I-405 SR 520 to SR 522 Stage 1 (Kirkland Stage 1)  
(Forbes Lake East) Mitigation Site  

USACE 2004-01410  
Northwest Region  
2017 MONITORING REPORT  

Wetlands Program  

Issued March 2018  

Washington State  
Department of Transportation  
Environmental Services Office
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Monitoring reports are published on the web at: http://www.wsdot.wa.gov/Environment/Wetlands/Monitoring/reports.htm
### General Site Information

<table>
<thead>
<tr>
<th>USACE IP Number</th>
<th>2004-01410</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigation Location</td>
<td>East of Forbes Lake in Kirkland, King County</td>
</tr>
<tr>
<td>LLID Number</td>
<td>1221766476864</td>
</tr>
<tr>
<td>Construction Date</td>
<td>2006-2007</td>
</tr>
<tr>
<td>Monitoring Period</td>
<td>2008-2017</td>
</tr>
<tr>
<td>Year of Monitoring</td>
<td>10 of 10</td>
</tr>
<tr>
<td>Type of Impact</td>
<td>Wetland, Buffer</td>
</tr>
<tr>
<td>Area of Project Impact$^1$</td>
<td>1.56 acres, 2.91 acres</td>
</tr>
<tr>
<td>Type of Mitigation</td>
<td>Wetland Establishment, Wetland Enhancement, Upland Habitat Enhancement</td>
</tr>
<tr>
<td>Planned Area of Mitigation$^2$</td>
<td>1.628 acres, 0.572 acre, 1.49 acres</td>
</tr>
</tbody>
</table>

1 Impact numbers sourced from WSDOT 2005.
2 Mitigation numbers sourced from WSDOT 2008. Additional wetland acreage provided by two other mitigation sites, including I-405 Forbes Lake West and I-405 Thrasher’s Corner.
Summary of Monitoring Results and Management Activities (2017)

<table>
<thead>
<tr>
<th>Performance Standards</th>
<th>2017 Results(^3)</th>
<th>Management Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 3: 80% cover facultative and wetter species in the emergent wetland</td>
<td>77% cover (CI(_{80%}) = 68-85%)</td>
<td>In 2015, 5,200 plants were added to the emergent wetland. No more planting occurred in 2016 and 2017.</td>
</tr>
<tr>
<td>Delineation (2.188 acres created and enhanced wetland)</td>
<td>See Appendix 3</td>
<td>Three visits for weed control occurred and 400 insects (Galerucella calmariensis) were released one acre of the site in 2017.</td>
</tr>
<tr>
<td>80% cover native woody species in the forested and scrub-shrub wetland; less than 30% relative cover volunteer red alder (Alnus rubra)</td>
<td>98% cover (CI(_{80%}) = 95-100%); 32% relative cover red alder</td>
<td></td>
</tr>
<tr>
<td>Three native facultative or wetter species with 8% relative cover each in the emergent wetland</td>
<td>Achieved</td>
<td></td>
</tr>
<tr>
<td>Three native facultative or wetter species with 10% relative cover each in the forested and scrub-shrub wetland</td>
<td>Achieved</td>
<td></td>
</tr>
</tbody>
</table>

Report Introduction

This report summarizes final-year (Year-10) monitoring activities at the 405 Forbes Lake East Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site success. Monitoring activities included vegetation surveys and photo-documentation on August 14 and 15, and a wetland delineation on March 4, in 2017.

\(^{3}\) Estimated values are presented with their corresponding statistical confidence interval. For example, 77% cover (CI\(_{80\%}\) = 68-85%) means we are 80% confident that the true cover value is between 68% and 85%.
What is the 405 Forbes Lake East Mitigation Site?

This 3.7-acre mitigation site (Figure 1) was established as partial compensation for impacts to 1.56 acres of wetland and 2.91 acres of buffer due to road improvements along I-405 between State Route (SR) 520 and SR 522. The site was primarily designed to mitigate for lost wetland habitat functions.

Figure 1 Site Sketch

The 405 Forbes Lake East Mitigation Site borders Forbes Lake. A low emergent area butts up against the permanently inundated area, and is surrounded by forested and scrub-shrub wetland. The eastern side of the site is bisected by an intermittent stream flowing north. A long driveway follows the buffer and provides access to the site. Appendix 2 includes directions to the site.
What are the performance standards for this site?

**Year 3 – (not yet achieved)**

**Performance Standard 1**
After three years, aerial cover of emergent (facultative and wetter plant species will be at least 80 percent in the emergent wetland zone.

**Year 10**

**Performance Standard 2**
Wetland areas will be delineated using methods described in the Washington State Wetlands Identification Manual (Ecology 1997) to assure that the mitigation site contain at least 2.188 acres of created and enhanced wetland.

**Performance Standard 3**
After 10 years, aerial cover of native woody species will be at least 80 percent in the forested and scrub-shrub wetlands; of this area, no more than 30 percent will be volunteer red alder.

**Performance Standard 4**
At least three native, non-invasive facultative or wetter plant species will achieve a minimum of eight percent relative cover for each species in the emergent wetland zone by Year 10.

**Performance Standard 5**
At least three native, non-invasive facultative or wetter plant species will achieve a minimum of 10 percent relative cover for each species in the forested and scrub-shrub wetland zones by Year 10.

Appendix 1 shows the as-built (WSDOT 2008).
How were the performance standards evaluated?

WSDOT staff 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: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010) and a Global Positioning System (Trimble Mapping Grade) (Performance Standard 2).

The tables below documents the sampling methodology utilized for all of 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).

![Figure 2 Site Sampling Design (2017)](image)

<table>
<thead>
<tr>
<th></th>
<th>PS 1</th>
<th>PS 3</th>
<th>PS 4</th>
<th>PS 5</th>
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<tbody>
<tr>
<td>Attribute</td>
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<tr>
<td></td>
<td>Cover</td>
<td>Cover</td>
<td>Relative cover</td>
<td>Relative cover</td>
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<tr>
<td></td>
<td>Facultative or wetter species</td>
<td>Native woody species</td>
<td>Facultative or wetter species</td>
<td>Facultative or wetter species</td>
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<tr>
<td></td>
<td>Emergent</td>
<td>PSS/PFO</td>
<td>Emergent</td>
<td>PSS/PFO</td>
</tr>
<tr>
<td></td>
<td>Point-line intercept</td>
<td>Line-intercept</td>
<td>Point-line intercept</td>
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<td>4 m</td>
<td>6 m</td>
<td>4 m</td>
<td>6 m</td>
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<td>12</td>
<td>12</td>
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</tbody>
</table>

**Placement of Baseline:** Along the north and south side of the open water.

**North Segment:** Length 82m Transects 1-6(EM) 1-4(SS)

**South Segment:** Length 146m Transects 7-12(EM) 5-12(SS)
**Is this site a success?**

This site is successful. Wetland hydrology has been established in 1.81 acres, exceeding the minimum goal of 1.616 acres of wetland establishment and enhancement at this site.

Both woody and herbaceous communities have established in the wetland creation and enhancement areas. The emergent zone initially developed into an open water habitat. This area currently delineates as wetland due to colonization by American white waterlily (*Nymphaea odorata*). Though overall cover in the emergent area falls short of the Year 3 performance standard target, a native herbaceous community is now developing and species diversity is high in this zone.

Native woody cover in the scrub-shrub/forested wetland is high. Relative cover of volunteer red alder is exceeding the performance standard threshold, but is not inhibiting growth of other native woody species. Diversity of other native species is still high, with the performance standard for relative cover of at least three other native species achieved.

Cover of invasive species is low (qualitatively estimated at two percent cover). This consists of small patches of paleyellow iris (*Iris pseudacorus*), purple loosestrife (*Lythrum salicaria*), reed canarygrass (*Phalaris arundinacea*), and Himalayan blackberry (*Rubus armeniacus*).

The site is providing wildlife habitat. Fish, beaver slicks and chew marks, coyote scat, three species of birds, plus signs of woodpecker activity were observed during 2017 vegetation monitoring.
Results for Performance Standard 1
(80% cover facultative and wetter species in the emergent wetland):

Cover of facultative and wetter species is estimated at 77% (CI80% = 68-85%) (Photo 1). Dominant species are soft rush (*Juncus effusus*) and rice cutgrass (*Leersia oryzoides*). The area sampled is 0.47 acre out of a total intended emergent area of 0.74 acre (Figure 2). The remaining 0.27 acre is deep water colonized by American white waterlily at an estimated cover of 50 percent.

Results for Performance Standard 2
(Delineation [2.188 acres]):

A delineation conducted on March 13 and September 5, 2017 indicated wetland establishment was 1.53 acres and wetland enhancement was 0.28 acre, for a total of 1.81 acres (0.38 acre less than planned) (Appendix 3).

Results for Performance Standard 3
(80% cover native woody species in the forested and scrub-shrub wetland; less than 30% relative cover volunteer red alder):

Cover of native woody species is estimated at 98% (CI80% = 95-100%) (Photo 2). This exceeds the performance standard target. Relative cover of red alder is estimated at 32 percent. This is above the performance standard threshold. Subdominant species include Pacific willow (*Salix lasiandra*), Sitka willow (*Salix sitchensis*), and Nootka rose (*Rosa nutkana*).
Results for Performance Standard 4
(Three native facultative or wetter species with 8% relative cover each in the emergent wetland):

Soft rush, rice cutgrass, woolgrass (*Scirpus cyperinus*), and common spikerush (*Eleocharis palustris*) each are estimated to have greater than eight percent relative cover in the emergent wetland.

Results for Performance Standard 5
(Three native facultative or wetter species with 10% relative cover each in the forested and scrub-shrub wetland):

Red alder, Pacific willow, Sitka willow, and Nootka rose each are estimated to have greater than 10 percent relative cover in the scrub-shrub/forested wetland.

**What is planned for this site?**
Routine weed control will continue in 2018.
Appendix 2 – Photo Points
The photographs below were taken from permanent photo-points on August 16, 2017 and document current site development.

Photo Point 1

Photo Point 2

Photo Point 3

Photo Point 4
Driving Directions:
Follow I-5 to I-405. Exit at Northeast 85th Street. At the end of the ramp, turn right (east). At the third intersection, travel north on 124th Street Northeast. The site is west of the intersection of 95th Street Northeast and 124th Street Northeast.
Appendix 3 – Wetland Delineation Report
WETLAND DELINEATION REPORT

405 Forbes Lake East Mitigation Site

I-405, SR 520 to SR 522 Stage 1 (Kirkland Stage 1)
USACE IP 200401410
Ecology WQC Order 2547

King County, Washington

Prepared by:
Kristen Andrews
WSDOT Environmental Services Office
Olympia, Washington

October 23, 2017
Introduction

This report was prepared by the Washington State Department of Transportation (WSDOT) to describe the wetland boundary delineation for the 405 Forbes Lake East Mitigation Site. Field work was conducted by WSDOT wetland biologists Tatiana Dreisbach and Kristen Andrews, on March 13 and September 5, 2017. The delineation identifies 2.11 acres of wetland within the mitigation site boundaries.

<table>
<thead>
<tr>
<th>General Information for the 405 Forbes Lake East Mitigation Site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong> S4, T25N, R5E. King County. (Vicinity map, Figure 1)</td>
</tr>
<tr>
<td><strong>USACE IP Number</strong></td>
</tr>
<tr>
<td><strong>Long./Lat. ID Number</strong></td>
</tr>
<tr>
<td><strong>Land Resource Region (LRR)</strong></td>
</tr>
<tr>
<td><strong>Major Land Resource Area (MLRA)</strong></td>
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<td><strong>Construction Date</strong></td>
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<tr>
<td><strong>Monitoring Period</strong></td>
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<td><strong>Year of Monitoring</strong></td>
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<td><strong>Area of Project Impact</strong></td>
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<tr>
<td><strong>Type of Mitigation</strong></td>
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<tr>
<td>Establishment</td>
</tr>
<tr>
<td>Enhancement</td>
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<tr>
<td><strong>Totals</strong></td>
</tr>
<tr>
<td><strong>Total Delineated Wetland Area</strong></td>
</tr>
</tbody>
</table>

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1. Project impact from USACE Individual Permit 200401410 (USACE 2004) and WQC #2547, 4th amendment (WSDOE 2011), required acreages sourced from Table 3-2 (WSDOT August 22, 2005)
2. The required wetland establishment mitigation acreage for this site is 1.556 acres. Additional wetland mitigation acreage is also provided at three other mitigation sites, 405 Forbes Lake West, 405 Thrasher's Corner and 405 Kelsey Creek (Ecology 2011).
Location

Figure 1. Vicinity Map
Methods

Wetland boundaries within the 405 Forbes lake East Mitigation Site were delineated 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: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010)

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) Trimble GeoXT mapping grade unit was used to record wetland boundaries and sampling point locations (Figure 2). Wetland boundary points were recorded at regular intervals and at any change in direction along the boundary. Wetland mitigation types (Figure 2) were georeferenced by digitizing the mitigation site as-built planting plan in ArcGIS 10.3.1. 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).

Wetlands
The 405 Forbes Lake East Mitigation Site has depressional wetland areas with a variety of Cowardin classes. Palustrine aquatic bed (PAB), palustrine emergent (PEM), and palustrine scrub-shrub (PSS) characterize the wetland vegetation communities. The PFO community has developed a canopy structure with three distinct strata including an herbaceous understory, a shrub and sapling layer, with individual trees beginning to form a forested overstory. Wetter areas of the wetland are dominated by PAB and PEM communities, forming gaps in the canopy and further contributing complexity to the habitat and structure of the wetland.

The delineation determined 2.1 acres of wetland were present within the 405 Forbes Lake East Mitigation Site. Delineation data were collected at four sampling points and recorded on wetland determination data forms (Appendix A). Paired wetland and upland sample points were used to define the wetland edge. Additional wetland sample points characterize various wetland vegetation communities. Data recorded on wetland determination data forms characterize typical wetland and upland conditions observed.
Vegetation, soils, and hydrology were examined in many additional sampling locations to determine the wetland boundary.

**Precipitation**

The Regional Delineation Supplement Version 2.0 (USACE 2010) 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. The month prior to field work was wetter than normal, the second month prior was within normal range, with the third prior month drier than normal (Appendix B-1).

Heavy 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:

- Buds breaking on willows (*Salix spp.*).
- The leaves on red-flowering currant (*Ribes sanguineum*) fully emerged.
Figure 2. Study area in black, wetland boundary in red, and sampling point locations in black.
### 405 Forbes Lake East Mitigation Site – Wetland Delineation Summary

<table>
<thead>
<tr>
<th>Total Delineated Wetland Area</th>
<th>2.11 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland Determination Data Forms</td>
<td>Appendix A; Sampling Points W1-SP1, W1-SP2 and W1-SP4</td>
</tr>
<tr>
<td>Upland Determination Data Forms</td>
<td>Appendix A; Sampling Point W1-SP3</td>
</tr>
<tr>
<td>Delineators</td>
<td>Tatiana Dreisbach and Kristen Andrews</td>
</tr>
<tr>
<td>Delineation Date</td>
<td>March 13 and September 5, 2017</td>
</tr>
</tbody>
</table>

#### Vegetation
- Trees – red alder (*Alnus rubra*), Shrubs – Scouler’s willow (*Salix scouleriana*), Pacific willow (*Salix lasiandra*), Nootka rose (*Rosa nutkana*)
- Herbs – slough sedge (*Carex obnupta*), rice cutgrass (*Leersia oryzoides*), soft rush (*Juncus effusus*), woolgrass (*Scirpus cyperinus*), common spikerush (*Eleocharis palustris*)

#### Soils
Soils examined to a depth of 16 inches exhibited hydric characteristics. Matrix colors of 10YR 3/2, 5Y 5/2, and 10YR 3/2 were observed. Redoximorphic concentrations and depletions were observed in some layers. Indicators A11 and F3 met for W1-SP2. Soils were not examined for the other two sample points due to prolonged inundation.

#### Hydrology
The lake water level appears to be the main source of hydrology. Precipitation and an intermittent creek braids through the site, contributing to the hydrologic regime of this wetland. Water in the observation pits ranged from 2 inches below the surface to deep inundation.

#### Rationale for Delineation
Positive indicators of all three wetland criteria are present. Placement of boundary determined by vegetation and topographic break. Wetland vegetation stopped abruptly and upland areas directly adjacent to wetland were dominated by bare ground or upland species. Distinct topographic break present in some areas.

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### 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:
W1-SP1
W1-SP2
W1-SP3
W2-SP4

Wetland polygons, sampling point locations, and wetland names shown in Figure 2.
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 405 Forbes Lake East
City/County: Kirkland/King
Applicant/Owner: WSDOT
State: WA
Sampling Date: 3/13/2017
Investigator(s): Tatiana Dreisbach, Kristen Andrews
Section, Township, Range: 4, 25N, 5E
Landform (hillslope, terrace, etc.): Flat
Local relief (concave, convex, none): convex
Slope (%): 5
Subregion (LRR): A
Lat: 47.6864
Long: -122.1766
Datum: NAD83HARN
Soil Map Unit Name: Tukwila Muck
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.

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: 15ft x 15ft)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salix lasiandra</td>
<td>75.0 Y</td>
<td>FACW</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alnus rubra</td>
<td>25.0 Y</td>
<td>FAC</td>
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### Herb Stratum (Plot size: 5ft x 5ft)

<table>
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<th>Species</th>
<th>% Cover</th>
<th>Dom. Sp.?</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
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<tbody>
<tr>
<td>1. Carex obnupta</td>
<td>66.7 Y</td>
<td>OBL</td>
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</table>

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

| % Bare Ground in Herb Stratum | 40 |

### 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:

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
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</thead>
<tbody>
<tr>
<td>OBL species 50 x 1 = 50</td>
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</tr>
<tr>
<td>FACW species 25 x 2 = 50</td>
<td></td>
</tr>
<tr>
<td>FAC species 5 x 3 = 15</td>
<td></td>
</tr>
<tr>
<td>FACU species 0 x 4 = 0</td>
<td></td>
</tr>
<tr>
<td>UPL species 0 x 5 = 0</td>
<td></td>
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<tr>
<td>Column Totals: 80 (A) 115 (B)</td>
<td></td>
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</table>

Prevalence Index = B/A = 1.438

### Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0'
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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>
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</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)
- 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)

### Restrictive Layer (if present):

- Type: ___________________________
- Depth (inches): _____________________

### Hydric Soil Present?
- Yes
- No

**Remarks:**
Meets definition of hydric soil due to prolonged saturation/high water table during the growing season. Currently ponded to 4 inches.

---

## HYDROLOGY

### Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drainage Patterns (B10)
  - Oxidized Rhizospheres along Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Stunted or Stressed Plants (D1) (LRR A)

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

### Field Observations:

- Surface Water Present? Yes
- No
- Depth (inches): 4 inches
- Water Table Present? Yes
- No
- Depth (inches): 0
- Saturation Present? Yes
- No
- Depth (inches): 0

### Wetland Hydrology Present?
- Yes
- No

**Remarks:**
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**Project/Site:** 405 Forbes Lake East  
**City/County:**  
**State:** WA  
**Sampling Date:** 3/13/2017  
**Applicant/Owner:** WSDOT  
**Investigator(s):** Tatiana Dreisbach, Kristen Andrews  
**Section, Township, Range:**  
**Landform (hillslope, terrace, etc.):** depression  
**Local relief (concave, convex, none):** concave  
**Slope (%):** 5  
**Subregion (LRR):** A  
**Datum:** NAD83HARN  
**Soil Map Unit Name:** Tukwila Muck  
**NWI Classification:** PSS  
**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  

### VEGETATION – Use scientific names of plants.

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

- **Alnus rubra**  
  - Absolute % Cover: 10  
  - Dominant Sp.? Y  
  - Relative % Cover: 100.0  
  - Indicator Status: FAC  

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

- **Salix lasiandra**  
  - Absolute % Cover: 60  
  - Dominant Sp.? Y  
  - Relative % Cover: 69.0  
  - Indicator Status: FACW  

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

- **Alnus rubra**  
  - Absolute % Cover: 10  
  - Dominant Sp.? N  
  - Relative % Cover: 11.5  
  - Indicator Status: FAC  
- **Thuja plicata**  
  - Absolute % Cover: 2  
  - Dominant Sp.? N  
  - Relative % Cover: 2.3  
  - Indicator Status: FAC  
- **Comus alba**  
  - Absolute % Cover: 15  
  - Dominant Sp.? N  
  - Relative % Cover: 17.2  
  - Indicator Status: FACW  

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

- **Cornus alba**  
  - Absolute % Cover: 15  
  - Dominant Sp.? N  
  - Relative % Cover: 17.2  
  - Indicator Status: FACW  

### 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:

<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>75 x 2 = 150</td>
</tr>
<tr>
<td>FAC species</td>
<td>22 x 3 = 66</td>
</tr>
<tr>
<td>FACU species</td>
<td>0 x 4 = 0</td>
</tr>
<tr>
<td>UPL species</td>
<td>0 x 5 = 0</td>
</tr>
<tr>
<td>Column Totals</td>
<td>97 x (A) = 216 (B)</td>
</tr>
</tbody>
</table>

**Prevalence Index = B/A = 2.227**

### Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation  
- 2 - Dominance Test is >50%  
- 3 - Prevalence Index is ≤3.0'  
- 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)  
- 5 - Wetland Non-Vascular Plants¹  
- Problematic Hydrophytic Vegetation¹ (Explain)

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

### Remarks:

% Bare Ground in Herb Stratum: 100
**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>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>10YR</td>
<td>5Y</td>
<td>Sandy Loam</td>
<td>concentration is prominent</td>
</tr>
<tr>
<td>9-16</td>
<td>5Y</td>
<td>6/2 85</td>
<td>Sandy 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)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

**Restrictive Layer (if present):**

- Depth (inches): ____________________________

**Hydric Soil Present?**  
○ Yes  ○ No

**Remarks:**

c=prominent

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Field Observations:**

- Surface Water Present?  ○ Yes  ○ No  Depth (inches): __________
- Water Table Present?  ○ Yes  ○ No  Depth (inches): __________
- Saturation Present?  ○ Yes  ○ No  Depth (inches): __________ (includes capillary fringe)

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

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

**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. Pseudotsuga menziesii</td>
<td>15</td>
<td>Y</td>
<td>42.9</td>
<td>FACU</td>
</tr>
<tr>
<td>2. Thuja plicata</td>
<td>15</td>
<td>Y</td>
<td>42.9</td>
<td>FAC</td>
</tr>
<tr>
<td>3. Alnus rubra</td>
<td>5</td>
<td>N</td>
<td>14.3</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td>35</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
<tr>
<td>Sapling/Shrub Stratum (Plot size: 15ft x 15ft)</td>
<td>5</td>
<td>N</td>
<td>9.6</td>
<td>FACU</td>
</tr>
<tr>
<td>2. Ribes sanguineum</td>
<td>30</td>
<td>Y</td>
<td>57.7</td>
<td>FAC</td>
</tr>
<tr>
<td>3. Pseudotsuga menziesii</td>
<td>10</td>
<td>N</td>
<td>19.2</td>
<td>FACU</td>
</tr>
<tr>
<td>4. Alnus rubra</td>
<td>5</td>
<td>N</td>
<td>9.6</td>
<td>FAC</td>
</tr>
<tr>
<td>5. Picea sitchensis</td>
<td>2</td>
<td>N</td>
<td>3.8</td>
<td>FAC</td>
</tr>
<tr>
<td></td>
<td>52</td>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
<tr>
<td>Herb Stratum (Plot size: 5ft x 5ft)</td>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td></td>
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<tr>
<td>4.</td>
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<tr>
<td>5.</td>
<td></td>
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<tr>
<td>6.</td>
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<td></td>
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<tr>
<td>7.</td>
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<tr>
<td>8.</td>
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<tr>
<td>9.</td>
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<tr>
<td>10.</td>
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<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>52</td>
<td>Total Cover</td>
</tr>
<tr>
<td>Woody Vine Stratum (Plot size: 5ft x 5ft)</td>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Bare Ground in Herb Stratum</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

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)

Prevalence Index worksheet:

- Total % Cover of: Multiply by:
  - OBL species 0 x 1 = 0
  - FACW species 0 x 2 = 0
  - FAC species 27 x 3 = 81
  - FACU species 60 x 4 = 240
  - UPL species 0 x 5 = 0
- Column Totals: 87 (A) 321 (B)
- Prevalence Index = B/A = 3.690

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0'
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(inches)</td>
<td>Color (moist)</td>
<td>%</td>
<td>Color (moist)</td>
<td>%</td>
</tr>
<tr>
<td>0-3</td>
<td>2.5YR</td>
<td>3/2</td>
<td>100</td>
<td>7.5YR</td>
</tr>
<tr>
<td>3-16</td>
<td>2.5Y</td>
<td>5/3</td>
<td>85</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>Indicator</th>
<th>Type¹</th>
<th>Location²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Restrictive Layer (if present):

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

Remarks: matrix too bright to meet an indicator.

### HYDROLOGY

#### Wetland Hydrology Indicators:

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

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

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

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Oxidized Rhizospheres along Living Roots (C3)
- Oxidized Rhizospheres above as a type (C8)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Stunted or Stressed Plants (B1) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

**Field Observations:**

- Surface Water Present? ○ Yes  ○ No  Depth (inches): 
- Water Table Present? ○ Yes  ○ No  Depth (inches): 
- Saturation Present? ○ Yes  ○ No  Depth (inches): 5-12

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

### Remarks:

Saturation zone 5-12 inches. Water seeping in from top, not above the water table. Significant rain in past 2 weeks. Saturation not indicative of wetland hydrology as supported.
## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

### Project/Site: 405 Forbes Lake East  
### City/County: Kirkland, King County  
### Applicant/Owner: WSDOT  
### Investigator(s): Kristen Andrews  
### Landform (hillslope, terrace, etc.): Flat  
### Subregion (LRR):  
### Soil Map Unit Name: Tukwila Muck  
### NWI Classification: PAB

### 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

### 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

### Remarks:

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

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Plot Size</th>
<th>Absolute % Cover</th>
<th>Relative % Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Stratum</td>
<td>20ft x 20ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sapling/Shrub Stratum</td>
<td>15ft x 15ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herb Stratum</td>
<td>5ft x 5ft</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Woody Vine Stratum

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nuphar polysepala</td>
<td>80</td>
<td>OBL</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: 1 (B)
- Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

### Prevalence Index worksheet:

- Total % Cover of OBL species: 80 x 1 = 80
- Total % Cover of FACW species: 0 x 2 = 0
- Total % Cover of FAC species: 0 x 3 = 0
- Total % Cover of FACU species: 0 x 4 = 0
- Total % Cover of UPL species: 0 x 5 = 0
- Column Totals: 80 x 80 (A) 80 (B)

### Hydropathic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0'
- [ ] 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants¹
- [ ] Problematic Hydrophytic Vegetation¹ (Explain)

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

### Remarks:

- % Bare Ground in Herb Stratum
### 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>
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</tbody>
</table>

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

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

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td>Sandy Redox (S5)</td>
<td>2 cm Muck (A10)</td>
<td></td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td>Stripped Matrix (S6)</td>
<td>Red Parent Material (TF2)</td>
<td></td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td>Loamy Mucky Mineral (F1) (except MLRA 1)</td>
<td>Very Shallow Dark Surface (TF12)</td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Loamy Gleyed Matrix (F2)</td>
<td>Other (Explain in Remarks)</td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td>Depleted Matrix (F3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td>Redox Dark Surface (F6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td>Depleted Dark Surface (F7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td>Redox Depressions (F8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Restrictive Layer (if present):

<table>
<thead>
<tr>
<th>Type:</th>
<th>Depth (inches):</th>
<th>Hydric Soil Present?</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Meets the definition of a hydric soil due to prolonged inundation.

### HYDROLOGY

### Wetland Hydrology Indicators:

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

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

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

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

### Field Observations:

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

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)


<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>Rainfall</th>
<th>Condition dry, wet, normal</th>
<th>Condition Value</th>
<th>Month weight value</th>
<th>Product of previous two columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb</td>
<td>2.73</td>
<td>4.18</td>
<td>5.02</td>
<td>8.85</td>
<td>W</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Jan</td>
<td>3.58</td>
<td>5.13</td>
<td>6.10</td>
<td>4.22</td>
<td>N</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Dec</td>
<td>3.94</td>
<td>5.62</td>
<td>6.68</td>
<td>3.87</td>
<td>D</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Sum: 14

* NRCS 2017
* Conditions are considered normal if they fall within the low and high range around the average.

Note:  If sum is

<table>
<thead>
<tr>
<th>Condition value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 - 9 then prior period has been drier than normal</td>
</tr>
<tr>
<td>10 - 14 then period has been normal</td>
</tr>
<tr>
<td>15 - 18 then period has been wetter than normal</td>
</tr>
</tbody>
</table>

Conclusions: Normal precipitation conditions were present prior to the field visit.
Appendix B-2.

Daily Precipitation 10 days preceding field work


<table>
<thead>
<tr>
<th>Date</th>
<th>Daily Precipitation (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 13</td>
<td>0.65</td>
</tr>
<tr>
<td>March 12</td>
<td>0.02</td>
</tr>
<tr>
<td>March 11</td>
<td>0.37</td>
</tr>
<tr>
<td>March 10</td>
<td>0.03</td>
</tr>
<tr>
<td>March 9</td>
<td>0.70</td>
</tr>
<tr>
<td>March 8</td>
<td>0.13</td>
</tr>
<tr>
<td>March 7</td>
<td>0.75</td>
</tr>
<tr>
<td>March 6</td>
<td>T</td>
</tr>
<tr>
<td>March 5</td>
<td>T</td>
</tr>
<tr>
<td>March 4</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>2.69</strong></td>
</tr>
</tbody>
</table>

*NRCS 2017

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


