressional topography on riverine terraces with fine grained mineral soils retain these hydrologic inputs for long periods during the growing season.</td>
</tr>
<tr>
<td><strong>Rationale for Delineation</strong></td>
<td>Positive indicators of all three wetland criteria are present. Placement of boundary determined by all three wetland factors and topographic break, with reliance on hydrology indicators and topography.</td>
</tr>
</tbody>
</table>
SR 270 Sunshine Road Delineation Results

Wetland Changes Since 2012
The SR 270 Sunshine Mitigation Site remains in similar condition as documented in 2012. The wetland boundary and acreage remains unchanged. The vegetation community remains in similar condition, with a palustrine emergent (PEM) and palustrine scrub-shrub (PSS) vegetation characterizing the vegetation communities.

Wetland Boundary Verification
The 2018 delineation verification determined 2.40 acres of wetland were present within the SR 270 Sunshine Road Mitigation Site. The wetland boundary and wetland area remains unchanged from conditions documented in 2012.

Delineation data were collected at three sampling points and recorded on wetland determination data forms (Appendix A). Paired wetland and upland sample points were used to define the wetland edge and were placed in locations documenting representative areas of the wetland boundary and show the wetland boundary has remained unchanged.

Data recorded on wetland determination data forms characterize typical wetland and upland conditions observed on site. Vegetation, soils, and hydrology were examined in many additional sampling locations to determine the wetland boundary.

<table>
<thead>
<tr>
<th>SR 270 Sunshine Road – Location, Mitigation Requirements, and Delineation Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long./Lat. ID Number</strong></td>
</tr>
<tr>
<td><strong>Section, Township, Range</strong></td>
</tr>
<tr>
<td><strong>WSDOT Biologists</strong></td>
</tr>
<tr>
<td><strong>Delineation Date</strong></td>
</tr>
<tr>
<td><strong>Type of Mitigation</strong></td>
</tr>
<tr>
<td>Establishment</td>
</tr>
<tr>
<td><strong>Total Delineated Wetland Mitigation Area</strong></td>
</tr>
</tbody>
</table>
Figure 3. 2018 Delineation and Mitigation Types Map.
<table>
<thead>
<tr>
<th>Total Delineated Wetland Area</th>
<th>2.40 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wetland Determination Data</strong></td>
<td><strong>Form(s)</strong></td>
</tr>
<tr>
<td><strong>Upland Determination Data</strong></td>
<td><strong>Form(s)</strong></td>
</tr>
<tr>
<td><strong>Delineator(s)</strong></td>
<td>Tom Mohagen, Sean Patrick</td>
</tr>
<tr>
<td><strong>Delineation Date</strong></td>
<td>April 24, 2018</td>
</tr>
</tbody>
</table>

**Vegetation**
- Trees – none
- Shrubs – Pacific willow (*Salix lasiandra*), black cottonwood (*Populus balsamifera*) saplings
- Herbs – reed canarygrass, broadleaf cattail (*Typha latifolia*)

**Soils**
Soils examined to a depth of 16 inches exhibited hydric characteristics. Matrix colors of 10YR 3/1 and 10YR 3/2 were observed. Redoximorphic concentrations and depletions were observed in the lower layer. Indicator Redox Dark Surface (F6) met.

**Hydrology**
Areas of inundation to greater than 12 inches, soils saturated in the upper twelve inches, and a high water table within twelve inches of the surface were observed throughout the wetland. Water in observations pits was observed between 6 to 12 inches below the surface near the wetland boundary. Indicators Surface Water (A1), High Water table (A2), Saturation (A3), and FAC-neutral Test (D5) met. Paradise Creek flows along the south side of the site. Overbank flooding provides the dominant source of hydrology for the western portion of the site resulting in a riverine flow-through system. When peak flood waters reside, a depressional area retains surface water for long periods during the growing season. A high water table maintains prolonged inundation and groundwater throughout the wetland.

**Rationale for Delineation**
Positive indicators of all three wetland criteria are present. Placement of boundary determined by all three wetland factors, with a reliance on hydrology indicators and topographic break along northern wetland boundary.
Limitations

This wetland delineation report documents the investigation, best professional judgment, and conclusions of WSDOT based on the site conditions encountered at the time of this study. The wetland delineation was performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local ordinances. It is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities.
References


Appendix A — Wetland Determination Data Forms

Wetland Delineation Data Forms for:

SR 270 Patterson
W1-SP1
W1-SP2
W2-SP1
W2-SP2
W3-SP1
W3-SP2

SR 270 Sunshine Road
W1-SP1
W1-SP2
W1-SP3

Wetland polygons, sampling point locations, and wetland names shown in Figure 2 and 3.
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 270 Patterson  City/County: n/a /Whitman  Sampling Date: 4/24/2018
Applicant/Owner: WSDOT  State: WA  Sampling Point: W1-SP1
Investigator(s): Jennie Husby, Kristen Andrews  Section, Township, Range: S31, T15N,R 46E
Landform (hillslope, terrace, etc.): hillslope  Local relief (concave, convex, none): convex  Slope (%): 5
Subregion (LRR): B  Lat: 46.737  Long: -177.072  Datum: NAD83HARN
Soil Map Unit Name: Caldwell Silt loam  NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (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.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>☐ Yes ☐ No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>☐ Yes ☐ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>☐ Yes ☐ No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>☐ Yes ☐ No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 15ft x 15ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rosa woodsii</td>
<td>30</td>
<td>Y</td>
<td>46.2</td>
<td>FACU</td>
</tr>
<tr>
<td>2. Amelanchier alnifolia</td>
<td>10</td>
<td>N</td>
<td>15.4</td>
<td>FACU</td>
</tr>
<tr>
<td>3. Symphoricarpos albus</td>
<td>25</td>
<td>Y</td>
<td>38.5</td>
<td>FACU</td>
</tr>
<tr>
<td>4.</td>
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<tr>
<td>5.</td>
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</tr>
<tr>
<td>65 = Total Cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5ft x 5ft)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phalanis arundinacea</td>
<td>75</td>
<td>Y</td>
<td>62.5</td>
<td>FACW</td>
</tr>
<tr>
<td>2. agrostis sp.</td>
<td>10</td>
<td>N</td>
<td>8.3</td>
<td>#N/A</td>
</tr>
<tr>
<td>3. bunch grass</td>
<td>35</td>
<td>Y</td>
<td>29.2</td>
<td>#N/A</td>
</tr>
<tr>
<td>4.</td>
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<td>5.</td>
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<td>7.</td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>120 = Total Cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 5ft x 5ft)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Total Cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>1</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
</table>

Hydrophytic Vegetation Present? ☐ Yes ☐ No

Remarks:

Remarks:

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%
☐ Prevalence Index is ≤3.0
☐ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation (Explain)

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

<table>
<thead>
<tr>
<th>Prevalence Index worksheet:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total % Cover of:</td>
<td>OBL species 0 x 1 = 0</td>
</tr>
<tr>
<td></td>
<td>FACW species 75 x 2 = 150</td>
</tr>
<tr>
<td></td>
<td>FAC species 0 x 3 = 0</td>
</tr>
<tr>
<td></td>
<td>FACU species 65 x 4 = 260</td>
</tr>
<tr>
<td></td>
<td>UPL species 0 x 5 = 0</td>
</tr>
<tr>
<td>Column Totals: 140</td>
<td>(A) 410 (B)</td>
</tr>
</tbody>
</table>

Prevalence Index = B/A = 2.929

Hydrophytic Vegetation Present? ☐ Yes ☐ No

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>7.5YR</td>
<td>2.5/1</td>
<td>100</td>
<td>Silt Loam</td>
<td></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- 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)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

### Restrictive Layer (if present):

- Type: 
- Depth (inches): 

### Hydric Soil Present?  ○ Yes  ○ No

### Remarks:

### HYDROLOGY

#### Wetland Hydrology Indicators:

<table>
<thead>
<tr>
<th>Primary Indicators (minimum of one required; check all that apply)</th>
<th>Secondary Indicators (2 or more required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Water Marks (B1) (Riverine)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Sediment Deposits (B2) (Riverine)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Drift Deposits (B3) (Riverine)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Drainage Patterns (B10)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Dry-Season Water Table (C2)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Crayfish Burrows (C8)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Saturation Visible on Aerial Imagery (C9)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>Shallow Aquitard (D3)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td>FAC-Neutral Test (D5)</td>
</tr>
</tbody>
</table>

**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**

**Remarks:**
### WETLAND DETERMINATION DATA FORM – Arid West Region

**Project/Site:** 270 Patterson  
**City/County:** n/a /Whitman  
**Sampling Date:** 4/24/2018  
**Applicant/Owner:** WSDOT  
**State:** WA  
**Sampling Point:** W1-SP2  
**Investigator(s):** Jennie Husby, Kristen Andrews  
**Section, Township, Range:** S1, T14N, R45E  
**Landform (hillslope, terrace, etc.):** hillslope  
**Local relief (concave, convex, none):** concave  
**Slope (%):** 5

### Subregion (LRR):

- **B**  
- **Lat:** 46.733  
- **Long:** -117.079  
- **Datum:** NAD83HARN  

### Soil Map Unit Name:

- **Caldwell Silt Loam**  
- **NWI Classification:** PSS

### Remarks:

- **Hydrophytic Vegetation Present?** Yes  
- **Hydric Soil Present?** Yes  
- **Wetland Hydrology Present?** Yes  
- **Is the Sampled Area within a Wetland?** Yes

### VEGETATION – Use scientific names of plants.

#### Tree Stratum (Plot size: 15ft x 15ft)

1.  
2.  
3.  
4.  

### Sapling/Shrub Stratum (Plot size: 15ft x 15ft)

1. **Rosa woodsii**  
2. **Amelanchier alnifolia**  
3. **Symphoricarpos albus**  
4. **Ribes aureum**  
5.  

### Herb Stratum (Plot size: 5ft x 5ft)

1. **Phalanis arundinacea**  
2. **agrostis sp.**  
3.  
4.  
5.  
6.  
7.  
8.  

### Woody Vine Stratum (Plot size: 5ft x 5ft)

1.  
2.  

### Remarks:

- **Hydrophytic Vegetation Indicators:**
  - **Dominance Test is >50%**
  - **Prevalence Index < 3.0**
  - **Morphological Adaptations**
  - **Problematic Hydrophytic Vegetation**

- **Hydrophytic Vegetation Present?** Yes  
- **% Bare Ground in Herb Stratum**

---

**Number of Dominant Species That Are OBL, FACW, or FAC:** 1  
**Total Number of Dominant Species Across All Strata:** 2  
**Percent of Dominant Species That Are OBL, FACW, or FAC:** 50.0% (A/B)

**Prevalence Index:** 2.867

**Hydrophytic Vegetation Present?** Yes  
**% Cover of Biotic Crust**
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

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.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (LRR C)
- [ ] 1 cm Muck (A9) (LRR D)
- [ ] 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)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

### Hydric Soil Present?  ● Yes  ○ No

**Remarks:**

A soil pit was not excavated due to the presence of water (see hydrology section below). This soil meets the definition of a hydric soil due to the presence of inundation, saturation, or a high water table for extended periods during the growing season.

### HYDROLOGY

**Wetland Hydrology Indicators:**

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

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (Nonriverine)
- [ ] Sediment Deposits (B2) (Nonriverine)
- [ ] Drift Deposits (B3) (Nonriverine)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thick Muck Surface (C7)
- [ ] Other (Explain in Remarks)

**Secondary Indicators (2 or more required)**

- [ ] Water Marks (B1) (Riverine)
- [ ] Sediment Deposits (B2) (Riverine)
- [ ] Drift Deposits (B3) (Riverine)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

**Field Observations:**

- [ ] Surface Water Present?  ● Yes  ○ No  Depth (inches): 2
- [ ] Water Table Present?  ● Yes  ○ No  Depth (inches):  
- [ ] Saturation Present?  ● Yes  ○ No  Depth (inches):  

**Wetland Hydrology Present?  ● Yes  ○ No**

**Remarks:**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.
## WETLAND DETERMINATION DATA FORM – Arid West Region

### Project/Site:
270 Patterson

### City/County:
n/a /Whitman

### Sampling Date:
4/24/2018

### Applicant/Owner:
WSDOT

### State:
WA

### Investigator(s):
Jennie Husby, Kristen Andrews

### Section, Township, Range:
S1, T14N, R45E

### Landform (hillslope, terrace, etc.):
hillslope

### Local relief (concave, convex, none):
none

### Slope (%):
10

### Subregion (LRR):
B

### Lat:
46.733

### Long:
-117.079

### Datum:
NAD83HARN

### Soil Map Unit Name:
Caldwell Silt loam

### NWI Classification:
upland

### Are climatic / hydrologic conditions on the site typical for this time of year? ☐ Yes ☐ No

### Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed?

### Are "Normal Circumstances" present? ☐ Yes ☐ No

### Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic?

#### 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

**Wetland Hydrology Present?** ☐ Yes ☐ No

**Is the Sampled Area within a Wetland?** ☐ Yes ☐ No

#### Remarks:

### VEGETATION – Use scientific names of plants.

#### Tree Stratum (Plot size: 20ft x 20ft)

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Symphoricarpos albus</td>
<td>25</td>
<td>Y</td>
<td>45.5</td>
<td>FACU</td>
</tr>
<tr>
<td>2.</td>
<td>Rosa woodsii</td>
<td>15</td>
<td>Y</td>
<td>27.3</td>
<td>FACU</td>
</tr>
<tr>
<td>3.</td>
<td>Ribes aureum</td>
<td>10</td>
<td>N</td>
<td>18.2</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td>Sambucus nigra</td>
<td>5</td>
<td>N</td>
<td>9.1</td>
<td>FACU</td>
</tr>
<tr>
<td>5.</td>
<td>unknown grass</td>
<td>70</td>
<td>Y</td>
<td>77.8</td>
<td>#N/A</td>
</tr>
</tbody>
</table>

#### Sapling/Shrub Stratum (Plot size: 15ft x 15ft)

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Symphoricarpos albus</td>
<td>25</td>
<td>Y</td>
<td>45.5</td>
<td>FACU</td>
</tr>
<tr>
<td>2.</td>
<td>Symphoricarpos albus</td>
<td>25</td>
<td>Y</td>
<td>45.5</td>
<td>FACU</td>
</tr>
<tr>
<td>3.</td>
<td>Holcus lanatus</td>
<td>5</td>
<td>N</td>
<td>5.6</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td>unknown grass</td>
<td>70</td>
<td>Y</td>
<td>77.8</td>
<td>#N/A</td>
</tr>
</tbody>
</table>

#### Herb Stratum (Plot size: 5ft x 5ft)

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Phalins arundinacea</td>
<td>5</td>
<td>N</td>
<td>5.6</td>
<td>FACW</td>
</tr>
<tr>
<td>2.</td>
<td>Pseudoroegneria spicata</td>
<td>10</td>
<td>N</td>
<td>11.1</td>
<td>UPL</td>
</tr>
<tr>
<td>3.</td>
<td>Holcus lanatus</td>
<td>5</td>
<td>N</td>
<td>5.6</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td>unknown grass</td>
<td>70</td>
<td>Y</td>
<td>77.8</td>
<td>#N/A</td>
</tr>
</tbody>
</table>

#### Woody Vine Stratum (Plot size: 5ft x 5ft)

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Holcus lanatus</td>
<td>5</td>
<td>N</td>
<td>5.6</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td>Holcus lanatus</td>
<td>5</td>
<td>N</td>
<td>5.6</td>
<td>FAC</td>
</tr>
</tbody>
</table>

### Dominance Test worksheet:

#### Number of Dominant Species That Are OBL, FACW, or FAC:

<table>
<thead>
<tr>
<th>#</th>
<th>Indicator Status</th>
<th>% Cover</th>
<th>% Absolute Sp.?</th>
<th>% Relative Sp.?</th>
<th>% Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Total Number of Dominant Species Across All Strata:

<table>
<thead>
<tr>
<th>#</th>
<th>% Cover</th>
<th>% Absolute Sp.?</th>
<th>% Relative Sp.?</th>
<th>% Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>(B)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Percent of Dominant Species That Are OBL, FACW, or FAC:

<table>
<thead>
<tr>
<th>#</th>
<th>% Cover</th>
<th>% Absolute Sp.?</th>
<th>% Relative Sp.?</th>
<th>% Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>(A/B)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Prevalence Index worksheet:

#### Total % Cover of:

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
<th>% Cover</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OBL species</td>
<td>0</td>
<td>x 1 =</td>
</tr>
<tr>
<td>10</td>
<td>FACW species</td>
<td>5</td>
<td>x 2 =</td>
</tr>
<tr>
<td>45</td>
<td>FAC species</td>
<td>15</td>
<td>x 3 =</td>
</tr>
<tr>
<td>180</td>
<td>FACU species</td>
<td>45</td>
<td>x 4 =</td>
</tr>
<tr>
<td>50</td>
<td>UPL species</td>
<td>10</td>
<td>x 5 =</td>
</tr>
<tr>
<td>285</td>
<td>Column Totals:</td>
<td>75</td>
<td>(A)</td>
</tr>
</tbody>
</table>

#### Prevalence Index = B/A:

<table>
<thead>
<tr>
<th>#</th>
<th>% Cover</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.800</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0°
- Morphological Adaptations° (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation° (Explain)

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

#### Remarks:

<table>
<thead>
<tr>
<th>#</th>
<th>% Cover</th>
<th>% bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Remarks:

<table>
<thead>
<tr>
<th>#</th>
<th>% Cover</th>
<th>% bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Comments:

- Use scientific names of plants.
- Attach site map showing sampling point locations, transects, important features, etc.
### Profile Description
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>7.5YR 3/2 100</td>
<td>Silt Loam</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Hydric Soil Indicators:</th>
<th>Indicators for Problematic Hydric Soils:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td>1 cm Muck (A9) (LRR C)</td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td>2 cm Muck (A10) (LRR B)</td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td>Reduced Vertic (F18)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Red Parent Material (TF2)</td>
</tr>
<tr>
<td>Stratified Layers (A5)</td>
<td>Other (Explain in Remarks)</td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td>Vernal Pools (F9)</td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
</tbody>
</table>

### Restrictive Layer (if present):

- Type:
- Depth (inches):
- Hydric Soil Present? Yes No
- Remarks:

### Wetland Hydrology Indicators

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

**Secondary Indicators** (2 or more required)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thick Muck Surface (C7)
- Other (Explain in Remarks)

**Field Observations**

- Surface Water Present? Yes No Depth (inches):
- Water Table Present? Yes No Depth (inches):
- Saturation Present? 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 – Arid West Region**

Project/Site: 270 Patterson
City/County: n/a/Whitman
Sampling Date: 4/24/2018
Applicant/Owner: WSDOT
State: WA
Sampling Point: W2-SP2
Investigator(s): Jennie Husby, Kristen Andrews
Section, Township, Range: S1, T14N, R45E

| Landform (hillslope, terrace, etc.): | Depression |
| Local relief (concave, convex, none): | Concave |
| Slope (%): | 2 |

Subregion (LRR): B

Lat: 46.733
Long: -117.079
Datum: NAD83HARN

Soil Map Unit Name: Caldwell Silt Loam

WNI Classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year?  Yes  No

Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No

Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Is the Sampled Area within a Wetland?  Yes  No

| Remarks: |

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

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 20ft x 20ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dominance Test worksheet:**

- Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
- Total Number of Dominant Species Across All Strata: 3 (B)
- Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</th>
<th>1. Symphoricarpos albus</th>
<th>7</th>
<th>Y</th>
<th>58.3</th>
<th>FACU</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Rosa woodsii</td>
<td>5</td>
<td>Y</td>
<td>41.7</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5ft x 5ft)</th>
<th>1. Phalaris arundinacea</th>
<th>60</th>
<th>Y</th>
<th>92.3</th>
<th>FACW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Unknown grass</td>
<td>5</td>
<td>N</td>
<td>7.7</td>
<td>#/N/A</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= Total Cover

**Prevalence Index worksheet:**

- Total % Cover of:  Multiply by:
  - OBL species 0  x 1 = 0
  - FACW species 60  x 2 = 120
  - FAC species 0  x 3 = 0
  - FACU species 12  x 4 = 48
  - UPL species 0  x 5 = 0
- Column Totals: 72 (A) 168 (B)
- Prevalence Index = B/A = 2.333

| Woody Vine Stratum (Plot size: 5ft x 5ft) | 65 | = Total Cover |

**Hydrophytic Vegetation Indicators:**

- Domiance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

| Hydrophytic Vegetation Present? | Yes | No |

| Remarks: | |

| Remarks: | |

| Remarks: | |

| Remarks: | |

| Remarks: | |

**Hydrophytic Vegetation Present? | Yes | No |
### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Color (moist)</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- 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)
- Loamy Gleyed Matrix (F2)
- Redox Surface (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Stripped Matrix (F8)
- Vernal Pools (F9)

### Hydric Soil Present?
- Yes
- No

### Remarks:
A soil pit was not excavated due to the presence of water (see hydrology section below). This soil meets the definition of a hydric soil due to the presence of inundation, saturation, or a high water table for extended periods during the growing season.

### HYDROLOGY

**Wetland Hydrology Indicators:**

- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1) (Nonriverine)
  - Sediment Deposits (B2) (Nonriverine)
  - Drainage Patterns (B10)
- Secondary Indicators (2 or more required)
  - Salt Crust (B11)
  - Biotic Crust (B12)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres along Living Roots (C3)
- Other (Explain in Remarks)

**Field Observations:**

- Surface Water Present?  Yes
- Water Table Present? Yes
- Saturation Present? Yes

**Wetland Hydrology Present?**
- Yes
- No

**Remarks:**
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
### Project/Site: 270 Patterson  
City/County: n/a /Whitman  
Sampling Date: 4/24/2018

Applicant/Owner: WSDOT  
State: WA  
Sampling Point: W3-SP1

Investigator(s): Tom Mohagen, Sean Patrick  
Section, Township, Range: S31, T15N, R46E

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

Subregion (LRR): \( B \)  
Lat: 46.733  
Long: -117.079  
Datum: NAD83HARN

Soil Map Unit Name: Caldwell Silt Loam  
NWI Classification: PEM

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.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>☐ Yes  ○ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>☐ Yes  ○ No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>☐ Yes  ○ No</td>
</tr>
</tbody>
</table>

**Is the Sampled Area within a Wetland?**  
○ Yes  ○ No

**Remarks:**

### VEGETATION – Use scientific names of plants.

#### 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: 100.0% (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 \( x \) 200 = 200 (B)

Prevalence Index = \( B/A = 2.000 \)

#### Hydrophytic Vegetation Indicators:

- ☑ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0°
- ☐ Morphological Adaptations° (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation° (Explain)

°Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Type</th>
<th>Redox Features</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>10YR 2/1 100</td>
<td>10YR 4/6 2 C M</td>
<td>concentration is prominent</td>
</tr>
<tr>
<td>5-16</td>
<td>10YR 2/1 98</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.)

<table>
<thead>
<tr>
<th>Restrictive Layer (if present):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
</tr>
<tr>
<td>Depth (inches):</td>
</tr>
</tbody>
</table>

Hydric Soil Present? ○ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

<table>
<thead>
<tr>
<th>Field Observations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Present? ○ Yes ○ No Depth (inches):</td>
</tr>
<tr>
<td>Water Table Present? ○ Yes ○ No Depth (inches): 9</td>
</tr>
<tr>
<td>Saturation Present? ○ Yes ○ No Depth (inches): 4</td>
</tr>
</tbody>
</table>

Wetland Hydrology Present? ○ Yes ○ No

Remarks:
**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: 270 Patterson

Applicant/Owner: WSDOT

Investigator(s): Sean Patrick, Tom Mohagen

Landform (hillslope, terrace, etc.): floodplain

Subregion (LRR): B

Soil Map Unit Name: Caldwell Silt Loam

State: WA

City/County: n/a /Whitman

Section, Township, Range: S31, T15N, R46E

Local relief (concave, convex, none): concave

Slope (%): 30

Datum: NAD83HARN

Sampling Date: 4/24/2018

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is the Sampled Area within a Wetland?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Remarks:

---

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

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 20ft x 20ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td>Total Cover</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Rosa pisocarpa</em></td>
<td>5</td>
<td>Y</td>
<td>71.4</td>
<td>FAC</td>
</tr>
<tr>
<td>2. <em>Symphoricarpos albus</em></td>
<td>2</td>
<td>Y</td>
<td>28.6</td>
<td>FACU</td>
</tr>
<tr>
<td>3.</td>
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<td></td>
<td>Total Cover</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Phalanis arundinacea</em></td>
<td>65</td>
<td>Y</td>
<td>66.3</td>
<td>FACW</td>
</tr>
<tr>
<td>2. <em>Conium maculatum</em></td>
<td>1</td>
<td>N</td>
<td>1.0</td>
<td>FACW</td>
</tr>
<tr>
<td>3. <em>Cirsium vulgare</em></td>
<td>2</td>
<td>N</td>
<td>2.0</td>
<td>FACU</td>
</tr>
<tr>
<td>4. <em>Agrostis sp</em></td>
<td>30</td>
<td>Y</td>
<td>30.6</td>
<td>#N/A</td>
</tr>
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<td>5.</td>
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<tr>
<td></td>
<td>Total Cover</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

| % Bare Ground in Herb Stratum | 2 | % Cover of Biotic Crust | 0 |

**Dominance Test worksheet:**

<table>
<thead>
<tr>
<th>Number of Dominant Species That Are OBL, FACW, or FAC:</th>
<th>2 (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Dominant Species Across All Strata:</td>
<td>4 (B)</td>
</tr>
<tr>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC:</td>
<td>50.0% (A/B)</td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>OBL species</th>
<th>0</th>
<th>x 1 = 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACW species</td>
<td>66</td>
<td>x 2 = 132</td>
<td></td>
</tr>
<tr>
<td>FAC species</td>
<td>5</td>
<td>x 3 = 15</td>
<td></td>
</tr>
<tr>
<td>FACU species</td>
<td>4</td>
<td>x 4 = 16</td>
<td></td>
</tr>
<tr>
<td>UPL species</td>
<td>0</td>
<td>x 5 = 0</td>
<td></td>
</tr>
<tr>
<td>Column Totals:</td>
<td>75</td>
<td>(A) = 163</td>
<td></td>
</tr>
</tbody>
</table>

| Prevalence Index = B/A | 2.173 |

**Hydrophytic Vegetation Indicators:**

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks:
### Hydric Soil Indicators:

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-16</td>
<td>10YR</td>
<td>3/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>Silt Loam</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Restrictive Layer (if present):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
</tr>
<tr>
<td>Depth (inches):</td>
</tr>
</tbody>
</table>

### Hydric Soil Present?  
- Yes  
- No

### Remarks:

### HYDROLOGY

#### Wetland Hydrology Indicators:

<table>
<thead>
<tr>
<th>Primary Indicators (minimum of one required; check all that apply)</th>
<th>Secondary Indicators (2 or more required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Water Marks (B1) (Riverine)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Sediment Deposits (B2) (Riverine)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Drift Deposits (B3) (Riverine)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Drainage Patterns (B10)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Dry-Season Water Table (C2)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Crayfish Burrows (C8)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Saturation Visible on Aerial Imagery (C9)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>Shallow Aquitard (D3)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td>FAC-Neutral Test (D5)</td>
</tr>
</tbody>
</table>

#### Field Observations:

- Surface Water Present?  
  - Yes  
  - No  
- Water Table Present?   
  - Yes  
  - No  
- Saturation Present?    
  - Yes  
  - No

#### Wetland Hydrology Present?  
- Yes  
- No

#### Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 270 Sunshine Road  City/County: n/a /Whitman  Sampling Date: 4/24/2018
Applicant/Owner: WSDOT  State: WA  Sampling Point: W1-SP1
Investigator(s): Sean Patrick, Tom Mohagen  Section, Township, Range: S1, T14N, R45E
Landform (hillslope, terrace, etc.): depression  Local relief (concave, convex, none): concave  Slope (%): 5
Subregion (LRR):  Lat: 46.731  Long: -117.089  Datum: NAD83HARN
Soil Map Unit Name: Caldwell silt loam, 0 to 3 percent slopes  NWI Classification: PEM

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  (If needed, explain any answers in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? ☐ Yes  ☐ No  (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: 20ft x 20ft)  Absolute  Relative  Indicator

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<thead>
<tr>
<th>1.</th>
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</table>

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species 10  x 1 = 10
FACW species 35  x 2 = 70
FAC species 0  x 3 = 0
FACU species 0  x 4 = 0
UPL species 0  x 5 = 0
Column Totals: 45  (A)  80 (B)
Prevalence Index = B/A = 1.778

Hydrophytic Vegetation Indicators:
☐ Dominance Test is >50%
☐ Prevalence Index is ≤3.0°
☐ Morphological Adaptations° (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation° (Explain)

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

Hydrophytic Vegetation Present? ☐ Yes  ☐ No

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
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</table>

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.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- 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)
Loamy Gleyed Matrix (F2)
Depleted Matrix (F3)
Redox Dark Surface (F6)
Depleted Dark Surface (F7)
Redox Depressions (F8)
Vernal Pools (F9)

Restrictive Layer (if present):
Type: __________________________
Depth (inches): __________________________

Hydric Soil Present? ☐ Yes ☐ No

Hydric Soil Present?
Indicators for Problematic Hydric Soils:
- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

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

Remarks:
A soil pit was not excavated due to the presence of water (see hydrology section below). This soil meets the definition of a hydric soil due to the presence of inundation, saturation, or a high water table for extended periods during the growing season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thick Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:
- Surface Water Present? ☐ Yes ☐ No Depth (inches): 12
- Water Table Present? ☐ Yes ☐ No Depth (inches): 0
- Saturation Present? ☐ 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 – Arid West Region

Project/Site: 270 Sunshine Road  
City/County: n/a / Whitman  
Sampling Date: 4/24/2018

Applicant/Owner: WSDOT  
State: WA  
Sampling Point: W1-SP2

Investigator(s): Sean Patrick, Tom Mohagen  
Section, Township, Range: S1, T14N, R45E

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

Subregion (LRR): B  
Lat: 46.73  
Long: -127.091  
Datum: NAD83HARN

Soil Map Unit Name: Caldwell silt loam, 0 to 3 percent slopes  
NWI Classification: PSS

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 (If needed, explain any answers in Remarks.)

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>☐ Yes ☐ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>☐ Yes ☐ No</td>
</tr>
<tr>
<td>Is the Sampled Area within a Wetland?</td>
<td>☐ Yes ☐ No</td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 20ft x 20ft)</th>
<th>Absolute % Cover</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>4.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</th>
<th>Absolute % Cover</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salix lasiandra</td>
<td>25</td>
<td>96.2 FACW</td>
<td></td>
</tr>
<tr>
<td>2. Populus balsamifera</td>
<td>1</td>
<td>3.8 FAC</td>
<td></td>
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<td>4.</td>
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<td>5.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phalans arundinacea</td>
<td>85</td>
<td>94.4 FACW</td>
<td></td>
</tr>
<tr>
<td>2. Typha latifolia</td>
<td>5</td>
<td>5.6 OBL</td>
<td></td>
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<td></td>
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<td>4.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

Remarks:

Hydrophytic Vegetation Present? ☐ Yes ☐ No

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: 100.0% (A/B)

Prevalence Index worksheet:

- Total % Cover of: Multiply by:
  - OBL species 5 x 1 = 5
  - FACW species 110 x 2 = 220
  - FAC species 1 x 3 = 3
  - FACU species 0 x 4 = 0
  - UPL species 0 x 5 = 0
- Column Totals: 116 (A) 228 (B)
- Prevalence Index = B/A = 1.966

Hydrophytic Vegetation Indicators:
- ☑ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0°
- ☐ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation (Explain)

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

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>10YR</td>
<td>3/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>Silt Loam</td>
<td></td>
</tr>
<tr>
<td>6-16</td>
<td>10YR</td>
<td>3/2</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
<td>Silt Loam</td>
<td>concentration is prominent</td>
</tr>
</tbody>
</table>

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

### Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (AS) (LRR C)
- 1 cm Muck (A9) (LRR D)
- 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)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

### 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)
  - Saturation (A3)
  - Water Marks (B1) (Nonriverine)
  - Sediment Deposits (B2) (Nonriverine)
  - Drift Deposits (B3) (Nonriverine)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Water-Stained Leaves (B9)
  - Salt Crust (B11)
  - Biotic Crust (B12)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres along Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Thick Muck Surface (C7)
  - Other (Explain in Remarks)
- Secondary Indicators (2 or more required)
  - Water Marks (B1) (Riverine)
  - Sediment Deposits (B2) (Riverine)
  - Drift Deposits (B3) (Riverine)
  - Drainage Patterns (B10)
  - Dry-Season Water Table (C2)
  - Crayfish Burrows (C8)
  - Saturation Visible on Aerial Imagery (C9)
  - Shallow Aquitard (D3)
  - FAC-Neutral Test (D5)

#### Field Observations:
- Surface Water Present?  Yes  No
- Water Table Present?  Yes  No
- Saturation Present?  Yes  No
- (includes capillary fringe)  Yes  No
- Depth (inches): 12
- Depth (inches): 6

### Wetland Hydrology Present?  Yes  No

### Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 270 Sunshine Road       City/County: n/a / Whitman       Sampling Date: 4/24/2018
Applicant/Owner: WSDOT       State: WA       Sampling Point: W1-SP3
Investigator(s): Sean Patrick, Tom Mohagen       Section, Township, Range: S1, T14N, R45E
Landform (hillslope, terrace, etc.): floodplain       Local relief (concave, convex, none): convex       Slope (%): 20
Subregion (LRR): B       Lat: 46.73       Long: -127.091       Datum: NAD83HARN

Soil Map Unit Name: Caldwell silt loam, 0 to 3 percent slopes       NWI Classification: upland

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 (If needed, explain any answers in Remarks.)
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.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Is the Sampled Area within a Wetland? Yes  No

Remarks:
Hydrology indicators lacking in upland areas directly adjacent to the wetland boundary, as illustrated by the data at this sample point.

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 20ft x 20ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 5ft x 5ft)</th>
<th>Absolute % Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Dominant Species That Are OBL, FACW, or FAC:</th>
<th>2 (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Dominant Species Across All Strata:</td>
<td>3 (B)</td>
</tr>
<tr>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC:</td>
<td>66.7% (A/B)</td>
</tr>
</tbody>
</table>

Prevalence Index worksheet:

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>0 x 1 = 0</td>
</tr>
<tr>
<td>FACW species</td>
<td>105 x 2 = 210</td>
</tr>
<tr>
<td>FAC species</td>
<td>3 x 3 = 9</td>
</tr>
<tr>
<td>FACU species</td>
<td>10 x 4 = 40</td>
</tr>
<tr>
<td>UPL species</td>
<td>0 x 5 = 0</td>
</tr>
<tr>
<td>Column Totals:</td>
<td>118 (A) 259 (B)</td>
</tr>
</tbody>
</table>

Prevalence Index = B/A = 2.195

Hydrophytic Vegetation Indicators:
- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0`
- [ ] Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation¹ (Explain)

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

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Remarks:

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>%</th>
<th>Redox Features Type¹</th>
<th>Location²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>10YR 4/2 84</td>
<td></td>
<td>10YR 4/4 3</td>
<td>C M</td>
<td>Silt Loam</td>
<td>concentration is distinct</td>
</tr>
<tr>
<td></td>
<td>7.5YR 5/8 10</td>
<td></td>
<td>10YR 5/2 3</td>
<td>D M</td>
<td>Silt Loam</td>
<td>concentration is prominent</td>
</tr>
<tr>
<td>6-18</td>
<td>10YR 4/1 82</td>
<td></td>
<td>10YR 6/2 15</td>
<td>D M</td>
<td>Silt Loam</td>
<td></td>
</tr>
</tbody>
</table>

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.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

**Restrictive Layer (if present):**

<table>
<thead>
<tr>
<th>Type:</th>
<th>Depth (inches):</th>
<th>Hydric Soil Present?</th>
<th>Remarks</th>
</tr>
</thead>
</table>

**Hydrology**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
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- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thick Muck Surface (C7)
- Other (Explain in Remarks)

**Secondary Indicators:** (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

**Field Observations:**

- Surface Water Present? Yes No Depth (inches): 
- Water Table Present? Yes No Depth (inches): 
- Saturation Present? Yes No Depth (inches): 

**Wetland Hydrology Present?** Yes No

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

Remarks:
Appendix B — Precipitation Data

Appendix B-1. Comparison of Observed and Normal Precipitation (NRCS 2015)

Monthly precipitation data for Pullman, Washington.

<table>
<thead>
<tr>
<th>Month</th>
<th>3 yrs. in 10 less than</th>
<th>Average</th>
<th>3 yrs. in 10 more than</th>
<th>Rainfalla</th>
<th>Condition dry, wet, normalb</th>
<th>Condition Value</th>
<th>Month weight value</th>
<th>Product of previous two columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st prior month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td>1.40</td>
<td>1.99</td>
<td>2.35</td>
<td>1.44</td>
<td>N</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2nd prior month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb</td>
<td>1.37</td>
<td>2.10</td>
<td>2.53</td>
<td>2.22</td>
<td>N</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3rd prior month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan</td>
<td>1.71</td>
<td>2.46</td>
<td>2.93</td>
<td>2.19</td>
<td>N</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Note: If sum is
6 - 9 then prior period has been drier than normal
10 - 14 then period has been normal
15 - 18 then period has been wetter than normal

Condition value:
Dry (D) = 1
Normal (N) = 2
Wet (W) = 3

Conclusions: Normal precipitation conditions were present prior to the field visit.
Appendix B-2. Daily Precipitation 10 days preceding field work, Pullman, Washington

Daily precipitation data for Pullman, Washington.

<table>
<thead>
<tr>
<th>Date (2018)</th>
<th>Daily Precipitation (inches)(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 23</td>
<td>0.00</td>
</tr>
<tr>
<td>April 22</td>
<td>0.00</td>
</tr>
<tr>
<td>April 21</td>
<td>0.00</td>
</tr>
<tr>
<td>April 20</td>
<td>0.00</td>
</tr>
<tr>
<td>April 19</td>
<td>0.00</td>
</tr>
<tr>
<td>April 18</td>
<td>T</td>
</tr>
<tr>
<td>April 17</td>
<td>T</td>
</tr>
<tr>
<td>April 16</td>
<td>0.28</td>
</tr>
<tr>
<td>April 15</td>
<td>0.15</td>
</tr>
<tr>
<td>April 14</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>0.46</strong></td>
</tr>
</tbody>
</table>

\(^a\) NRCS 2019

"T" values indicate a TRACE value was recorded.

Conclusions: Moderate precipitation was recorded in the ten days preceding field work.
Literature Cited


