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Alder Creek Restoration Project

2016 Monitoring Report Year 1

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December 2016
Revised March 2, 2017

WILDLANDS

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Reporting Period	November 1st of the preceding year (2015) through October 31st of the current year (2016).

LIST OF ABBREVIATIONS

ACM	Active Channel Margin
DSAYs	Discounted Service Acre Years
Project	Alder Creek Restoration Project
PRPs	Potentially Responsible Parties
Trustees	Portland Harbor Natural Resource Trustee Council
Report	Year 1 Habitat Monitoring Report/Annual Report for the Alder Creek Project

I. OVERVIEW

This report serves as the first (Year 1) Habitat Monitoring Report/Annual Report ("Report") for the Alder Creek Restoration Project ("Project"). The Alder Creek Restoration Plan was signed by all members of the Portland Harbor Trustee Council by July 2014 and the site was established (e.g., Deed Restriction recorded and financial securities posted) in February 2015. This report will include all the requirements of the Habitat Monitoring Report as detailed in Exhibit B-1, Section 6.4 and 6.4.1. of the Restoration Plan (Plan).

Report Time Period

Per the Plan, the "Reporting Period" is from November 1st of the preceding year (2015) through October 31st of the current year (2016). Because this is the first Habitat Monitoring Report/Annual Report, it will also include a description of timelines for construction and planting events that occurred before and during the Reporting Period of November 1, 2015 to October 31, 2016.

A. RESPONSIBLE PARTIES

The Alder Creek Restoration Project ("Project") is a site that has been developed for use by potentially responsible parties ("PRPs") and/or the Portland Harbor Trustee Council ("Trustees") to satisfy restoration obligations resulting from the Natural Resource Damages Assessment in Portland Harbor. The Restoration Plan was signed in 2014 by:

- National Oceanic and Atmospheric Administration, acting on behalf of U.S. Department of Commerce
- U.S. Fish and Wildlife Service, acting on behalf of U.S. Department of the Interior
- Oregon Department of Fish and Wildlife, acting on behalf of State of Oregon
- Confederated Tribes of the Grand Ronde Community of Oregon
- Confederated Tribes of Siletz Indians
- Confederated Tribes of the Umatilla Indian Reservation
- Confederated Tribes of the Warm Springs Reservation of Oregon
- Nez Perce Tribe

The eight signatories to the Restoration Plan are collectively referred to as the Trustees. The Project was established (Deed Restriction recorded and financial securities posted) in February 2015. Earthwork related to habitat construction was completed in October 2015. Monitoring years are listed in the methods section below.

People responsible for the monitoring, maintenance, management, and reporting for the Alder Creek Restoration Project include the following:

Restoration Implementer and Property Owner:	Portland Harbor Holdings II, LLC (Wildlands)
Project Biologists:	Bill Roper, Wildlands Kevin Nay, Wildlands Brian Sinclair, Wildlands Staff Biologists, Turnstone Environmental
Land Management:	Ruben Mendoza, Wildlands Keith Brown, Wildlands

Report Preparation: Julie Mentzer, Project Manager
Bill Roper, Senior Biologist
Steve Russell, Senior Landscape Architect

B. PURPOSE

The purpose of the Project is to restore, create, and enhance approximately 52.28 acres (Property) on the southern tip of Sauvie Island at the divergence of the Willamette River and Multnomah Channel located in Multnomah County just outside of the City of Portland, Oregon. The Project provides restoration credits in the form of discounted service acre years (DSAYs) that may be used to offset restoration obligations under NRDA.

C. LOCATION

The Restoration Project is located in the northernmost reach of the Portland Harbor Superfund Site on the southern tip of Sauvie Island (see Figures 1 and 2). The Sauvie Island Drainage Improvement Company's (SIDIC) levee bisects the Property and separates the Property into two distinct areas. The southeastern portion of the Project (waterward of the SIDIC levee and within the floodplain of the Willamette River) is approximately 32 acres and is bordered by the SIDIC Levee on the north, mostly undeveloped private property to the northeast, the Willamette River to the east, and the Multnomah Channel to the southwest. The northwestern portion of the Project (landward of the SIDIC levee and outside of the active floodplain) is approximately 20 acres and is bordered on the northeast by private rural-residential property, on the east by a utility easement, on the south by the SIDIC Levee, and by the ESCO Landfill to the northwest.

The Project is located within Township 2N, Range 1W, Sections 27, 28, and 34 of the Linnton and Sauvie Island, Oregon 7.5-minute U.S. Geological Survey quadrangle maps, Willamette Meridian, identified by tax lot numbers 700 and 800.

D. HABITAT CONSTRUCTION AND PLANTING

Habitat construction commenced in June 2014. After completing approximately 25% of the site, the remainder of the site was graded to prevent fish stranding in the event of a 100-year event, and the site was buttoned-up for winter. Grading resumed in June 2015 and the earthwork was completed in October 2015. Planting began in the summer of 2015; however, the majority of the plants were installed in spring and summer of 2016, with the final planting effort occurring in November and December of 2016. Table 1 provides a summary of habitat acreages from the 100% design drawings and the final as-built drawings. Table 2 provides the planting dates, planting densities, and any substitutions.

Table 1. Proposed Restoration Habitat Types

Habitat Type	Active Channel Margin	Proposed (acres)	As-Built (acres)
Side Channel (off-channel habitat)	No	3.10	3.16
Mudflat or Beach	Yes	3.29	3.46
Vegetated Marsh	Yes	5.57	5.13
Scrub-shrub riparian below the OHWL	Yes	11.15	11.76
Riparian forest within the historic floodplain	No	8.79	8.39
Riparian forest outside the historic floodplain (upland cottonwood-dominant forest)	No	7.05	7.20
Upland Oak-dominant forest	No	13.33	13.18
Total ACM		**20.01**	**20.35**
Total Project Acreage (including ACM)		**52.28**	**52.28**

Table 2. Planting Schedule

Habitat	Date Planted	Density Proposed	Density Planted	Substitutions
Perennial Marsh (created in 2014)	July/August 2015	5,000 plants/acre	5,000 plants/acre	Carex densa substituted for Carex aperta
Scrub-shrub and Riparian; elevation 13 (water level) and above*	February 2016	2,000 plants/acre	2,000 plants/acre	None
Perennial marsh (created in 2015)	July/August 2016	5,000 plants/acre	5,000 plants/acre	Carex densa substituted for Carex aperta
Scrub-shrub (elevations 10 to 13)*	October 2016	2,000 plants/acre	2,000 plants/acre	None
Upland Forest: Cottonwood dominant	December 2016	2,000 plants/acre	2,000 plants/acre	Rubus ursinus substituted for Rubus idaeus
Upland Forest: Oak dominant	December 2016	860 plants/acre	860 plants/acre	Rubus ursinus substituted for Rubus idaeus

* During the February 2016 planting, the water level was at elevation 13 so the scrub-shrub areas between 10 and 13 were planted in October 2016 when the water level was below 10 feet.

E. PERFORMANCE STANDARDS

The performance standards for Year 1 include topography, invasive plant species including reed canarygrass, aerial photographs, and photo documentation. The performance standards for Year 1 have been met. As a result of Year 1 monitoring, no fish barriers were observed, invasive plant species cover is low with management ongoing, and the site habitats are progressing as expected. Additional monitoring, not tied to performance standards, was required for some elements. More information is included below in the Habitat Monitoring Requirements and Habitat Monitoring Data/Results sections. See Appendix 4 for a list of performance standards and the results of monitoring.

F. CORRECTIVE OR MAINTENANCE ACTIVITIES

Activities to control and manage invasive species have been occurring on the site since 2013. Beginning in 2013, in the areas outside of the grading limits, reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus armeniacus*) were the focus of invasive species control/management activities because of their prevalence in these areas. A combination of mowing and herbicide application was used with supplemental hand removal, where needed, to minimize the cover of these species. During management activities, a significant amount of native trailing blackberry (*Rubus ursinus*) was found in these areas so it was important to distinguish between the two blackberry species and selectively remove only the invasive one. Also, because these areas were outside of the limits of grading, invasive control/management activities were critical to creating a more hospitable environment for native species and to reduce the invasive seed bank immediately adjacent to the created habitats.

After the completion of grading activities in October 2015, ongoing invasive species management activities were conducted to minimize invasive species establishment. Invasive species management during the Reporting Period (November 1, 2015 to October 31, 2016) is discussed further in the "Habitat Data/ Results" section.

Steve Russell, Wildlands, visited the site a minimum of once per month to assess hydrology, topography, trespass, trash, invasive species, native species, erosion, and to conduct general inspections of the site. Other Wildlands' personnel, biologists and land management specialists, visited the site at various times throughout the year to check and repair signs and fencing, to assess and treat invasive species, look for signs of trespass, collect and dispose of trash, conduct final planting, and to check for any other necessary management or maintenance issues. Most of these visits consisted of several days. See Appendix 2 for the Maintenance Activity Log.

G. RECOMMENDATIONS FOR CORRECTIVE OR REMEDIAL ACTIONS

At this time no additional corrective or remedial actions are recommended. Invasive species management activities will be ongoing.

II. HABITAT MONITORING REQUIREMENTS

Monitoring requirements, including the current year and future years, are provided below. These requirements were taken from the "Habitat Development Plan" of the signed Alder Creek Restoration Plan and included in this report for reference (see Table 3). If monitoring methods differ in any year from those prescribed in the Habitat Development Plan, the change in method and the reason for the change will be detailed in the Habitat Monitoring Data/Results section.

Table 3. Establishment Period Monitoring Schedule

Biological Resource *Component*	**Monitoring Frequency**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Hydrology & Geomorphology													
Visual Surveys (including LWD retention)	Years 2, 3, 5, 7, 10								X				
Topography	Years 1, 3, 5, 7, 10								X				
Invasive Plant Species													
Vegetation	Years 1, 2, 3, 4, 5, 7, 10				X				X				
Native Vegetation													
Riparian Scrub/Shrub, Riparian Forest, Upland Forest	Years 2-5, 7, 10								X				
Emergent Marsh	Years 2-5, 7, 10								X				
Wildlife													
Fish Surveys	Years 2*, 3, 5, 7, 10		X	X	X	X							
Bald Eagle Surveys	Years 3, 5, 7, 10	X	X	X	X	X	X	X	X				*I*
Bird Surveys	Years 2*, 3, 5, 10				X	X	X						
Mink Surveys	Years 3, 5, 7, 10					X	X	X					
General Site Monitoring													
Aerial Photographs	Years 1, 3, 5, 7, 10								X				
Photo Documentation	Years 1-5, 7, 10								X				

* Fish surveys and bird assemblage surveys were scheduled to occur in Year 1 (2016); however, they were delayed until Year 2 (2017). All other scheduled monitoring events will occur as previously scheduled.

A. MONITORING PERIOD AND SCHEDULE

The Project includes numerous habitat monitoring requirements over the initial ten-year interim monitoring period (i.e., Establishment Period), which differ by year (Table 3). The ten-year monitoring period is as follows (listed by reporting year):

Year 1 - 2016
Year 2 – 2017
Year 3 – 2018
Year 4 – 2019
Year 5 – 2020
Year 6 – 2021
Year 7 – 2022
Year 8 – 2023
Year 9 – 2024
Year 10 – 2025

B. HABITAT MONITORING METHODS

1. AERIAL PHOTOGRAPH INTERPRETATION

Aerial photos will be taken during late summer each year that aerial photography is required. This will allow a year to year comparison of the development of planted vegetation, geomorphology, and will allow the tracking of general changes to the Restoration Site that may be difficult to detect during surveys constructed from the ground.

2. PHOTO DOCUMENTATION

Ten permanent photograph locations have been recorded with Global Positioning System (GPS) to illustrate year-to-year progress of the Project. Subsequent photos will be taken from the same location each year photo documentation is required. At these permanent photograph locations, the monitoring biologist will take four direction photos, one in each cardinal direction (N, E, S, W), unless the photo location borders the Project boundary, in which case photos will be taken from all directions that show the Project. These photos will be taken in August or September in each year that photo documentation is required.

3. HYDROLOGY AND GEOMORPHOLOGY

During years 1, 3, 5, 7, and 10, topographic surveys will be completed once a year after the wet season to document changes in site topography and structural habitat features. Topographic surveys will include collecting topographic readings along the 5 pre-selected, permanent monitoring transects. In addition, once a year during years 2, 3, 5, 7, and 10 after the wet season a visual inspection will be made to document any barriers that prevent fish from entering or exiting the site. If a fish barrier is identified, the Trustee Council will be notified within three (3) business days of discovery. Aerial photos of the site will be collected once during late summer during years 1, 3, 5, 7, and 10. Water level data loggers should be placed at a minimum of two locations and, if feasible, data should be collected continuously. If continuous monitoring is not possible, an alternative monitoring schedule should be discussed with Trustee Council representatives.

4. NATIVE VEGETATION

Riparian Scrub-Shrub, Riparian Forest, and Upland Forest

Monitoring will include:

- direct counts of a sub-sample of live installed woody plants,
- direct counts of volunteer plants by species within established sample plots at various locations.
- vegetation cover estimates (herbaceous species only during Years 2-5 and all species thereafter), and
- representative photographs taken from (a minimum of ten) permanent photographic documentation points.

Quantitative monitoring data will be primarily collected using 10x10 meter sample plots along five main baseline transects running more or less north/south across the site (Figure 3).

In each monitoring year, data will be tallied by species and each woody plant will be assessed for plant vigor (i.e., good, fair, poor). Signs of beaver herbivory will also be noted. The sample plots will also be used to assess cover and diversity for the wooded habitats. Cover classes will be used to determine cover values for each species identified within the plot. The presence and extent of any invasive plant species will be documented throughout the riparian areas during this monitoring.

Emergent Marsh

Monitoring of emergent marsh vegetation will be conducted in Years 2, 3, 4, 5, 7, and 10. Monitoring shall include visual surveys of the emergent marsh vegetation. Cover and diversity will be quantified using a quadrat method. A sampling transect will be run perpendicular to the baseline transect and quadrat data will be collected along the sampling transect. The frequency of sampling quadrats and the size of quadrats will be tailored to best assess this habitat type. The sampling interval and the size of the quadrat will be determined in the field based on pilot sampling data.

Cover classes will be used to determine cover values for each species identified within the quadrat. Bare soil, rock, wood, or other non-plant cover will also be quantified. The location of the sampling transect will need to be determined in the field because the extent of this habitat type occurs in a fairly narrow belt along the constructed channels. A sampling transect will be run perpendicular to the main baseline transects and quadrat data will be collected along the sampling transect. The frequency of sampling quadrats and the size of quadrats will be tailored to best assess this habitat type and based on pilot sampling data. The extent of existing habitat will then be compared to construction drawings and design goals in order to assess the relative success of management efforts.

5. LARGE WOODY DEBRIS

Large woody material monitoring will be performed in Years 2, 3, 5, 7, and 10 following winter-spring floods to assess overall quality and stability of placed large woody material as well as any natural recruited wood, and to assess their function. Monitoring will consist of visual inspections by foot or by boat.

6. INVASIVE NON-NATIVE PLANT SPECIES

In Years 1 through 5, 7, and 10 invasive vegetation field surveys will be conducted annually during the riparian, marsh, and forest habitat monitoring. During Years 6, 8, and 9, invasive species presence will be noted and mapped during general site assessments, and any necessary treatments will be undertaken depending on the species and its extent. Invasive species are as defined in Section 6.1.8 in the Habitat Development Plan.

7. FISH MONITORING

Fish will be monitored at standard locations to determine the presence of native fish. The monitoring will occur within the newly created channels in Years 1, 3, 5, 7, and 10, or until juvenile salmonids are documented on the site. Sampling will take place two times per month from February through May in each monitoring year until juvenile salmonids are documented within the created channels. The timing of fish monitoring is subject to weather and other ecological factors and may change based on field conditions. During fish monitoring, habitat conditions will be recorded, including shade, cover, depth, substrate, and water quality (including water temperature, dissolved oxygen, turbidity). Water quality measurements should be taken where fish monitoring occurs and at locations in the Willamette River and Multnomah Channel adjacent to the Project site. During fish surveys, occurrences of aquatic plants will be noted by species, location, and relative abundance. All potential permits necessary for the authorization of fish sampling will be acquired from the appropriate regulatory agencies. Sampling methods will adhere to all permit conditions.

Monitoring will be conducted using snorkel surveys or beach seining. Beach seining will only be conducted until juvenile salmonids are captured. Once juvenile salmonids are captured, beach seining will no longer continue. Snorkel surveys may continue through the remainder of the monitoring period, as feasible.

8. OTHER WILDLIFE MONITORING

- Bald eagle and osprey monitoring
    - Monitoring will take place in Years 3, 5, 7, and 10, once per week from mid-December through August. Although these surveys are targeting bald eagle, other raptor sightings (including osprey) and behavior will also be recorded.
- Investigate potential bald eagle and osprey nests
    - During site visits, all potential bald eagle and osprey nests will be identified and the location recorded with a GPS. Using binoculars or spotting scopes, the nest will be observed until it can be determined if it is actively being used, and by what type of bird. This information will be recorded and the nest will be documented for future visits.
- Bird assemblages including diversity and abundance
    - Bird monitoring will be completed in Years 1, 3, 5, and 10. The point counts will be done on transects established during pre-construction monitoring. These transects will be monitored once a month in April, May, and June.

- Mink
    - Mink usage monitoring will take place along the waterways of the Restoration Project including a 50-foot buffer from each waterway in the spring and summer in Years 3, 5, 7, and 10. Survey methods include camera traps at three locations with scent stations to lure animals into camera view. Searches for tracks, scat, and den sites should also occur in designated areas with potential for mink use and shall be conducted during camera trap data collection and maintenance or at least twice a month. Monitoring should take place for at least 12 weeks of spring/summer.
- Pacific lamprey
    - Lamprey monitoring will be conducted as part of a Harbor-wide monitoring effort done by USFWS staff in accordance with the Lamprey Monitoring Plan developed by the Trustees.

During monitoring efforts for specific species, any observation or sign of other Target Species will be documented.

III. PERFORMANCE STANDARDS

Performance Standards for the Project are below. This information is from the Alder Creek Restoration Plan, Exhibit B-1 (Habitat Development Plan), Section 5.3.

Performance standards have been created for the following habitat parameters:

- Hydrology
- Geomorphic/structural features
- Vegetation
    - Emergent marsh
    - Shrub-scrub and riparian (ACM)
    - Riparian forest and cottonwood-dominated upland forest
    - Oak-dominated upland forest
    - Invasive plant species
- Permanent protection

A. HYDROLOGY

A visual survey will be conducted (on foot or by boat) of the created channels and the connections to the Multnomah Channel and the Willamette River in Years 2, 3, 5, 7, 10. The following performance standards will be used to demonstrate the success of newly created hydrologic connections:

- Constructed side channels and ACM (beach, mudflat, emergent marsh, and riparian scrub-shrub/forest) will flood (i.e., filling and partially or completely draining) in response to fluctuations in the daily tidal regime and seasonal river stages in the Willamette River and Multnomah Channel;
- Connections shall remain open (not blocked or clogged with debris or sediment to the extent that it prevents hydrologic connectivity to the Willamette River and Multnomah Channel; and
- Created and enhanced emergent marsh and riparian wetland areas will remain flooded, ponded, or saturated for a duration of time sufficient to maintain wetland hydrology (i.e. 14 or more consecutive days) or show reliable Group A or B primary wetland hydrology indicators as described in the Regional Supplement to the Corps of Engineers Wetland Delineation manual: Western Mountains, Valleys, and Coast Region (Version 2.0, May 2010).

B. GEOMORPHIC/STRUCTURAL/HABITAT COMPLEXITY ELEMENTS

This performance standard will use topographic surveys, aerial photography, hydrology, and visual site inspections to verify that the total quantity of ACM and side channel habitat is being maintained, that there are no barriers to fish entering or exiting the side channel, and that structural habitat features were installed as designed and are being retained.

A minimum of 24 pieces of large woody debris ("LWD") will be installed within the active channel margin (i.e., along the created channels and within the marsh, mudflat, and scrub-shrub habitats). LWD will be from onsite sources. Performance for LWD will be based on retention of pieces and/or natural recruitment, and the following standards will be used:

Years 2, 3, 5, 7, and 10: woody debris will have an 80 percent retention rate including naturally recruited material.

If the amount of large wood on-site fails to meet performance standards in Years 2, 3, 5, 7 or 10 and if existing conditions and hydraulics will allow the retention of replacement materials, LWD will be installed in the interior channels (and marsh/mudflat where appropriate) to achieve the targeted density.

In the forested areas above the OHWL (non-ACM habitats), habitat complexity elements in the form of debris piles, downed wood/logs, and rock piles will be installed at a minimum of one feature for every one acre (for a total of twenty-nine). Out of the 29 elements, at least one but no more than five will be rock piles. All habitat complexity elements will be created from onsite sources.

A minimum of four snags will be installed on the Project site with at least one installed within the upland habitat behind the levee. The snags will be created from onsite sources.

Additional performance standards include:

- During years 1, 3, 5, 7, 10, topographic surveys will be completed once a year after the wet season to document changes in site topography and structural habitat features.
- Annual inspection to document any fish barriers.
- Aerial photos of the site will be collected once during later summer during years 1, 3, 5, 7, 10.
- Water level data loggers will be placed at a minimum of two locations and continuous data will be collected, as feasible. If determined that continuous monitoring is not feasible, an alternative monitoring schedule will be determined in consultation with the Trustee Council representatives.

The following changes at the site would trigger a project review with Trustee Council representatives to determine what, if any, adaptive management actions are necessary:

- Identification of any fish passage barriers.
- Changes of more than 10% in ACM and side channel habitat acreages from the as-built surveys.
- Changes of more than 20% in side channel depths from the as-built surveys. Channel depths will be measured from the OHWM.

C. VEGETATION

Establishment of native vegetation at the Project is anticipated to result from both active planting and volunteer recruitment. Invasive plant species will be based on the current Oregon Department of Agriculture (ODA) Noxious Weed list and the Portland Plant List (September 2011). Invasive species for the purposes of performance evaluation include the following:

- Reed canarygrass
- Species on the ODA Noxious Weed list
- Species on the Portland Plant List, Rank A and Rank B
- Tree and shrub species on the Portland Plant List, Rank C
- Traveler's joy (*Clematis vitalba*) on the Portland Plant List, Rank C

The most recent versions of the ODA and City of Portland lists will be used. All lists described above will serve as a tool to identify and target species for treatment. Performance standards for native habitats and certain invasive species are described below.

Emergent Marsh

The following performance standards will be used to assess the successful establishment of emergent marsh vegetation:

Year 5:

Cover:

- ≥ 30% native herbaceous
- ≤ 10% invasive herbaceous (excluding reed canarygrass)

Years 7 and 10:

Cover:

- ≥ 40% native herbaceous
- ≤ 10% invasive herbaceous (excluding reed canarygrass)

Emergent marsh monitoring will occur in Years 2, 3, 4, 5, 7, and 10; however, the purpose of the monitoring conducted in Years 2, 3, and 4 is to identify the native and non-native herbaceous cover to gauge whether or not the site appears to be on a trajectory towards meeting the performance standards for Year 5. If the emergent marsh appears to be in jeopardy of not meeting the performance standard for Year 5, adaptive management including herbivory prevention and replanting may be conducted.

Riparian Scrub-shrub and Riparian Forest (ACM)

The following performance standards will be used to assess successful riparian scrub-shrub and riparian forest vegetation establishment.

Years 2-5:

- A minimum of 1,200 native woody stems per acre
- At least 5 native woody species (for Riparian Scrub-Shrub within the ACM)
- At least 3 native tree species and 5 native shrub species (for Riparian Forest within the ACM)
- Cover (during the first 5 years, woody species will be excluded from percent cover):
  - ≥ 10% native herbaceous
  - ≤ 10% invasive herbaceous (excluding reed canarygrass)
  - ≤ 10% invasive shrubs

Year 7:

Cover:

- ≥ 55% native woody species
- ≥ 10% native herbaceous
- ≤ 10% invasive herbaceous (excluding reed canarygrass)
- ≤ 5% invasive shrubs

Year 10:

Cover:

- ≥ 80% native woody species
- ≥ 10% native herbaceous
- ≤ 5% invasive herbaceous and shrubs (excluding reed canarygrass)

Volunteer recruitment of native shrubs and trees in the riparian scrub-shrub and forest planting areas may be credited towards the density per acre performance standard. If the density rates fall below the required performance standards, the Restoration Implementer will consult with the Trustee Council or its designee(s) regarding the precise plan for replanting. Replanting will be conducted during the appropriate season following monitoring. Beyond Year 5, mortality rates are expected to be minimal given the ideal

conditions present at the Project for riparian vegetation, and natural succession of the plant community is anticipated to direct long-term habitat development. Mortality due to beaver herbivory is addressed below.

Riparian Forest and Cottonwood-dominated Upland Forest

While the riparian forest (which is within the 100-year historic floodplain, above the OHWL, and waterward of the SIDIC levee) and the cottonwood-dominated upland forest (which is outside the 100-year historic floodplain, above the OWHL, and landward of the SIDIC levee) represent two distinct areas on the site, they have been combined for the purposes of performance standards and monitoring. The following performance standards will be used to assess successful vegetation establishment within the riparian forest and cottonwood-dominated upland forest (above the OHWL).

Years 2-5:

- A minimum of 1,200 native woody stems per acre
- At least 3 native tree species and 5 native shrub species
- Cover (during the first 5 years, trees/shrubs will be excluded from percent cover):
  - ≥ 10% native herbaceous
  - ≤ 10% invasive herbaceous (excluding reed canarygrass)

Year 7:

Cover:

- ≥ 50% native woody species
- ≥ 10% native herbaceous
- ≤ 10% invasive herbaceous (excluding reed canarygrass)
- ≤ 5% invasive shrubs

Year 10:

Cover:

- ≥ 80% native woody species
- ≥ 5% native herbaceous
- ≤ 5% invasive herbaceous and shrubs (excluding reed canarygrass)

Volunteer recruitment of native trees and shrubs in the riparian forest and cottonwood-dominated upland forest planting areas may be credited towards the density per acre performance standard. If the density rates fall below the required performance standards, the Restoration Implementer will consult with the Trustees regarding the precise plan for replanting. Replanting will be conducted during the appropriate season following monitoring. Beyond Year 5, mortality rates are expected to be minimal given the ideal conditions present at the Project for riparian vegetation, and natural succession of the plant community is anticipated to direct long-term habitat development.

Oak-Dominated Upland Forest

The following performance standards will be used to assess successful oak-dominated upland forest vegetation establishment.

Years 2-5:

- A minimum of 500 trees/shrubs per acre
- At least 1 native tree species and 4 native shrub species
- Cover (during the first 5 years, trees/shrubs will be excluded from percent cover):
  - ≥ 25% native herbaceous
  - ≤ 15% invasive herbaceous (excluding reed canarygrass)
  - ≤ 15% invasive shrubs

Year 7:

Cover:

- ≥ 25% native woody species
- ≥ 25% native herbaceous
- ≤ 10% invasive herbaceous (excluding reed canarygrass)
- ≤ 5% invasive shrubs

Year 10:

Cover:

- ≥ 40% native woody species (at least 10% of woody species cover will be provided by oaks)
- ≥ 25% native herbaceous
- ≤ 5% invasive herbaceous and shrubs (excluding reed canarygrass)

Volunteer recruitment of native trees and shrubs in the oak-dominated upland forest planting areas may be credited towards the density per acre performance standard; however, very little natural recruitment is expected to occur. If the density rates fall below the required performance standards, the Restoration Implementer will consult with the Trustee Council or its designee(s) regarding the precise plan for replanting. Replanting will be conducted during the appropriate season following monitoring. Beyond Year 5, mortality rates are expected to be minimal given the ideal conditions which will be present at the Project for oak-dominated upland forest vegetation, and natural succession of the plant community is anticipated to direct long-term habitat development.

Beaver Herbivory

A total of 10% of the woody plantings are expected to be lost to beaver herbivory (which equals 200 per acre since we are planting 2,000). During woody species density monitoring events, all live stems will be counted. In addition, all beaver-chewed stems resulting in mortality will be counted and documented as such.

If beaver herbivory is causing more than 10% mortality, the Restoration Implementer will notify the Trustee Council or its designee(s). Any beaver-chewed stems (resulting in mortality) beyond the 10% expected to be lost to beaver herbivory will be counted and added to the surviving tree/shrub number. If the resulting density is above 1,200 stems per acre, the performance standard will be considered met for that particular year. However, in order to continue on a trajectory towards meeting cover standards in Year 7, replanting efforts will be conducted in the year following monitoring if less than 1,200 live native woody species per acre were documented. No more than two replanting efforts, specifically in response to beaver herbivory, will be conducted in five years. (Additional replanting efforts may be appropriate if plant mortality from other factors are at fault and those efforts will not be counted toward beaver herbivory replanting efforts.) Generally, these replanting efforts will consist of 25 percent of the original planting density and will be concentrated in the areas of lowest survival, however actual replanting percentages and strategies (e.g., plant species selections, planting configurations, etc.) will depend on the extent of beaver damage and other sources of mortality, and what the Restoration Implementer calculates is necessary to be able to meet future performance standards.

To the extent practicable, species least desirable to beaver will be used in the replanting effort to discourage beaver herbivory. If, after 2 replanting efforts within 5 years, beaver herbivory continues to be a significant problem to the point that the site may not meet the cover standards in Years 7 and 10, the Trustee Council or its designee(s) will be consulted and either beaver trapping (with approval from the Trustee Council or its designee(s)) will be implemented or cover performance standards for Years 7 and 10 will be adapted to accommodate the rate of beaver herbivory occurring on the site.

Invasive Plant Species Management

It is anticipated that invasive species in the marsh habitats will be managed by the establishment and proliferation of native plants following restoration activities. As previously mentioned, invasive species in this Plan are defined as the following: reed canarygrass; species on the ODA Noxious Weed list; species on the Portland Plant List, Rank A and Rank B; tree and shrub species on the Portland Plant List, Rank C; and traveler's joy (*Clematis vitalba*) on the Portland Plant List, Rank C. In the riparian areas and the upland forest, invasive species will be controlled during the Establishment Period. Primary methods of removing or controlling invasive plant species include: hand or mechanical removal and chemical treatment. These management techniques are discussed in detail below.

- **Hand/Mechanical Removal for Invasive Pest Plant Management:** Hand removal, use of small hand powered or handheld equipment (such as a Weed Wrench or a chainsaw), and mechanical methods (use of larger equipment with motors such as a small tractor with a mower or harrow) will be the preferred methods for the removal of invasive pest plant species from the Project. The Trustee Council or its designee(s) does not to be notified if removal will be done by hand, hand-held equipment, mower, or tractor.

- **Herbicides:** In some instances (i.e., extensive, severe, or persistent infestations), it may be necessary to use herbicides to control invasive plant species. All herbicides will be applied according to label instructions and will typically be applied using a low pressure spray. All herbicide applications will be conducted by a licensed pesticide applicator following all label instructions, in compliance with Oregon State laws, and in compliance with the permits and authorizations obtained for the Project. For areas where invasive plants are growing within desirable vegetation, herbicide will be applied using a backpack sprayer with a hood to minimize drift. No applications will be done within fifteen feet of any surface water.

The goal of reed canarygrass control is to keep it from out-competing the woody plantings in order to give the native plantings the competitive advantage. Specific performance standards developed for reed canarygrass and zero-untreated species are detailed below. General invasive species standards are detailed above under each vegetation type.

Reed Canarygrass

Because this species is known to be very difficult to control in wetland habitats and it is uncertain how each habitat type will be affected by colonization of reed canarygrass, performance standards specific to reed canarygrass cover have been developed and pulled out separately, and cover values will be averaged across the Project site.

Cover:

- Years 1-5: ≤ 30% reed canarygrass
- Year 7: ≤ 25% reed canarygrass
- Year 10: ≤ 20% reed canarygrass

Zero-Untreated Species

All individual plants of the following species will be treated within the year in which they are found, during the season that is most effective for control with reasonably aggressive, legal treatment with the goal of complete eradication:

- Japanese knotweed
- Giant knotweed
- Himalayan knotweed
- Yellow flag iris
- Butterfly bush
- Purple loosestrife

D. PERMANENT PROTECTION

Prior to the end of the 10-year Performance Period, the Project will be permanently protected with a conservation easement. In addition, a long-term management and maintenance endowment fund account will be established and funded up to a previously determined target amount. Long-term activities covered by this fund include, but are not limited to, the following: maintenance, monitoring, remediation, management, debris removal if hydrologic function is impaired, and removal of invasive vegetation impairing habitat function.

IV. HABITAT MONITORING DATA/RESULTS

The Alder Creek Project has completed Year 1 monitoring. See below for details on the monitoring completed in Year 1. A table listing all Year 1 performance standards and monitoring results in included as Appendix 4.

A. MONITORING RESULTS

1. AERIAL PHOTO INTERPRETATION

Since earthwork on the Project was completed in 2015, we have included an aerial photograph taken in October 2015, immediately following the final connection, along with the aerial photograph taken in August of 2016 for comparison. These aerial photographs were taken by drone operated by Wildlands' staff person, Steve Russell. See Figures 4a and 4b. The aerial photos show that the channels have stayed open and in the same configuration as when they were constructed.

2. PHOTO DOCUMENTATION

A total of 10 permanent photo points were established for the Project to document overall site conditions and provide a basis for year-to-year comparisons. Multiple photos in different directions were taken from each photo point. A map of the photo points and corresponding photos can be found in Figures 5a -c. For this first monitoring event, pre-construction photos taken from a similar vantage point were included, when they existed, to provide a comparison between pre-construction and post-construction conditions.

3. HYDROLOGY AND GEOMORPHOLOGY

An as-built topographic survey of the entire Project site was completed by AKS Engineering and Forestry in October and November of 2015 following the completion of earthwork on the site. As-built drawings based on this topographic survey were submitted via email to Trustee Council representatives on August 18, 2016. Aerial photos of the site were taken as described above. Topographic surveys along the pre-determined monitoring transects and visual surveys were conducted by Steve Russell and Keith Brown of Wildlands in August, 2016.

On-site visual surveys throughout 2016 indicated that there has not been erosion, washouts, or sedimentation that would significantly change elevations on site. Visual inspections also confirmed that there were no fish passage barriers that could prevent fish from entering or exiting the site. The results of the topographic survey conducted in August 2016 indicated only negligible changes in both the depth of the side channel, and the acreage of ACM and side channel. Measurements were done using elevation 20 as the upper limit of ACM and elevation 5 as the upper limit of side channel.

Changes of more than 10% in ACM and side channel habitat acreages from the as-builts were not found. Based on both the topographic surveys of the monitoring transects as well as the visual surveys, there has been negligible change in acreage of both ACM and side channel habitat (See Figures 6b and 6c). Based on the topographic information collected along the five transects, it is estimated that the change in both the ACM acreage and the side channel acreage is less than 1%.

Changes of more than 20% in side channel depths from the as-builts were not found. Figures 6d and 6e show a comparison of the as-built channel depths to the Year 1 channel depths. The average percent change in channel depth was 4% on one transect and 5% on the other.

Wildlands commonly utilizes NOAA and USGS water data stations to reference river elevations and hydrologic conditions on project sites. The USGS station at Columbia Slough (USGS 14211820 COLUMBIA SLOUGH AT PORTLAND, OR) has been determined to accurately and reliably provide a published record of the conditions and water levels at the Alder Creek Restoration Project. This station is located approximately 2 miles down-river of the Project site (see Figure 7a).

To determine the accuracy of this published data, the river elevation at the Project site has been surveyed on numerous occasions between 2010 and 2016 by both Wildlands' staff and by licensed surveyors from AKS Engineering and Forestry. The surveyed river elevation data has been compared to the closest published 15-minute interval "gage height" at the USGS Columbia Slough station. It has been found to accurately match with the survey data, with an average difference of less than 0.02 feet. Historic water data from this station can be downloaded and a clear picture of the hydrology of the Project site can be determined. The Columbia Slough gauge provides an excellent representation of water elevations at Alder Creek.

In order to use data loggers on the Project site, the data loggers would be deployed during low water (e.g., September or October) and not retrieved until the following year. Retrieving the data logger during high water conditions (late-fall through early summer) would be too dangerous. While the data logger battery could be expected to last throughout the high water season, there is a high likelihood that an onsite data logger would be damaged during high water (e.g. being bent or damaged) to the point of compromising accuracy. The use of water level data loggers on the Project site would not provide any additional data, would likely provide less accurate data, would be underwater for a significant portion of the year making data collection infeasible during that time period, and have a high likelihood of being damaged. For these reasons, water level data loggers were not installed on the Project site. However, continuous water level data from the USGS water data station at Columbia Slough was used to document the water levels on the Project site during the Reporting Period (See Figure 7b). The water level data for the Reporting Period shows that river elevations in June and July were somewhat lower than average, while the rest of the year fell within the range of average with the exception of a spike in November/December. Because this data is available at any time throughout the year regardless of river level or weather, Wildlands' staff are able to use it to reference the water level and compare it to onsite conditions during field visits.

Frequent site visits have confirmed that constructed side channels and emergent marsh are flooding (i.e., filling and partially draining) in response to fluctuations in the daily tidal regime and seasonal river stages in the Willamette River and Multnomah Channel, as expected. Channel connections have remained open through 2016 and are not blocked or clogged from sediments or debris.

4. NATIVE VEGETATION

Native vegetation surveys for riparian scrub-shrub, riparian forest, upland forest, and emergent marsh will begin in Year 2, 2017 as specified in the Habitat Development Plan.

5. LARGE WOODY DEBRIS AND OTHER HABITAT FEATURES

A total of 48 pieces of large woody debris were installed within 36 structures (24 pieces of large woody debris were required) and four snags were installed. A total of 29 other habitat complexity features were installed including 12 downed wood, 12 debris piles, and 5 rock piles. All materials for the large woody debris and habitat features were from onsite. Large woody debris retention surveys will begin in Year 2 (2017), but during regular site visits in 2016, Wildlands staff has observed significant large woody debris recruitment on the site.

6. INVASIVE SPECIES MONITORING

Treatment of invasive non-native vegetation began in 2013 in areas slated for enhancement and continued over the entire site in 2014 and 2015. In areas where grading occurred, invasive species treatment began after grading was complete in those areas.

On August 20, 2016, Greg Lohse of Wildlands conducted an invasive plant survey of 38 plots along pre-determined sub-transects across the project site. The results of this survey are included as Appendix 3. Wildlands' staff also visited the site on numerous occasions during 2016 to assess the site for invasive plant species and treat them (either by hand pulling, digging, mowing, or weed whacking) as necessary. In Years 2, 3, 4, 5, 7, and 10, the invasive plant surveys will be done during the riparian, marsh, and forest habitat monitoring using the 38 permanent plots.

The main method of treatment for invasive plant species on the Project site was hand/mechanical removal which is defined as hand pulling, use of small hand powered or handheld equipment (such as a Weed Wrench or a chainsaw), and mechanical methods (use of larger equipment with motors such as a small tractor with a mower or harrow). No chemical treatment was used in 2016; however, herbicides along with hand/mechanical removal will likely be used in future years to control invasive plant species.

During 2016, Wildlands' biologists visited the site on numerous occasions to look for presence of "zero-untreated species". No Japanese knotweed, giant knotweed, Himalayan knotweed, or butterfly bush was observed on the Project site. A small amount of purple loosestrife and yellow flag iris were identified (See Figure 8). All instances of these species were removed.

Reed Canarygrass

Reed canarygrass was treated aggressively in the years prior to construction. In 2016, thirty-eight permanent plots along predetermined sub-transects were assessed for invasive species cover including reed canarygrass. The reed canarygrass absolute cover values at each plot were added together and averaged over the site for a total reed canarygrass cover of less than 1.0% (see Appendix 3). Because the cover of reed canarygrass within the plots was very low, Wildlands' biologists decided to do a secondary assessment of the site which consisted of walking the entire site and estimating reed canarygrass cover within distinct polygons (see Figure 8). The highest concentration of reed canarygrass on the site was found in the cottonwood dominant area landward of the levee, outside the limits of grading. While these areas had between 5% and 15% cover of reed canarygrass; this represents a significant decrease from the 2012 pre-construction invasive species survey. Overall the percentage of reed canarygrass cover on the Project site was estimated to be below 5% which meets the performance standard of less than 30% cover averaged across the site. Over the next few years, the reed canarygrass cover may increase in certain areas; however, chemical and mechanical treatment of reed canarygrass will continue in order to keep it from out-competing the woody plantings until they can become established.

7. FISH MONITORING

Fish surveys were scheduled to occur in Year 1 (2016); however, the surveys were not started and the survey window was missed. As a result, after coordinating with the Trustee Council, it was determined that fish surveys would begin in Year 2 (2017) and then continue as scheduled (Years 3, 5, 7, and 10).

8. OTHER WILDLIFE MONITORING

Bald Eagle

Bald eagle monitoring is scheduled to begin in the latter half of December 2017 and continue through August 2018 (comprising the Year 3 monitoring event).

Bird Assemblage Surveys

Bird assemblage surveys were scheduled to occur in Year 1; however, the surveys were not started and the survey window was missed. As a result, after coordinating with the Trustee Council, it was determined that bird assemblage surveys would begin in Year 2 (2017) and then continue as scheduled (Years 3, 5, and 10).

Mink Surveys

Mink surveys are scheduled to begin in 2018 (Year 3).

Lamprey Surveys

Lamprey surveys were conducted by U.S. Fish and Wildlife in 2016.

9. GENERAL INSPECTIONS

Regular site visits were conducted at least once per month in 2016 by Steve Russell of Wildlands. Other Wildlands' biologists and land management specialists conducted frequent site visits. These site visits were for a variety of purposes including monitoring, invasive species management, planting, trash removal, goose exclusion fencing installation and removal, sign installation and maintenance, and other maintenance and management tasks. Please see the Maintenance Activity Log in Appendix 2 for further information. While there have been a few cases of trespass from both the river and the access road, no trespass damage was observed. On several occasions, small boat craft including kayaks and canoes have been observed in the created channels. Trash and other non-natural debris that floats in when water levels are high are periodically collected and disposed of by Wildlands' staff during site visits.

V. HABITAT MONITORING CONCLUSIONS

Habitat establishment at the Project site is proceeding well and the site is on-target to achieve ecological restoration objectives. Future monitoring is expected to demonstrate the diversity and vigor of restored habitats onsite, and to show that the Project is meeting performance standards (See Appendix 4). Early invasive species control has reduced infestations in enhanced areas and ongoing invasive species control will continue over the site.

VI. FINANCIAL OPERATION

- Construction Security – Performance Bond #22BSBCN8032 in the amount of $2,757,472.00 was posted on January 28, 2015 and provided to the National Oceanic and Atmospheric Administration. Grading was completed in 2015. Planting was completed in December 2016. Following a final planting confirmation site visit in January 2017, Wildlands intends to request the release of the Construction Security bond.

- Interim Management and Contingency Security – An irrevocable Letter of Credit in the amount of $457,288 was issued on January 26, 2015.

- Trustee Council Oversight Funding – Year 1 funding in the amount of $35,102.91 was provided on August 5, 2016. Year 2 funding in the amount of $27,291.38 was provided at the end of December 2016.

- Lamprey Monitoring Funding – A total of $29,564 for lamprey monitoring funding for Year 1 was provided in two separate payments: $11,350 to The Confederated Tribes of Grand Ronde in August 2016 and $18,214 to US Fish and Wildlife Service in October 2016.

A. TRANSFER OF CREDITS AND ENDOWMENT FUND DEPOSITS

A copy of the Credit Ledger documenting Credit sales through December 2016 is included in Appendix 1. Following the first release of credits on February 25, 2015, there was one credit sale of 35 credits to the City of Portland on March 23, 2015; however, these credits have not yet been used in a settlement or consent decree. No credits were sold in Year 1 (2016).

The endowment amount corresponding to the sale in 2015, $30,170, has been set aside for the endowment fund for the Project. The required endowment principal in the Alder Creek Restoration Plan is $323,250 and is funded by credits sales with $862 of each credit sold going towards the endowment until it is fully funded. A total of $293,080 of the endowment principal remains to be funded.

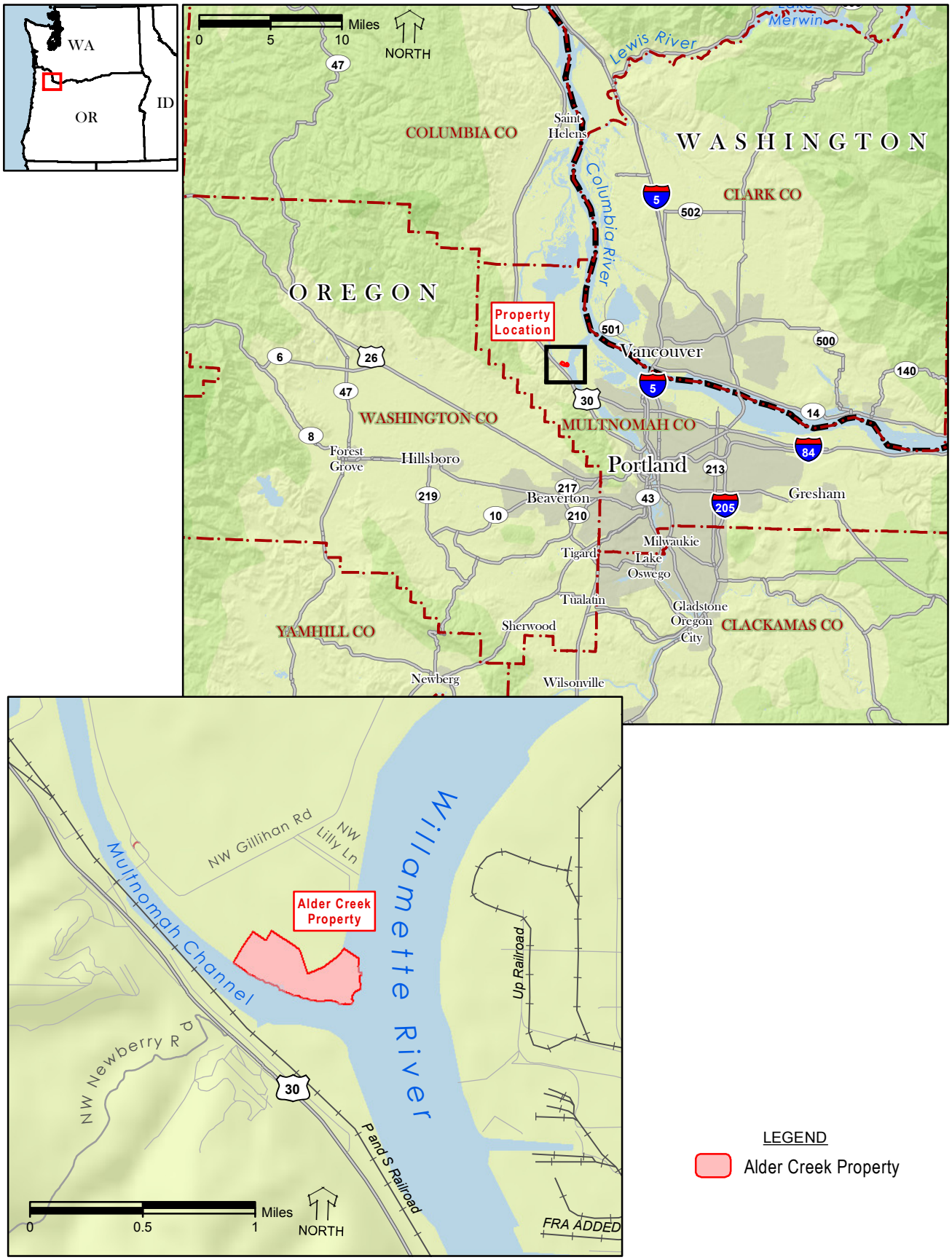

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Figure 1
Location Map

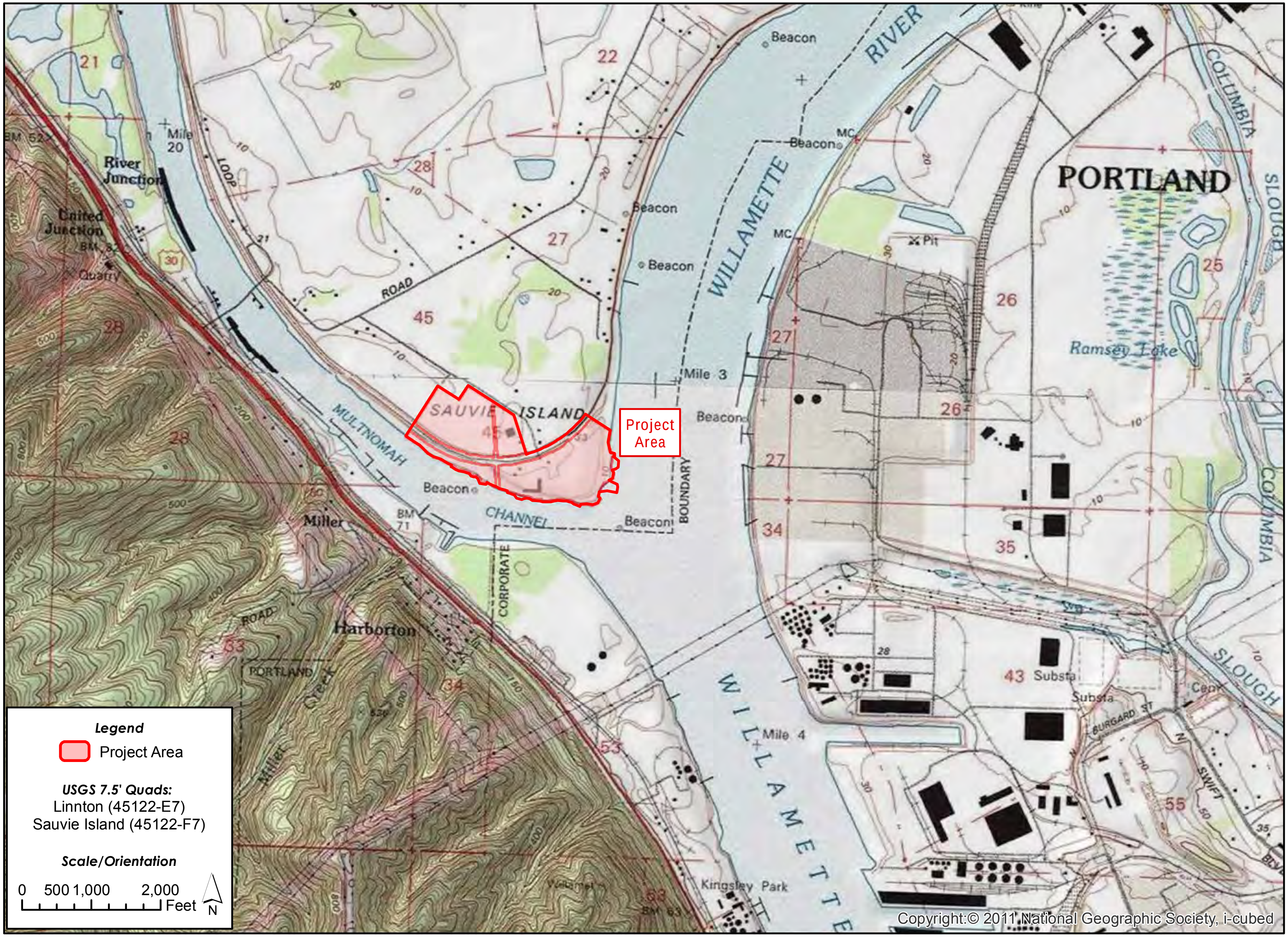

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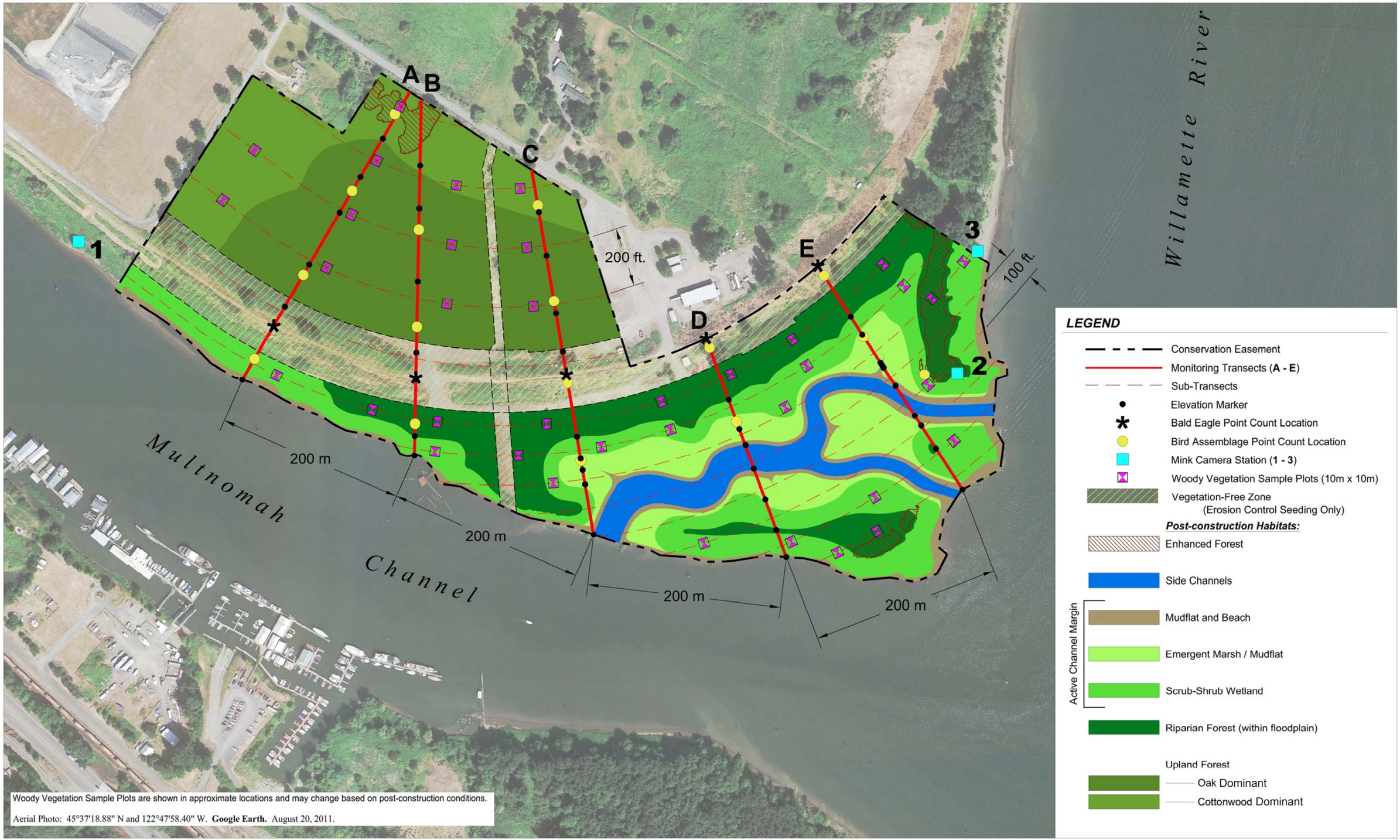
Figure 2
USGS Quad



Woody Vegetation Sample Plots are shown in approximate locations and may change based on post-construction conditions.

Aerial Photo: 45°37'18.88" N and 122°47'58.40" W. **Google Earth.** August 20, 2011.

NORTH 0 150' 300'

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Figure 3
Post-construction Monitoring

Figure 4b
Aerial Photograph, August 23, 2016 (Year 1)

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Figure 5a
Pre-construction Photo Map

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Figure 5b
Post-construction Photo Map

Photo Point 1
North-facing (May 3, 2013 – pre-construction)

Photo Point 1
North-facing (August 23, 2016 – Year 1)

Photo Point 1
SW-facing (May 3, 2013 – pre-construction)

Photo Point 1
SW-facing (August 23, 2016 – Year 1)

Photo Point 1
South-facing (May 3, 2013 – pre-construction)

Photo Point 1
South-facing (August 23, 2016 – Year 1)

Photo Point 2
SE-facing (May 3, 2013 – pre-construction)

Photo Point 2
East-facing (August 23, 2016 – Year 1)

Photo Point 2
SW-facing (May 3, 2013 – pre-construction)

Photo Point 2
South-facing (August 23, 2016 – Year 1)

Photo Point 2
NW-facing (May 3, 2013 – pre-construction)

Photo Point 2
NW-facing (August 23, 2016 – Year 1)

Photo Point 2
West-facing (May 3, 2013 – pre-construction)

Photo Point 2
SW-facing (August 23, 2016 – Year 1)

Photo Point 3
SE-facing (May 3, 2013 – pre-construction)

Photo Point 3
SE-facing (August 23, 2016 – Year 1)

Photo Point 3
NW-facing (May 3, 2013 – pre-construction)

Photo Point 3
NW-facing (August 23, 2016 – Year 1)

Photo Point 3
SW-facing (May 3, 2013 – pre-construction)

Photo Point 3
SW-facing (August 23, 2016 – Year 1)

Photo Point 4
SW-facing (May 3, 2013 – pre-construction)

Photo Point 4
SW-facing (August 23, 2016 – Year 1)

Photo Point 4
SE-facing (May 3, 2013 – pre-construction)

Photo Point 4
SE-facing (August 23, 2016 – Year 1)

Photo Point 4
NE-facing (May 3, 2013 – pre-construction)

Photo Point 4
NE-facing (August 23, 2016 – Year 1)

Photo Point 4
West-facing (May 3, 2013 – pre-construction)

Photo Point 4
West-facing (August 23, 2016 – Year 1)

Photo Point 5
North-facing (May 3, 2013 – pre-construction)

Photo Point 5
North-facing (August 23, 2016 – Year 1)

Photo Point 5
SE-facing (May 3, 2013 – pre-construction)

Photo Point 5
SE-facing (August 23, 2016 – Year 1)

Photo Point 5
South-facing (May 3, 2013 – pre-construction)

Photo Point 5
South-facing (August 23, 2016 – Year 1)

Photo Point 6
SE-facing (May 3, 2013 – pre-construction)

Photo Point 6
South-facing (August 23, 2016 – Year 1)

Photo Point 6
SW-facing (May 3, 2013 – pre-construction)

Photo Point 6
SW-facing (August 23, 2016 – Year 1)

Photo Point 7
SE-facing (May 3, 2013 – pre-construction)

Photo Point 7
SE-facing (August 23, 2016 – Year 1)

Photo Point 7
SW-facing (May 3, 2013 – pre-construction)

Photo Point 7
SW-facing (August 23, 2016 – Year 1)

Photo Point 7
North-facing (May 3, 2013 – pre-construction)

Photo Point 7
NW-facing (August 23, 2016 – Year 1)

Photo Point 8
SE-facing (May 3, 2013 – pre-construction)

Photo Point 8
SE-facing (August 23, 2016 – Year 1)

Photo Point 8
West-facing (May 3, 2013 – pre-construction)

Photo Point 8
West-facing (August 23, 2016 – Year 1)

Photo Point 9
SE-facing (May 3, 2013 – pre-construction)

Photo Point 9
SE-facing (August 23, 2016 – Year 1)

Photo Point 10
SW-facing (April 17, 2014 – pre-construction)

Photo Point 10
West-facing (August 23, 2016 – Year 1)

NORTH 0 150' 300'

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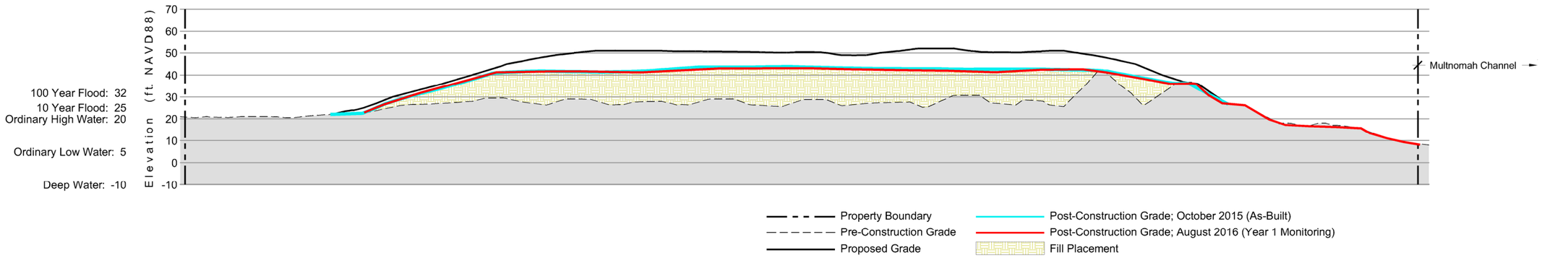
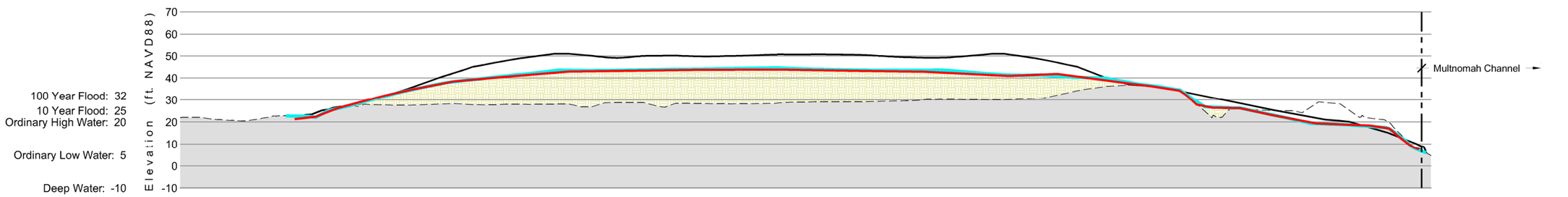
Alder Creek Restoration Project

Figure 6a

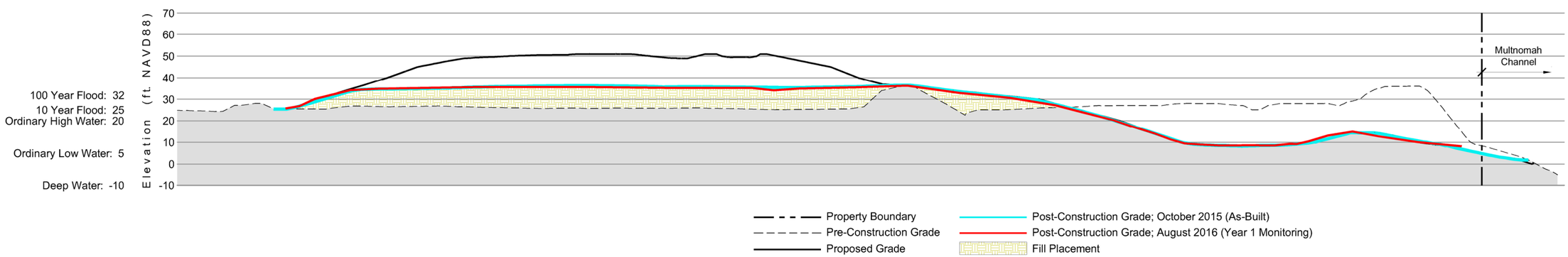
Monitoring Transect Plan View



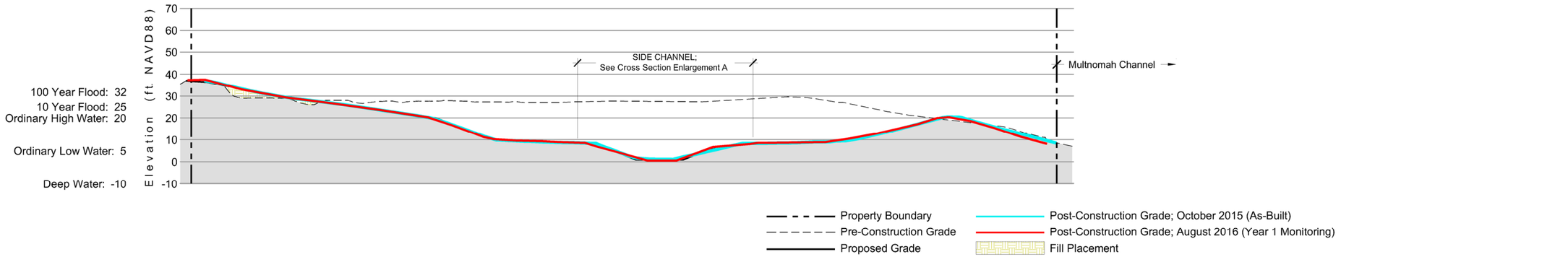
A Cross Section A
See Figure __ for location



B Cross Section B
See Figure __ for location

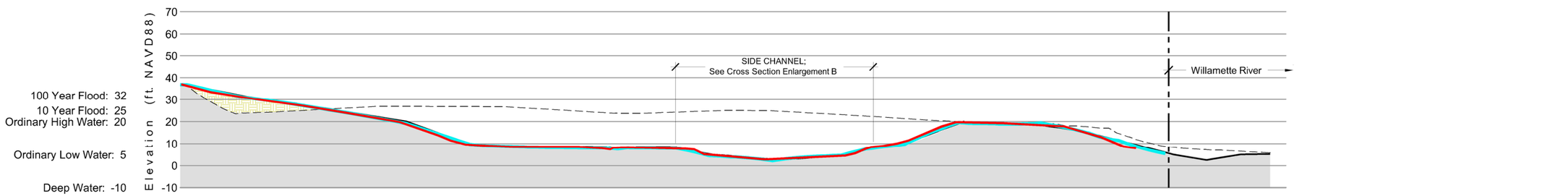


C Cross Section C
See Figure __ for location



D Cross Section D

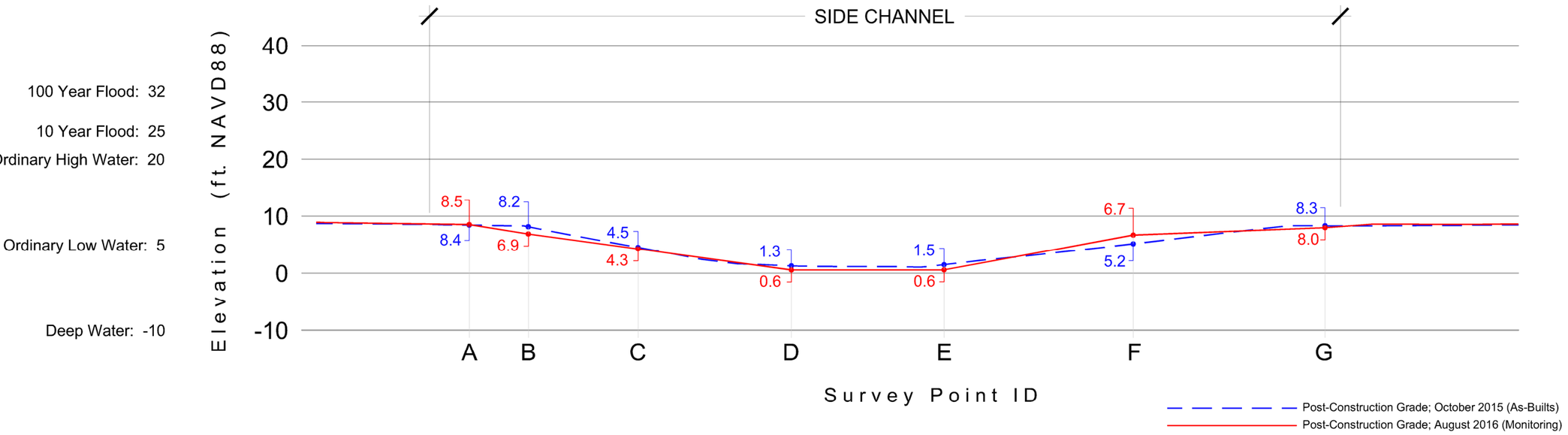
See Figure __ for location



E Cross Section E

See Figure __ for location

Cross Section Enlargement A										
Survey Point ID	Elevation: October 2015	Elevation: August 2016	Elevation Change	Depth October 2015 relative to OHW (elevation 20.0)	Depth August 2016 relative to OHW (elevation 20.0)	Percent Change Relative to OHW 2015 to 2016		Absolute Percent Change Relative to OHW 2015 to 2016	
A	8.4	8.5	0.1	11.6	11.5	(11.5/11.6) =	99%	|99 - 100| =	1%
B	8.2	6.9	-1.3	11.9	13.1	(13.1/11.9) =	111%	|111 - 100| =	11%
C	4.5	4.3	-0.3	15.5	15.7	(15.7/15.5) =	102%	|102 - 100| =	2%
D	1.3	0.6	-0.7	18.7	19.4	(19.4/18.7) =	104%	|104 - 100| =	4%
E	1.5	0.6	-0.9	18.5	19.4	(19.4/18.5) =	105%	|105 - 100| =	5%
F	5.2	6.7	1.5	14.8	13.3	(13.3/14.8) =	90%	|90 - 100| =	10%
G	8.3	8.0	-0.3	11.7	12.0	(12.0/11.7) =	103%	|103 - 100| =	3%
		Average Distance:	-0.3					Average :	5%



A Cross Section Enlargement A

0 10' 20'

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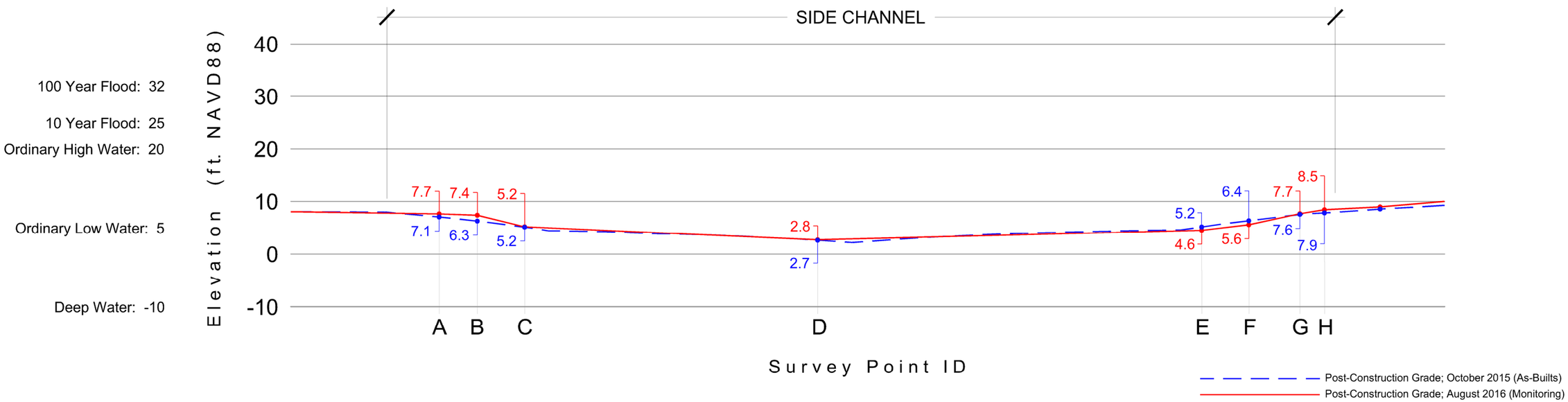
Cross Section Enlargement B									
Survey Point ID	Elevation: October 2015	Elevation: August 2016	Elevation Change	Elevation: October 2015 distance from OHW (20.0)	Elevation: August 2016 distance from OHW (20.0)	Percent Change Relative to OHW 2015 to 2016		Absolute Percent Change Relative to OHW 2015 to 2016	
A	7.1	7.7	0.6	12.9	12.3	(12.3/12.9) =	95%	|95 - 100| =	5%
B	6.3	7.4	1.1	13.7	12.6	(12.6/13.7) =	92%	|92 - 100| =	8%
C	5.2	5.2	0.1	14.8	14.8	(14.8/14.8) =	100%	|100 - 100| =	1%
D	2.7	2.8	0.1	17.3	17.3	(17.3/17.3) =	100%	|100 - 100| =	1%
E	5.2	4.6	-0.6	14.8	15.4	(15.4/14.8) =	104%	|104 - 100| =	4%
F	6.4	5.6	-0.8	13.6	14.4	(14.4/13.6) =	106%	|106 - 100| =	6%
G	7.6	7.7	0.1	12.4	12.3	(12.3/12.4) =	99%	|99 - 100| =	1%
H	7.9	8.5	0.6	12.1	11.6	(11.6/12.1) =	95%	|95 - 100| =	5%
		Average Distance:	0.1					Average :	4%



B Cross Section Enlargement B

0 10' 20'

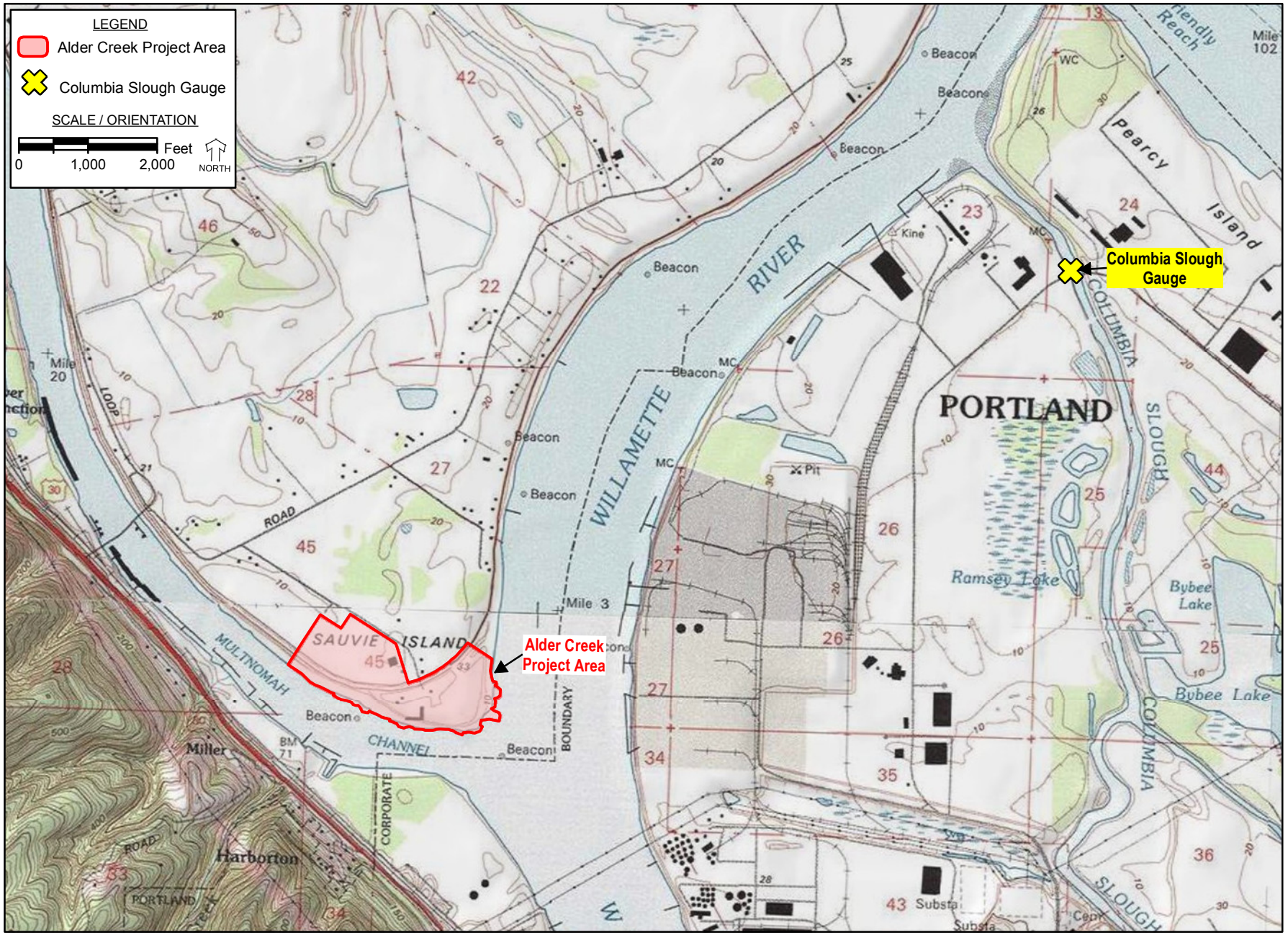


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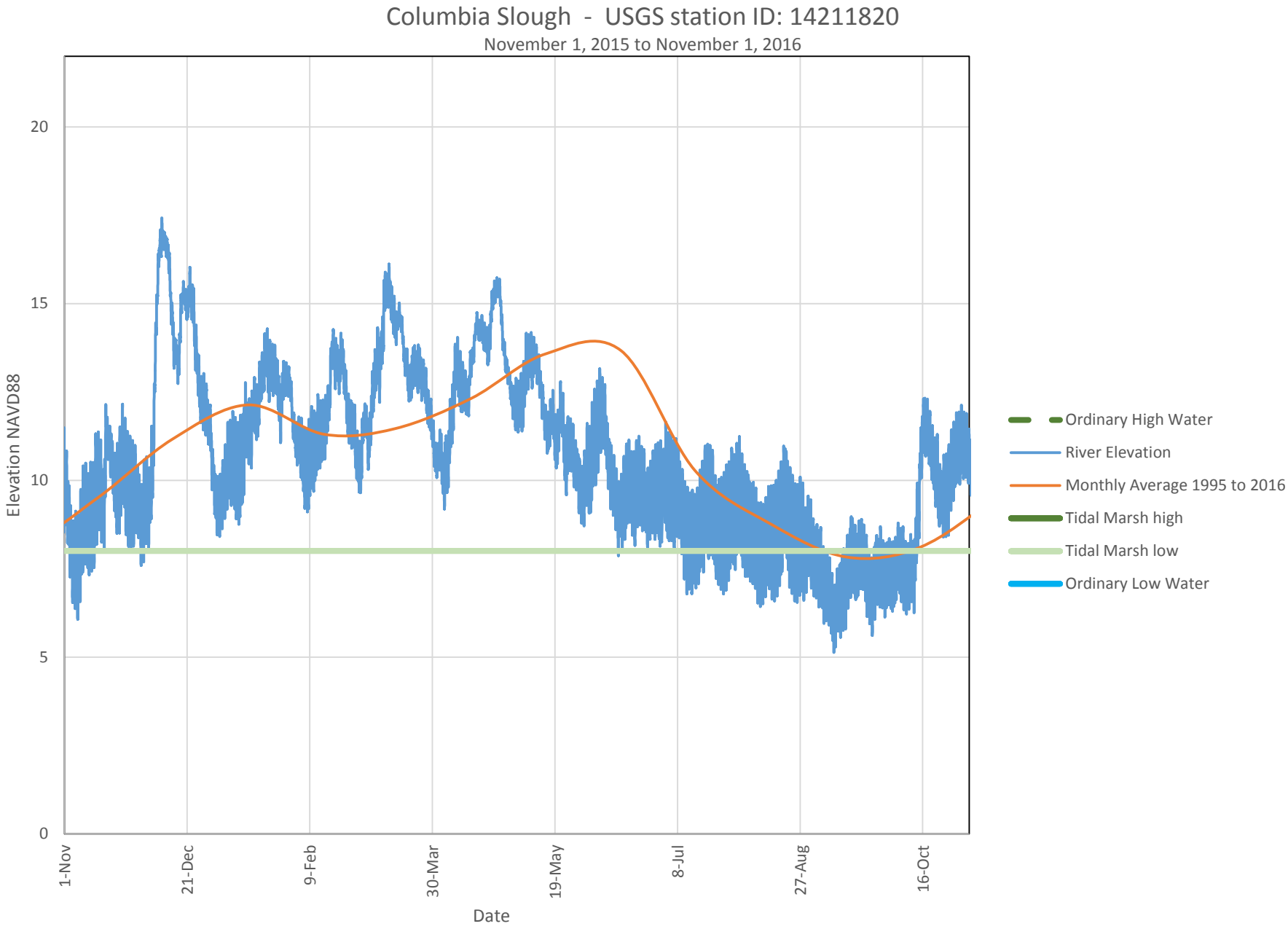
Figure 7a
Columbia Slough Gauge Station Location


Columbia Slough - USGS station ID: 14211820
November 1, 2015 to November 1, 2016
Elevation NAVD88
20
15
10
5
0
1-Nov
21-Dec
9-Feb
30-Mar
19-May
8-Jul
27-Aug
16-Oct
Date
Ordinary High Water
River Elevation
Monthly Average 1995 to 2016
Tidal Marsh high
Tidal Marsh low
Ordinary Low Water

NORTH 0 150' 300'

WILDLANDS

Alder Creek Restoration Project

Figure 8

Invasive Species Data

APPENDIX 1

CREDIT LEDGER

ALDER CREEK RESTORATION PROJECT
CREDIT INVENTORY LEDGER

Date of Transaction	Alder Creek Contract No.	Credit Purchaser Name Address Phone Number Contact	Reference Number (if applicable)	749.7 Total DSAYs Authorized[1]			Accepted for use in a Settlement? Y/N	Endowment Amount
				# Released for Sale	# Sold and Debited[2]	# Remaining for Sale		
2/25/2015	n/a	15% Initial Credit Release (Deed Restriction & Securities)	n/a	112.45		112.45	n/a	$ -
3/23/2015	ACRP-15-01	City of Portland 1221 SW Fourth Ave., Room 430 Portland, OR 97204 Jan Betz, (503) 823-4047	n/a		35.00	77.45	N	$ 30,170.00
		Total Number of Credits Credited/Debited		112.45	35.00			
		Total Number of Remaining Credits Available for Sale				**77.45**		**$ 30,170.00**

[1]A total of 749.7 DSAYs are subject to the Credit Release Schedule (Exhibit E of the Restoration Plan)

[2]Any mitigation requirement specified as an acreage amount shall be deducted from the available Credits/DSAYs at a ratio of 1 acre = 14.34 Credits/DSAYs.

APPENDIX 2

MAINTENANCE ACTIVITY LOG

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Steve Russell	01/12/16	General site inspection	erosion control/post-construction site visit
Alder Creek Project	Steve Russell	01/15/16	General site inspection	erosion control/post-construction site visit
Alder Creek Project	Steve Russell	01/28/16	Planting	
Alder Creek Project	Rogelio	1/29/2016	Planting	
Alder Creek Project	Rogelio	1/29/2016	Land Stewardship	
Alder Creek Project	Greg	1/29/2016	Monitoring Reports	
Alder Creek Project	Greg	1/29/2016	Bio Project Mgmt	
Alder Creek Project	Brian Sinclair & Land Management	02/02/16	Planting	Planting - 2/2/16 to 2/25/16
Alder Creek Project	Steve Russell	02/05/16	Planting	
Alder Creek Project	Steve Russell	02/08/16	Planting	
Alder Creek Project	Steve Russell	02/09/16	Planting	
Alder Creek Project	Steve Russell	02/11/16	Planting	
Alder Creek Project	Steve Russell	02/12/16	Planting	
Alder Creek Project	Rogelio	2/12/2016	Planting	
Alder Creek Project	Greg	2/12/2016	Planting	
Alder Creek Project	Steve Russell	02/16/16	Planting	
Alder Creek Project	Steve Russell	02/17/16	Planting	

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Steve Russell	02/19/16	Planting	
Alder Creek Project	Steve Russell	02/25/16	Planting	
Alder Creek Project	Rogelio	2/29/2016	Vegetation Mgmt	
Alder Creek Project	Greg	2/29/2016	Planting	
Alder Creek Project	GL	03/14/16	Maintenance/land management	review invasives treatment activities and seeding plan for April
Alder Creek Project	GL	03/15/16	Maintenance/land management	review invasives treatment activities and seeding plan for April
Alder Creek Project	Steve Russell & Greg Lohse	03/15/16	Maintenance/land management	planting and site maintenance
Alder Creek Project	Greg	3/15/2016	Planting	
Alder Creek Project	Steve Russell & Greg Lohse	03/25/16	Maintenance/land management	planting and site maintenance
Alder Creek Project	Greg	3/31/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Steve Russell & Greg Lohse	04/13/16	Maintenance/land management	planting and site maintenance
Alder Creek Project	Steve Russell & Greg Lohse	04/14/16	Maintenance/land management	planting and site maintenance
Alder Creek Project	Steve Russell & Greg Lohse	04/29/16	Maintenance/land management	site maintenance
Alder Creek Project	Rogelio	4/29/2016	Planting	
Alder Creek Project	Greg	4/29/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Steve Russell & Greg Lohse	05/04/16	Maintenance/land management	site maintenance
Alder Creek Project	Rogelio	5/13/2016	Equipment	

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Greg	5/13/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Greg	5/13/2016	Bio Project Mgmt	
Alder Creek Project	GL, RA, & JO	05/16/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	Steve Russell & Paul Sherman	05/16/16	General site inspection	
Alder Creek Project	GL, RA, & JO	05/17/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	JO & RA	05/18/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	JO & RA	05/19/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	JO & RA	05/20/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	Rogelio	5/31/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Greg	5/31/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Steve Russell & Paul Sherman	06/02/16	Erosion Control	
Alder Creek Project	RA & Land Management	06/13/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	RA & Land Management	06/14/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	RA & Land Management	06/15/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	Rogelio	6/15/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Greg	6/15/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	RA & Land Management	06/16/16	Maintenance/land management	invasives removal and treatment

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	RA & Land Management	06/17/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	RA & Land Management	06/18/16	Maintenance/land management	invasives removal and treatment
Alder Creek Project	Greg Lohse	06/21/16	Maintenance/land management	invasives treatment
Alder Creek Project	Steve Russell	06/21/16	Wood Product removal & Planting	goose exclusion fence maintenance
Alder Creek Project	Steve Russell	06/23/16	Erosion Control	erosion control site visit
Alder Creek Project	Steve Russell	06/28/16	Wood Product removal & Planting	
Alder Creek Project	Steve Russell	06/30/16	Wood Product removal & Planting	
Alder Creek Project	Rogelio	6/30/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Greg	6/30/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Brian Sinclair	07/11/16	Maintenance/land management	Marsh planting 7/11-716 and 7/18
Alder Creek Project	Steve Russell	07/12/16	Wood Product removal & Planting	
Alder Creek Project	Rogelio	7/15/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Steve Russell	07/18/16	Wood Product removal & Planting	goose exclusion fence maintenance
Alder Creek Project	Steve Russell	07/25/16	Wood Product removal & Planting	goose exclusion fence maintenance
Alder Creek Project	Steve Russell	07/27/16	Planting	
Alder Creek Project	Steve Russell	07/28/16	Planting	
Alder Creek Project	Steve Russell	07/29/16	Planting	

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Rogelio	7/29/2016	Erosion control	
Alder Creek Project	Rogelio	7/29/2016	Planting	
Alder Creek Project	Greg	7/29/2016	Planting	
Alder Creek Project	Steve Russell	08/02/16	Planting	
Alder Creek Project	Brian Sinclair	08/06/16	Maintenance/land management	planting and invasives removal
Alder Creek Project	Steve Russell	08/09/16	Planting	
Alder Creek Project	Steve Russell	08/10/16	Planting	
Alder Creek Project	Steve Russell	08/11/16	Planting	
Alder Creek Project	Kevin	08/15/16	Maintenance/land management	
Alder Creek Project	Greg	8/15/2016	Bio Project Mgmt	
Alder Creek Project	Brian Sinclair	08/16/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Ruben Mendoza	08/16/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Ruben Mendoza	08/17/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Ruben mendoza	08/18/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Ruben Mendoza	08/19/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Ruben Mendoza	08/20/16	Maintenance/land management	Marsh planting (8/16-8/20) (8/22-8/23)
Alder Creek Project	Steve Russell	08/22/16	Planting	

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Steve Russell	08/23/16	Planting	
Alder Creek Project	Steve Russell	08/31/16	Planting	
Alder Creek Project	Rogelio	8/31/2016	Planting	
Alder Creek Project	Greg	8/31/2016	Bio Project Mgmt	
Alder Creek Project	Roper	09/13/16	Maintenance/land management	invasives removal on 9-13 & 9-14.
Alder Creek Project	Roper	09/14/16	Maintenance/land management	invasives removal on 9-13 & 9-14.
Alder Creek Project	Steve Russell	09/16/16	General site inspection	check erosion control
Alder Creek Project	Rogelio	9/30/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Rogelio	10/14/2016	Vegetation Mgmt	invasives removal
Alder Creek Project	Rogelio	11/15/2016	Planting	
Alder Creek Project	Steve Russell	11/16/16	Planting	
Alder Creek Project	Steve Russell & Jeff Novak	11/28/16	Planting	stake-out upland planting plan
Alder Creek Project	Steve Russell & Jeff Novak	11/30/16	Planting	stake-out upland planting plan
Alder Creek Project	Rogelio	11/30/2016	Planting	
Alder Creek Project	Steve Russell & Land Management	12/06/16	Planting	upland planting
Alder Creek Project	Steve Russell & Land Management	12/07/16	Planting	upland planting

*Note: Maintenance Activity Log may not include all site visits and site activities

ALDER CREEK RESTORATION PROJECT
MAINTENANCE ACTIVITY LOG*

Site Name	Visited By (Name/Initials)	Visit Date	Primary Purpose of Visit	Notes
Alder Creek Project	Steve Russell & Land Management	12/08/16	Planting	upland planting
Alder Creek Project	Steve Russell & Land Management	12/09/16	Planting	upland planting
Alder Creek Project	Steve Russell & Land Management	12/12/16	Planting	upland planting
Alder Creek Project	Steve Russell & Land Management	12/13/16	Planting	upland planting
Alder Creek Project	Steve Russell & Land Management	12/14/16	Planting	upland planting
Alder Creek Project	Rogelio	12/15/2016	Planting	
Alder Creek Project	Rogelio	12/30/2016	Planting	
Alder Creek Project	Rogelio	12/30/2016	Equipment	

*Note: Maintenance Activity Log may not include all site visits and site activities

APPENDIX 3

INVASIVE SPECIES PLOT DATA

Alder Creek

Year 1 Invasive Species Plot Data

Data Collected: August 20, 2016

		Plot #																																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Total Absolute Vegetative Percent Cover[1]		10%	2%	15%	5%	15%	20%	5%	0%	15%	5%	3%	0%	20%	0%	0%	0%	0%	0%	0%	1%	10%	1%	1%	1%	0%	1%	1%	0%	15%	15%	10%	3%	5%	2%	10%	5%	10%	10%
Scientific Name	Common Name	Relevé Value																																					
Cirsium sp.	Bull/Canadian thistle			1		1				3				2																2		3	2	2		1	1	1	3
Conium maculatum	Poison Hemlock			2	1		1															2								3				2		1	3	3	
Crataegus monogyna	English Hawthorn	3																																					
Cytisus scoparius	Scotch Broom											3													1							1							
Dipsacus fullonum	Teasal			1		2																																	
Iris pseudocorus	Yellowflag Iris						3																																
Lythrum salicaria	Purple Loosestrife													2										1				1											
Rubus discolor	Himalayan Blackberry	2		3		2	1			3	1			3							1	1						1		2	3	2				3			3
Salsola kali	Russian Thistle		1	1	1		1																																
Tanacetum vulgare	Common Tansy					1															1	1								1					2		1	2	
Phalaris arundinacea	Reed Canarygrass	1	1	2	1	1	3	3			3			2								3	1				1			1	2					1			

		Plot #																																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Total Absolute Vegetative Percent Cover[1]		10%	2%	15%	5%	15%	20%	5%	0%	15%	5%	3%	0%	20%	0%	0%	0%	0%	0%	0%	1%	10%	1%	1%	1%	0%	1%	1%	0%	15%	15%	10%	3%	5%	2%	10%	5%	10%	10%
Scientific Name	Common Name	Absolute Percent Cover[3] (%)																																					
Cirsium sp.	Bull/Canadian thistle			0.08		0.08				2.25				0.60																0.45		1.50	0.09	0.15		0.05	0.03	0.05	1.50
Conium maculatum	Poison Hemlock			0.45	0.025		0.10															0.30								2.25				0.15		0.05	0.75	1.50	
Crataegus monogyna	English Hawthorn	1.50																																					
Cytisus scoparius	Scotch Broom											0.45													0.01							0.05							
Dipsacus fullonum	Teasal			0.08		0.45																																	
Iris pseudocorus	Yellowflag Iris						3.00																																
Lythrum salicaria	Purple Loosestrife													0.60										0.01				0.01											
Rubus discolor	Himalayan Blackberry	0.30		2.25		0.45	0.10			2.25	0.03			3.00							0.01	0.05						0.01		0.45	0.45	0.30				1.50			1.50
Salsola kali	Russian Thistle		0.01	0.08	0.025		0.10																																
Tanacetum vulgare	Common Tansy					0.08															0.01	0.05								0.08					0.06		0.03	0.30	
Absolute Percent Cover[3] of invasive species excluding Reed Canarygrass (%)		**1.80**	**0.01**	**2.93**	**0.05**	**1.06**	**3.30**	**0**	**0**	**4.50**	**0.03**	**0.45**	**0**	**4.20**	**0**	**0**	**0**	**0**	**0**	**0**	**0.02**	**0.40**	**0**	**0.01**	**0.01**	**0**	**0**	**0.02**	**0**	**3.23**	**0.45**	**1.85**	**0.09**	**0.30**	**0.06**	**1.60**	**0.80**	**1.85**	**3.00**

Absolute Percent Cover[3] of Reed Canarygrass (%)																																							
Phalaris arundinacea	Reed Canarygrass	**0.05**	**0.01**	**0.45**	**0.03**	**0.08**	**0.6**	**0.75**	**0**	**0**	**0.75**	**0**	**0**	**0.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.5**	**0.01**	**0**	**0**	**0**	**0.01**	**0**	**0**	**0.08**	**0.45**	**0**	**0**	**0**	**0**	**0.05**	**0**	**0**	**0**

Notes:

[1] Total Absolute Vegetative Percent Cover is the percent of the plot area covered by vegetation including all native, non-native, and invasive species.

[3] Relevé Value is the value representing a percent cover range assigned in the field to each species to identify the percent of the Total Absolute Vegetative Cover represented by an individual species.

[3] Absolute Percent Cover is the Midpoint Value (converted from the Relevé Value [3]) multiplied by the Total Absolute Vegetative Percent Cover [1]

Example Calculation:

1) If the Total Absolute Vegetative Percent Cover is 10% and a species is identified with a Relevé Value of **2**, the Relevé Value is converted to the Midpoint Value of 3% using the Relevé Value Key.

2) 3% of 10% equals an Absolute Percent Cover of 0.3% of the total sample plot area.

Relevé Value Key

Relevé Value[2]	% cover range	Midpoint value
1	>0% and ≤1%	0.50%
2	>1% and ≤5%	3%
3	>5% and ≤ 25%	15%
4	>25% and ≤50%	38%
5	>50 %and ≤75%	63%
6	>75% and ≤95%	85%
7	> 95%	98%

APPENDIX 4

PERFORMANCE STANDARD TABLE

ALDER CREEK YEAR 1 PERFORMANCE STANDARDS

Performance Standard	Documentation/Monitoring Method	Monitoring Result 2016
Geomorphic/Structural/Habitat Complexity Elements		
During years 1, 3, 5, 7, 10, topographic surveys will be completed once a year after the wet season to document changes in site topography and structural habitat features. The following changes would trigger a project review to determine what, if any, adaptive management actions are necessary: • Changes of more than 10% in ACM and side channel habitat acreages from the as-built surveys. • Changes of more than 20% in side channel depths from the as-built surveys.	Topographic surveys will include collecting topographic readings along the 5 pre-selected, permanent monitoring transects. Channel depths will be measured from the OHWM.	Steve Russell and Keith Brown, Wildlands, collected topographic data along the 5 pre-selected, permanent monitoring transects. The results are depicted as Figures 6a-e in the Year 1 monitoring report. **Under Threshold** – Figures 6b and 6c compare the as-built topography to the Year 1 topography along the 5 pre-determined transects. Based on the topographic information collected along the five transects, it is estimated that the change in both the ACM acreage and the side channel acreage is less than 1%. **Under Threshold** – Figures 6d and 6e compare the as-built channel depths to the Year 1 channel depths. The average percent change in channel depth was 4.5%, although at least some of that variation was likely due to issues in collecting the data in water along a pre-determined transect.
Annual inspection to document any fish barriers.	After the wet season a visual inspection will be made to document any barriers that prevent fish from entering or exiting the site. If a fish barrier is identified, the Trustee Council will be notified within three (3) business days of discovery.	**Met** - Several visual inspections and aerial photos were used to determine that there are no fish barriers in the created channels.

Performance Standard	Documentation/Monitoring Method	Monitoring Result 2016
Geomorphic/Structural/Habitat Complexity Elements		
Aerial photos of the site will be collected once during later summer during years 1, 3, 5, 7, 10.	The aerial photos will be included in the monitoring report.	**Met** – Aerial photos were taken of the site several times throughout the year, and the late-summer photo was included in the monitoring report (Figure 4b).
Water level data loggers will be placed at a minimum of two locations and continuous data will be collected, as feasible. If determined that continuous monitoring is not feasible, an alternative monitoring schedule will be determined in consultation with the Trustee Council representatives.		For reasons stated in Section IV.A.3, Wildlands used the USGS station at Columbia Slough which is located approximately 2 miles downriver of the Project site. This station has been determined to accurately and reliably provide a published record of the conditions and water levels at the Alder Creek site at 15-minute intervals. The results were depicted on Figure 7 of the Year 1 monitoring report.
Vegetation		
Reed Canarygrass • Years 1-5: ≤ 30% reed canarygrass	In Years 2, 3, 4, 5, 7, and 10 reed canarygrass cover will be assessed at each plot and be kept separate from other native and invasive species cover analyses. The reed canarygrass cover values at each plot will be added together and averaged over the site to evaluate the reed canarygrass performance standard. The 38 permanent vegetation plots were established in Year 1 and marked at each of the four corners.	**Met** – Average cover of reed canarygrass within the 38 plots was less than 1.00%. A secondary assessment which consisted of Wildlands' biologists walking the entire site and recording percent cover of reed canarygrass as polygons was also conducted (see Figure 8). The majority of the site had less than 1% or between 1 and 5% cover of reed canarygrass with a few areas showing 10-15% cover. Overall, the percent cover across the site for Year 1 was estimated to be below 5%.
Zero-Untreated Species All individual plants of the following species will be treated within the year in which they are found, during the season that is most		**Met** – The entire site was walked to locate any species on the "zero-untreated" list. During Year 1, purple loosestrife and yellow flag iris were detected in a few areas on the site (see Figure 8 for general location). All

Performance Standard	Documentation/Monitoring Method	Monitoring Result 2016
Geomorphic/Structural/Habitat Complexity Elements		
effective for control with reasonably aggressive, legal treatment with the goal of complete eradication: • Japanese knotweed • Giant knotweed • Himalayan knotweed • Yellow flag iris • Butterfly bush • Purple loosestrife		instances of these species were treated. No knotweed or butterfly bush was found.