EXECUTIVE SUMMARY

PROJECT NAME: Cubes Self Storage

CLIENT: Gramor Development WA LLC, Mr. David Pruin

SITE LOCATION: The Cubes Self Storage project area is a 3.6-acre parcel located at 17414 State Route 527 in the City of Mill Creek, Washington. The Snohomish County Tax Parcel number for the site is 27050700401300. The Public Land Survey System location of the parcel is the SE ¼ of Section 7, T27N, R5E, Willamette Meridian.

PROJECT STAFF: Bill Shiels, Principal; Ann Olsen, Senior Project Manager; David R. Teesdale, PWS, Senior Wetland Ecologist; Jennifer M. Marriott, PWS, Senior Ecologist; and Kristen Numata, Ecologist.

FIELD SURVEY: 27 May 2016 and 4 May 2018

DETERMINATION: One wetland (Wetland A) was identified within the project area. Wetland A is part of a larger wetland complex associated with North Creek that extends offsite to the west. The on-site portion of Wetland A is 36,733 square feet (sf). Wetland A is rated as a Category II wetland per Mill Creek Municipal Code (MCMC) §18.06.910, and requires a standard 100-foot buffer with a low impact land use per MCMC §18.06.930.B.

HYDROLOGY: Hydrology for Wetland A on-site is supported by groundwater and precipitation.

SOILS: The Natural Resources Conservation Service (NRCS) identifies two soil map units within the project site: Everett very gravelly sandy loam, 0-8% slopes and 8-15% slopes. The Everett soil series is not listed as hydric by the National Technical Committee on Hydric Soils. A third soil, Mukilteo muck, is identified off-site to the west and is listed as a hydric soil.

VEGETATION: Vegetation within the onsite portion of Wetland A is dominated by native deciduous species such as willow, black cottonwood, and red alder, as well as lady fern and salmonberry. Extensive patches of invasive species occur throughout the wetland, including reed canarygrass, creeping buttercup, yellow archangel, and Himalayan blackberry. The remainder of the Site (approximately 70%) is developed as a landscape plant nursery and has little native vegetation. The majority of the buffer on-site is developed with pre-existing non-conforming uses. The remaining undeveloped and vegetated buffer is still heavily disturbed by past and current land uses.

PROPOSED PROJECT: Gramor Development WA, LLC plans to develop the Site with an approximately 90,000 sf self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities. The proposed project will reduce the developed footprint of the site from 2.46 acres to 1.84 acres.

ASSESSMENT OF DEVELOPMENTAL IMPACTS: The site has been engineered to minimize impacts to critical areas. No direct impacts to Wetland A are proposed with this Project. Buffer encroachments are being proposed for Wetland A that are consistent with the provisions of MCMC §18.06.430 (reasonable use). The proposed development will encroach upon the standard buffer of the wetland in order to provide sufficient area for the proposed development and required stormwater detention facility.

PROPOSED MITIGATION: The project proposes a combination of wetland enhancement and buffer restoration and enhancement to compensate for the proposed buffer encroachment. These mitigation efforts will dramatically improve the buffer functions and values from the existing condition. The proposed mitigation will result in a net gain in critical area functions and values compared to existing conditions. The total mitigation consists of:
Wetland Enhancement: 36,733 sf
Buffer Restoration from Pre-Existing Impacts: 27,889 sf
Buffer Enhancement: 11,889 sf

Critical Area Protection: All post-construction wetland and buffer areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.

Performance Monitoring: All mitigation areas will be monitored and maintained for a minimum of 5 years to ensure goals, objectives, and performance standards are met.

Performance Security: A performance security device shall be secured by the applicant to ensure that all mitigation work is completed according to the approved plans. A separate performance security device shall also be secured to ensure monitoring and maintenance is carried out as specified in the approved mitigation plan for the duration of the monitoring period.
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   Sheet W3.0: Plant Community Plan & Preliminary Plant List
CHAPTER 1. INTRODUCTION

1.1 Report Purpose
This report is the result of a critical areas study for the Cubes Self Storage project (referred to hereinafter as Project Site or Site). The Site is located on the west side of SR-527 south of 173rd St SE in Mill Creek, Washington (Figure 1). The Applicant (Gramor Development WA, LLC) proposes to develop the Site with a public storage facility. The purpose of this report is to: 1) identify, categorize, and describe existing site conditions, such as wetlands, streams, or other critical habitats and their respective buffers, 2) describe potential impacts to critical areas resulting from the proposed development, and 3) describe a mitigation plan to offset impacts to critical areas or their buffers. The report has been prepared to comply with the requirements of Mill Creek Municipal Code (MCMC) §18.06 – Environmentally Critical Areas.

This report will provide and describe the following information:
- General property description;
- Methodology for critical areas investigation;
- Results of critical areas background review and field investigation;
- Regulatory review;
- Description of the proposed project;
- Assessment of project impacts to critical areas; and
- Proposed mitigation plan.

1.2 Statement of Accuracy
Critical areas characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

CHAPTER 2. GENERAL PROPERTY DESCRIPTION AND LAND USE

2.1 Project Location
The Cubes Self Storage property is a trapezoid-shaped 3.6-acre parcel. The Site address is 17414 Bothell-Everett Highway in the City of Mill Creek. The Snohomish County Tax Parcel number for the Site is 27050700401300. The Public Land Survey System Location of the parcel is the NW ¼ of the SE ¼ of Section 7, T27N, Range 5E, Willamette Meridian.

2.2 General Property Description
The Site is currently developed as a landscape plant nursery with associated outbuildings and parking. The topography of the Site is sloped from the east to the west. The eastern approximately ½ of the Site appears to be graded and level. Additional grading and artificially level ground exists along the north property line extending from the toe-of-slope of the eastern ½ westward to the Site’s northwestern property corner. The relatively steep slopes of the areas of apparent filling and grading lead down to more gently-sloped undisturbed land located in the southwestern ¼ of the Site. The property is bound on the east side by SR-527 and on the west side by North Creek Park.

Surrounding properties are developed as single-family residences, commercial properties farther north and south, and North Creek Park to the west.
2.3 Land Use and Zoning
Future growth within City limits is guided by the Land Use map and policies established within the City of Mill Creek Comprehensive Plan 2015 (Mill Creek 2015). According to this document the Site is zoned as Business Park (BP) and must conform to certain criteria contained within the document. Properties in the vicinity of the Project Site are developed as business offices or low-density single-family residences. A few of the properties in the vicinity of the Project Site are undeveloped.

CHAPTER 3. METHODOLOGY

The critical areas analysis of the Site involved a two-part effort. The first part consisted of a preliminary assessment of the Site and the immediate surrounding area using existing published environmental information. This information includes:

1) Wetland and soil information from resource agencies;
2) Critical areas map information from Snohomish and the City of Mill Creek;
3) Orthophotography;
4) LiDAR terrain data;
5) Priority Habitat and Species information from WDFW and other resource agencies; and
6) Relevant studies completed or on-going in the vicinity of the Site.

The second part consisted of site investigations where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, hydrology, and stream conditions. This information was used to help characterize the site and define the limits of critical areas on-site and offsite for regulatory purposes (see Section 3.2 - Field Investigation below).

3.1 Background Data Reviewed
Background information from the following sources was reviewed prior to field investigations:

- US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory) (www.wetlandsfws.er.usgs.gov/wtlns/launch.html, 2018);
- Natural Resources Conservation Service, Web Soil Survey (www.websoilserve.nrcs.usda.gov/app/, 2018);
- Natural Resources Conservation Service, National Hydric Soils List by State (www.soils.usda.gov/use/hydrict/lists/state.html);
- City of Mill Creek Comprehensive Plan (City of Mill Creek 2015);
- Snohomish County GIS Database (Snohomish County 2018);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Database on the Web (2018) (http://wdfw.wa.gov/mapping/phs/); and
- Washington Department of Natural Resources (WDNR) Natural Heritage Database (2018).

3.2 Field Investigation
The Site has been evaluated by Talasaea Consultants on 27 May 2016 and 4 May 2018.

The wetland delineation utilized the routine approach described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (U.S. Army Corps of Engineers, 2010). Wetlands were classified according to MCMC §18.06.910.

Plant species were identified according to the taxonomy of Hitchcock and Cronquist (Hitchcock, et al. 1969). Taxonomic names were updated and plant wetland status was assigned according to North American Digital Flora: National Wetland Plant List, Version 3.3 (Lichvar, et al. 2016).
Wetland classes were determined using the U.S. Fish and Wildlife Service’s system of wetland classification (Cowardin, et al. 1979). Vegetation was considered hydrophytic within a suspected wetland area if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (i.e., facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps regional supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to; drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historical records, visual observation of saturated soils, and visual observation of inundation.

Soils on the Site were considered hydric if one or more of the hydric soil indicators listed in the Corps Regional Supplement were present. Indicators include: presence of organic soils, reduced, depleted or gleyed soils, or, redoximorphic features in association with reduced soils. Determination of hydric soil conditions typically involves the comparison of soil colors to standardized Munsell Soil Color chips (Munsell Color 1988). It is important to note that the lack of a hydric soil indicator does not equate to the lack of a hydric soil. There is only a positive association between hydric soil indicators and the presence of hydric soils. Additional documentation may be necessary in circumstances where the presence or absence of hydric soils may determine the outcome of a wetland delineation.

An evaluation of the vegetation, soils, and hydrology was made along the interface of wetland and upland. Wetland boundary points were then determined from this information and marked with flagging and surveyed. Appendix A contains data forms prepared by Talasaea for vegetation, soils, and hydrology information that aided in the wetland boundary determination.

CHAPTER 4. RESULTS

This section describes the results of our background research and field investigation. For the purpose of this report, the term “vicinity” describes an area approximately 300 feet around the Project Site.

4.1 Analysis of Existing Information

The following sources provided information on site conditions based on data compiled from resource agencies and local government:

4.1.1 USFWS Wetlands Online Mapper (National Wetlands Inventory)
The National Wetlands Inventory (NWI) identifies one large, approximately 89-acre freshwater emergent, seasonally flooded, wetland (PEM1C) occurring adjacent to the western property boundary (Figure 2). Pockets of other wetland types occur in the broad area, but are all part of this same large, wetland complex. This wetland extends off-site to the north and south as part of North Creek Park.

4.1.2 Natural Resources Conservation Service Web Soil Survey
The NRCS identifies two soil map units within the Project Site: Everett very gravelly sandy loam, 0-8% slopes and 8-15% slopes (Figure 3). The Everett soil series is not listed as hydric by the National Technical Committee for Hydric Soils. Mukilteo muck is identified off-site to the west and is considered to be a hydric soil.

4.1.3 Snohomish County GIS Database
Snohomish County does not map any wetlands on the subject property, but identifies a freshwater emergent wetland to the west consistent with the NWI mapping.
4.2 Analysis of Existing Site Conditions

One (1) wetland (Wetland A) was identified on the Project Site (Sheet W1.0 in Appendix D). No streams were identified on, or in the vicinity of, the Site.

4.2.1 Wetland A

Wetland A is a large wetland that extends off-site to the west, north, and south. The on-site portion of Wetland A is a small area of palustrine forested wetland (PFO) and palustrine emergent (PEM) located along the west and south sections of the Site (Photo 1). The on-site portion of Wetland A is approximately 36,733 sf. The forested vegetation includes black cottonwood (Populus balsamifera), red alder (Alnus rubra), and Sitka willow (Salix sitchensis). Scrub-shrub vegetation includes salmonberry (Rubus spectabilis) and black twinberry (Lonicera involucrata). Emergent vegetation includes lady fern (Athyrium filix-femina), reed canarygrass (Phalaris arundinacea), creeping buttercup (Ranunculus repens), and field horsetail (Equisetum arvense). Invasive species include reed canarygrass, yellow archangel (Lamium galeobdolon), creeping buttercup, and Himalayan blackberry (Rubus armeniacus).

Wetland A was rated and classified on 17 May 2017 by Sound Ecological Endeavors pursuant to the requirements of MCMC §18.06.910 using the Washington State Wetland Rating System for Western Washington (Hruby, 2014). Wetland A met the criteria for classification as a Category II wetland. The wetland rating form prepared by Sound Ecological Endeavors is included as Appendix B.


4.2.2 Wetland A Buffer

The buffer for Wetland A is heavily disturbed with pre-existing non-conforming structures, as well as cleared areas and an access road (Sheet W1.0, Appendix D). The Site is developed with a landscape plant nursery, as well as several outbuildings including sheds and an abandoned greenhouse.

There is little native vegetation present throughout the wetland buffer. The only area dominated with native vegetation is located southeast of Wetland A. Native vegetation includes black
cottonwood, red alder, red elderberry (Sambucus racemosa), and Sitka mountain ash (Sorbus sitchensis). Invasive vegetation present in the wetland buffer includes Himalayan blackberry, reed canarygrass, evergreen bugloss (Anchusa arvensis), and yellow archangel.

CHAPTER 5. REGULATORY REVIEW

5.1 City of Mill Creek Regulations
Wetlands on the project site are subject to the City of Mill Creek critical areas regulations under MCMC §18.06 Environmentally Critical Areas. Wetland buffers are determined based on the wetland rating and proposed land use intensity. Category II wetlands with low impact land uses proposed have a 100-foot standard buffer. Mill Creek only identifies low impact and high impact land use for establishing prescriptive buffers.

5.2 State and Federal Regulations
Wetlands and streams on the Site are subject to applicable State and Federal regulations. Wetland impacts are regulated at the Federal level by Sections 404 and 401 of the Clean Water Act. The U.S. Army Corps of Engineers (Corps) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands under Corps jurisdiction. Any project that is subject to Section 404 permitting is also required to comply with Section 401 Water Quality Certification, which is administered by the Washington State Department of Ecology (WDOE). No direct impacts to wetlands or streams are proposed for the current site development plan. Therefore, the project will not need to apply for any Section 404 Nationwide or Individual Permits or Section 401 Water Quality Certification.

CHAPTER 6. PROJECT DESCRIPTION

6.1 Project Description
Gramor Development WA, LLC plans to develop the Site with an approximately 90,000 sf self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities (Sheet W1.1, Appendix D). The proposed project will reduce the developed footprint of the site from 2.46 acres (existing conditions) to 1.84 acres.

6.2 Stormwater Treatment Design
The stormwater management system proposed for the project will collect and treat all runoff generated from impervious surfaces onsite before being conveyed into a detention pond. Clean roof runoff will enter the detention pond directly. Water will exit the detention pond through a dispersion trench uphill from the Wetland A boundary along the north side of the property. The proposed stormwater treatment system has been designed to meet or exceed the stormwater requirements as required by the City of Mill Creek, which is currently using the February 2012 DOE Stormwater Management Manual for Western Washington, as amended in 2014. Ensuring that all runoff from the new impervious surfaces is treated by the proposed stormwater system, the water entering Wetland A will be relatively clean and will be an improvement compared with existing conditions.

6.3 Assessment of Development Impacts
The site has been engineered to minimize impact to critical areas to the extent practicable. No direct impacts to Wetland A are proposed with this Project. However, the Project is proposing reasonable use for the property as allowed per MCMC §18.06.430. The following discussion represents code in MCMC §18.06.430.
An exception to the provisions of this chapter may be considered by the hearing examiner if application of this chapter would deny all reasonable use of the subject property and upon showing by the applicant all of the following elements:

A. **The proposed activity will result in minimal alteration of existing conditions, contours, vegetation, fish and wildlife resources, hydrological conditions, and geologic conditions and will have a minimal effect on critical area functions;**

The existing condition of the Site, including almost the entire wetland buffer, is heavily disturbed as it's actively used as a landscape plant nursery. Greenhouses, access roads, equipment storage, and other structures occur within the buffer. Additionally, many areas of the buffer that are not covered by structures or parking areas have had much of the native vegetation removed. What vegetation is present is primarily invasive species. While no grading is proposed within the wetland, clearing and grading will take place as part of the buffer restoration and enhancement plan. Grades will generally be maintained in the portion of the property that includes the self-storage building and associated parking. The Project design includes measures to maintain and/or improve water quality and quantity control (detention) so that fish and wildlife resources as well as hydrological conditions will not be impacted. Full dispersion of stormwater to the wetland will ensure that there will be no net loss of hydrology from the Site. Habitat conditions will be improved by removing derelict structures in the buffer, along with removal of invasive plant species and replanting with native trees and shrubs. In summary, the proposed project would result in a net improvement to the condition of the wetland and associated buffer both on- and off-site.

B. **The proposed activity will not jeopardize the continued existence of endangered, threatened, sensitive, or monitored species as listed by the federal or state government;**

There are no known endangered, threatened, sensitive, or monitored species occurring on or using the Site. However, listed salmonid species are known to use North Creek, which is off-site to the west and is associated with the greater wetland complex of which the on-site wetland is a part. The proposed development will result in a substantial improvement in water quality for runoff leaving the Site and will help support habitat conditions vital to Federally- and State-listed threatened or endangered salmonids using North Creek.

C. **The proposed activity will not cause material degradation of habitat, ground water or surface water quality;**

The proposed project would be a net improvement to on-site habitat, groundwater, and surface water through removal of much of the existing impervious surfaces and derelict buildings on the western half of the Site, incorporation of all site runoff into the proposed stormwater facility for treatment prior to discharging the runoff into the wetland, and full restoration and enhancement of the on-site buffer remaining post-development.

D. **The proposed activity will comply with all local, state, and general laws, including those related to environmental protection, sediment control, pollution control, floodplain restrictions, and on-site wastewater disposal;**

All applicable Local, State, and Federal laws pertaining to environmental protection, sediment and pollution control, and on-site wastewater disposal will be followed. No floodplain restrictions exist on the property as no floodplain is mapped on-site. Any floodplain protections provided by the wetland on-site will be protected through the enhancement and preservation of the wetland and adjacent buffers.
E. There will be no damage to public or private property and no threat to the public or safety of people on or off the site; and

The proposed project will not harm public or private property and will not pose a threat to the public or safety of the public.

F. The inability to derive reasonable economic use of the property is not the result of actions by the applicant in segregating or dividing the property and/or adding to the undevelopable condition.

The inability to derive reasonable economic use of the property is the result of its landscape position adjacent to the large North Creek complex. While the majority of the property is well above the wetland, in terms of elevations, the wetland itself rates quite high because of its large, complex nature. Wetlands that are rated high have correspondingly larger buffers compared to lower-rated wetlands. In this instance, the standard buffer for a Low Intensity Land Use encumbers most of the Site. None of these reasons are a result of the actions of the Applicant.

CHAPTER 7. PROPOSED MITIGATION

7.1 City of Mill Creek Policies and Guidance

The mitigation proposed for critical areas impacts is in accordance with the following:

- MCMC §18.06, Environmentally Critical Areas.
- Stormwater BMPs as defined in MCMC Chapter 15.14 Surface Water Management Program.

7.2 Mitigation Sequencing

The design of the proposed project employs mitigation sequencing as required by MCMC §18.06.610. The requirements of this chapter state the following:

“A. When an alteration to a critical area is proposed, the applicant shall first demonstrate that all reasonable efforts have been taken to avoid or minimize impacts in that order (consistent with MCMC 18.06.210).

B. Unless otherwise provided in this chapter, compensatory mitigation shall be provided for all unavoidable alterations of a critical area or buffer in accordance with an approved critical area report and mitigation plan, and consistent with best available science, to ensure no net loss of critical area functions and values. Mitigation shall not be implemented until final city approval of the critical area report and a mitigation plan prepared in accordance with MCMC 18.06.530 and 18.06.620 is granted.

C. Mitigation shall be in-kind and on-site whenever possible. The director may approve exceptions to this requirement for proposals prepared in accordance with the innovative mitigation standards in MCMC 18.06.640.

D. All areas at which mitigation is performed shall be permanently protected and managed to avoid degradation and ensure protection of critical area functions and values into perpetuity. Permanent protection shall be achieved through deed restriction or other protective covenant in accordance with MCMC 18.06.820. Management shall be specified in a manner acceptable to the director. (Ord. 2004-603 § 2)"

Avoiding Impacts: The proposed project has been designed to avoid impacts to on-site critical areas and buffers to the maximum extent practicable, while still allowing for an economically
viable development that meets all code requirements. No direct impacts to any wetlands are proposed. However, the wetland buffer is proposed to be modified.

**Minimizing Impacts:** The proposed project has also been designed to minimize impacts to on-site critical areas to the maximum extent practicable. The buffer encroachment is necessary in order to achieve a site plan that will function and be economically viable while minimizing the impacts to onsite buffers. The proposed development will reduce the footprint of developed areas from 2.45 acres (existing) to 1.84 acres (proposed), in effect giving back approximately 0.61 acres as restored buffer. The areas of proposed mitigation will be permanently protected, with critical area fencing and signage to clearly identify those preserved critical areas.

### 7.3 Proposed Mitigation
The project proposes a combination of several different mitigation measures intended to compensate for buffer functions and values lost through buffer width encroachment. The project is proposing a combination of buffer restoration and enhancement, wetland enhancement, and by providing an overall reduction in the developed footprint on the Site. The proposed mitigation will result in a net gain in critical area functions and values compared to existing conditions. The total mitigation proposed consists of (Sheet W1.1, Appendix D):

- **Wetland Enhancement:** 36,733 sf
- **Buffer Restoration from Pre-Existing Impacts:** 27,889 sf
- **Buffer Enhancement:** 11,889 sf

The proposed mitigation measures are described in more detail below. The Project is proposing to modify the buffers through requesting a reasonable use exception for the property as allowed per MCMC §18.06.430.

#### 7.3.1 Buffer Restoration
Large areas of the buffer are currently developed with greenhouses, parking areas, equipment storage areas, and other elements of a built environment. These areas will undergo extensive efforts to clear all derelict structures, trash, and debris, including the removal of any invasive plant species. Restoration measures will include amending soils following grading per civil plans with a minimum of 9-inches of high-quality topsoil, stabilizing all bare-soil areas with three (3) inches of bark mulch, and replanting with a variety of native evergreen and deciduous trees and shrubs. Removal of contaminated soils will be completed as necessary, based on studies performed by others. This area will be regraded as part of the site development, and restoration efforts will be done on the final post-development grades.

In addition, large woody debris including down logs and stumps will be placed in the restored buffer to provide habitat complexity that is lacking in the existing conditions.

#### 7.3.2 Buffer Enhancement
The Project will enhance the remaining sections of wetland buffer where native plants exist through removal of the numerous invasive species present and replanting with a variety of native evergreen and deciduous trees and shrubs.

#### 7.3.3 Wetland Enhancement
The on-site portion of Wetland A will be enhanced through the removal of invasive plant species present and replanting with a variety of native evergreen and deciduous trees and shrubs. Particular care will be taken to address the yellow archangel present, as well as to cut back the reed canarygrass and overplant with fast-growing trees and shrubs.
7.3.4 Critical Area Protection
All post-construction wetland and buffer areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.

7.3.5 Standard Mitigation Measures
Standard mitigation measures as outlined by the Department of Ecology will be implemented on the Site to further reduce the risk of long-term impacts to critical areas resulting from the proposed development.

- Directing lights away from the wetland;
- Locating noise-generating activities away from the wetland;
- Ensuring that toxic runoff from parking lots, roads, or landscaping (herbicides and pesticides) do not run into the wetland;
- Use fencing or dense vegetation along the buffer edge to prevent human or pet intrusions into the buffer,
- Best Management Practices for dust; and,
- Remove nonnative plants and replace with approved native vegetation, to be bonded and monitored for five years with an 80% survival of plantings.

Table 1. Standard Mitigation Measures

<table>
<thead>
<tr>
<th>Examples of Disturbances</th>
<th>Measures to Minimize Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights</td>
<td>The buffer will be separated from the development by a retaining wall and dense plantings of native vegetation. Lighting will be placed so that illumination is directed away from the wetland buffer.</td>
</tr>
<tr>
<td>Noise</td>
<td>Noise-generated tasks will be directed away from the wetland buffer.</td>
</tr>
<tr>
<td>Toxic Runoff</td>
<td>No pesticides or herbicides will be used within 100 feet of the wetland (the use of herbicides to control non-native, invasive species in the course of routine mitigation monitoring and maintenance will be allowed). Road runoff will be collected and transferred to the project’s on-site stormwater treatment and detention facility. No direct discharge of road runoff or untreated stormwater runoff into the wetland buffer will be possible.</td>
</tr>
<tr>
<td>Stormwater runoff</td>
<td>No untreated stormwater runoff into the wetland buffer will occur. Untreated and treated water will be routed to the on-site stormwater pond. The outfall from the stormwater pond will discharge into the wetland buffer through an engineered dispersion trench located within the wetland buffer uphill from the wetland.</td>
</tr>
<tr>
<td>Change in Water Regime</td>
<td>The water regimes for the on-site wetland will not significantly change.</td>
</tr>
<tr>
<td>Pets and Human Disturbances</td>
<td>The wetland and buffer will be separated from the development by a retaining wall that will naturally preclude access into the critical areas.</td>
</tr>
</tbody>
</table>
### 7.4 Mitigation Design Elements

#### 7.4.1 Planting
Plant species have been chosen for a variety of qualities, including: adaptation to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values. Native tree and shrub species have been chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the mitigation areas to wildlife for food and cover. Planting will be planned to occur during the dormant season (late fall, winter, or early spring) to maximize the chances for successful plant establishment and survival.

#### 7.4.2 Habitat Features
Down logs and stumps will be incorporated into the buffer mitigation areas to provide ecologically important habitat features for wildlife. All down woody material shall be coniferous species (western red cedar, Douglas fir, western hemlock, or Sitka spruce) imported to the project Site. Down logs and stumps provide the slow release of nutrients as the wood decays, and also provide cover for amphibians, small mammals, and other wildlife.

#### 7.4.3 Irrigation
Planting shall occur between November to February to take advantage of seasonal plant dormancy. All plants shall be watered immediately upon being installed. Plants may need supplemental watering during the first one or two seasons after planting during the dry season (generally June 15th to October 15th). Plants shall be monitored for drought stress, and if supplemental watering is required, it can be provided manually using a water truck. The need to install a temporary irrigation system will be determined at a later date. Watering shall occur at a minimum rate of one inch per week during the dry season.

#### 7.4.4 Critical Area Protection
All post-construction critical areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.

<table>
<thead>
<tr>
<th><strong>Dust</strong></th>
<th>Chain-link fencing will be placed at the top of the retaining wall for additional protection.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degraded Buffer Condition</strong></td>
<td>Ultimate build out conditions will include landscaped areas with groundcover (grass) and paved parking areas that will be regularly cleaned. During construction, water will be used to maintain low dust levels. Temporary seeding or mulching along, with silt fencing and interceptor swales will also be used per the project SWPPP in order to reduce dust and runoff contamination.</td>
</tr>
<tr>
<td><strong>Degraded Buffer Condition</strong></td>
<td>Non-native plants will be removed from the degraded portions of the buffer where pre-existing non-conforming uses exist. These areas will be replanted with native trees and shrubs as outlined within the Mitigation Plan in the following sections. These restored areas will be monitored for a minimum of five (5) years.</td>
</tr>
</tbody>
</table>
7.5 Mitigation Goals, Objectives, and Performance Standards

The primary goal of the mitigation project is to replace the functions and values lost through development impacts to the buffer for Wetland A. In order to accomplish this goal, the proposed mitigation plan will accomplish the following:

- Wetland Enhancement: 36,733 sf
- Buffer Restoration from Pre-Existing Impacts: 27,889 sf
- Buffer Enhancement: 11,889 sf

The success of the above mitigation actions will be evaluated based upon specific objectives and performance standards including invasive species removal and creating species diversity. Objectives and performance standards will be included in the final mitigation plan. Each objective will include one or more measurable performance standards. All mitigation areas will be monitored and maintained for a minimum of 5 years to ensure all goals, objectives, and performance standards are met.

Mitigation actions will be evaluated through the following objectives and performance standards. See Chapter 8.3 for a description of the monitoring methods that will be used to evaluate the approved performance standards.

**Objective A:** Restore and enhance the habitat structure and plant species diversity in the buffer restoration and enhancement areas. Enhancement areas already contain a native canopy, but will require restoration of the understory after removal of invasive species.

**Performance Standard A1:** At least 4 species of desirable native plants will be present in the buffer restoration areas combined during each year of the monitoring period.

**Performance Standard A2:** Percent survival of all planted woody species must be at least 100% at the end of Year 1 (per contractor warranty), and at least 80% for each subsequent year of the monitoring period.

**Performance Standard A3:** Coverage of native woody species will be 10% at the end of Year 1, 20% at the end of Year 2, and 30% at the end of Year 3. Woody coverage may be comprised of both planted, existing, and recolonized native species; however, to maintain species diversity, at no time shall a recolonized species (e.g., red alder) comprise more than 35% of the total calculated aerial woody coverage.

**Objective B:** Limit the amount of invasive and exotic species within the on-site wetland and wetland buffer restoration areas.

**Performance Standard B1:** After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels of 10% or less total cover throughout the mitigation areas. These species include, but are not limited to: Scat’s broom, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed, and creeping nightshade.

**Objective C:** Increase the overall habitat functions of the post-development Wetland A enhanced buffers by incorporating habitat features (i.e., snags with bird nest boxes, down logs, rootwads, and stumps) into the buffer enhancement and restoration areas.

**Performance Standard C1:** After construction and for the entirety of the monitoring period, the enhanced buffer area for Wetland A will contain at least 15 habitat features,
including down woody material (logs, rootwads, stumps etc.) and snags with swallow nest boxes.

7.6 Construction Sequencing
The following provides the general sequence of activities anticipated to be necessary to complete this project. Some of these activities may be conducted concurrently as the project progresses.

1. Hold pre-construction meeting between the Contractor, Owner, City staff, and Environmental Consultant to review the work areas, clearing limits, and scope of work.
2. Survey and flag clearing limits/work area limits and critical area buffers.
3. Obtain approval of clearing limits from City and Environmental Consultant.
4. Install silt fencing and/or tree/vegetation protection fencing at clearing limits.
5. Install other erosion control BMPs per the TESC plan.
7. Restore soils in buffer mitigation areas (install topsoil or organic soil amendments, includes the removal of contaminated soils as determined to be necessary by others).
8. Mulch all cleared/graded/disturbed soil areas in mitigation areas.
9. Install plant material as indicated on the mitigation planting plan.
10. Complete site cleanup and install critical area fence and signs.

CHAPTER 8. MONITORING PLAN

8.1 Monitoring Schedule
Performance monitoring of the mitigation areas will be conducted according to all applicable code/regulatory requirements and permit conditions. MCMC 18.06.630 outlines the basic requirements for monitoring for the City of Mill Creek. Monitoring will occur for a minimum of five years, and will be conducted according to the schedule presented in Table 2 below. Monitoring will be performed by a qualified biologist or ecologist.

Table 2. Projected Schedule for Performance Monitoring and Maintenance Events

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Maintenance Review</th>
<th>Performance Monitoring</th>
<th>Report Due to Agencies</th>
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<tr>
<td>5</td>
<td>Fall</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

*Obtain final approval to facilitate bond release from the City of Mill Creek (presumes performance criteria are met).
8.2 Monitoring Reports
Each monitoring report will adhere to the requirements of MCMC 18.06.630 and will also utilize the Corps document titled Annual Monitoring Report Format Requirements (USACE Regulatory Guidance Letter No. 08-03, OCT 2008). The reports will include:

1. Project Overview;
2. Requirements;
3. Summary Data;
4. Maps and Plans; and
5. Conclusions.

If the performance criteria are met, monitoring will cease at the end of year five, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

8.3 Monitoring Methods
The following monitoring methods will be used to evaluate the approved performance standards.

8.3.1 Methods for Monitoring Vegetation Establishment
Vegetation monitoring methods may include plant counts; photo-points; random sampling; sampling plots, quadrats, or transects; stem density; visual inspection; and/or other methods deemed appropriate by the permitting agency or agencies. Vegetation monitoring components may include general appearance, health, mortality, colonization rates, percent survival, volunteer plant species, and invasive weed cover, depending on the metrics defined in the performance standards. Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. The species and location of all shrubs and trees within this area will be recorded at the time of the baseline assessment, and will be evaluated during each monitoring event to determine percent survival.

8.3.2 Permanent Photo Stations
Locations will be established within the mitigation area from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant community. Review of the photos over time will provide a semi-quantitative representation of success of the planting plan. Vegetation sampling transect/plot/quadrat and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

8.3.3 Wildlife
Birds, mammals, reptiles, amphibians, and invertebrates observed in the wetland and buffer areas (either by direct or indirect means) will be identified and recorded during scheduled monitoring events, and at any other times observations are made. Direct observations include actual sightings, while indirect observations include tracks, scat, nests, song, or other indicative
signs. The kinds and locations of the habitat with greatest use by each species will be noted, as will any breeding or nesting activities.

8.3.4 Site Stability
Observations will be made of the general stability of slopes and soils in the mitigation areas during each monitoring event. Any evidence of soil erosion or slumping of slopes will be recorded and the Owner notified so that corrective measures can be taken.

CHAPTER 9. MAINTENANCE AND CONTINGENCY

Regular maintenance reviews will be performed according to schedule presented in Table 2 to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the site will be implemented within ten (10) business days of submission of a maintenance memo to the maintenance contractor and permittee.

Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If, during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the City to develop a Contingency Plan in order to get the project back into compliance with the performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted to City by December 31st of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented during the course of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- During year one, replace all dead woody plant material (M).
- Water all plantings at a rate of 1” of water every week between June 15 – October 15 during the first two years after installation, and for the first two years after any replacement plantings (C & M).
- Replace dead plants with the same species or a substitute species that meets the goals and objectives of the mitigation plan, subject to Talasaea and City approval (C).
- Re-plant area after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.) (C).
- Remove/control weedy or exotic invasive plants (e.g., Scot's broom, reed canarygrass, Himalayan blackberry, purple loosestrife, Japanese knotweed, etc.) by manual or chemical means approved by permitting agencies. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful, and would require prior City approval. All non-native vegetation must be removed and disposed of off-site. (C & M).
- Weed all trees and shrubs to the dripline and provide 3-inch deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).
- Remove trash and other debris from the mitigation areas twice a year (M).
- Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (e.g., thinning and removal of dead or diseased portions of trees/shrubs) (M).
- Repair or replace damaged structures including signs or fences (M).
CHAPTER 10. FINANCIAL GUARANTEES

The Applicant shall provide a financial guarantee (bond, assignment of funds, or similar instrument as approved by the City) to ensure that the mitigation plan is fully implemented and monitoring and maintenance is performed as proposed. The financial guarantee shall be in accordance with the requirements of MCMC 18.06.650, and shall be in place prior to the commencement of mitigation construction. The financial guarantee shall be in the amount of 125 percent of the estimated cost of the uncompleted actions or the estimated cost of restoring the functions and values of the critical area at risk, whichever is greater. The final amount shall be based on a detailed itemized cost estimate of the mitigation work. The financial guarantee shall remain in place until the City determines, in writing, that the standards bonded for have been met. Once the mitigation installation has been accepted by the director, the bond may be reduced to 25 percent of the original mitigation cost estimate and shall become a maintenance surety.

CHAPTER 11. SUMMARY

The Cubes Self Storage site is an approximately 3.6-acre parcel located at 17414 Bothell-Everett Highway in the City of Mill Creek, Washington. The Site is currently developed as a landscape plant nursery with several outbuildings and an abandoned greenhouse. Properties to the north and south are developed as single-family residences. North Creek Park is located immediately to the west.

One wetland (Wetland A) was identified on the Project Site. Wetland A is a Category II wetland, which requires a 100-foot low-impact land use buffer. No streams were identified on or within the vicinity of the Site. Much of the wetland buffer contains pre-existing non-conforming uses with very little native vegetation remaining.

The Gramor Development WA, LLC plans to develop the Site with a self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities. The proposed project will reduce the developed footprint of the site from 2.45 acres to 1.84 acres. No direct impacts to Wetland A are proposed with this Project. Buffer encroachments are being proposed for Wetland A consistent with the provisions of Mill Creek MCMC §18.06.430 (reasonable use).

The proposed development will encroach into the standard buffer of the wetland, but will result in a substantial increase in wetland and buffer functions and values given the existing disturbed condition. The project proposes a combination of wetland enhancement and buffer restoration and enhancement to compensate for the proposed buffer encroachment. The total mitigation consists of:

- Wetland Enhancement: 36,733 sf
- Buffer Restoration from Pre-Existing Impacts: 27,889 sf
- Buffer Enhancement: 11,889 sf

All impacts will be fully mitigated according to the requirements of MCMC Chapter 18.06. The mitigation will be monitored for a minimum of 5 years per City requirements.
CHAPTER 12. REFERENCES


FIGURES

Figure 1. Vicinity Map
Figure 2. National Wetlands Inventory Map
Figure 3. NRCS Soil Survey Map
APPENDIX A

Wetland Determination Data Forms
Talasaea Consultants, 2018
APPENDIX B

Wetland Rating Forms

Prepared by
Sound Ecological Endeavors
(17 May 2017)
APPENDIX C

Photodocument,
Talasae Consultants, 2018
APPENDIX D

**Conceptual Critical Area Mitigation Plans (24”x36”)**
Sheet W1.0: Existing Conditions Plan
Sheet W1.1: Proposed Site Plan, Impacts and Mitigation Overview Plan
Sheet W2.0: Clearing, Grubbing, & Habitat Feature Plan
Sheet W3.0: Plant Community Plan, Preliminary Plant List
CRITICAL AREAS REPORT AND DETAILED CONCEPTUAL MITIGATION PLAN

CUBES SELF STORAGE

MILL CREEK, WASHINGTON

Prepared For:
Gramor Development WA, LLC
Seattle, Washington

Prepared By:
TALASAEA CONSULTANTS, INC.
Woodinville, Washington

31 May 2018
(Revised 10 August 2018)
Critical Areas Report and
Detailed Conceptual Mitigation Plan

Cubes Self Storage
Mill Creek, Washington

Prepared For:
Gramor Development WA, LLC

Prepared By:
Talasaea Consultants, Inc.
15020 Bear Creek Road NE
Woodinville, Washington  98077
(425) 861-7550

31 May 2018
(Revised 10 August 2018)
EXECUTIVE SUMMARY

PROJECT NAME: Cubes Self Storage
CLIENT: Gramor Development WA LLC, Mr. David Pruin
SITE LOCATION: The Cubes Self Storage project area is a 3.6-acre parcel located at 17414 State Route 527 in the City of Mill Creek, Washington. The Snohomish County Tax Parcel number for the site is 27050700401300. The Public Land Survey System location of the parcel is the SE ¼ of Section 7, T27N, R5E, Willamette Meridian.

PROJECT STAFF: Bill Shiels, Principal; Ann Olsen, Senior Project Manager; David R. Teesdale, PWS, Senior Wetland Ecologist; Jennifer M. Marriott, PWS, Senior Ecologist; and Kristen Numata, Ecologist.

FIELD SURVEY: 27 May 2016 and 4 May 2018

DETERMINATION: One wetland (Wetland A) was identified within the project area. Wetland A is part of a larger wetland complex associated with North Creek that extends offsite to the west. The on-site portion of Wetland A is 36,733 square feet (sf). Wetland A is rated as a Category II wetland per Mill Creek Municipal Code (MCMC) §18.06.910, and requires a standard 100-foot buffer with a low impact land use per MCMC §18.06.930.B.

HYDROLOGY: Hydrology for Wetland A on-site is supported by groundwater and precipitation.

SOILS: The Natural Resources Conservation Service (NRCS) identifies two soil map units within the project site: Everett very gravelly sandy loam, 0-8% slopes and 8-15% slopes. The Everett soil series is not listed as hydric by the National Technical Committee on Hydric Soils. A third soil, Mukilteo muck, is identified off-site to the west and is listed as a hydric soil.

VEGETATION: Vegetation within the onsite portion of Wetland A is dominated by native deciduous species such as willow, black cottonwood, and red alder, as well as lady fern and salmonberry. Extensive patches of invasive species occur throughout the wetland, including reed canarygrass, creeping buttercup, yellow archangel, and Himalayan blackberry. The remainder of the Site (approximately 70%) is developed as a landscape plant nursery and has little native vegetation. The majority of the buffer on-site is developed with pre-existing non-conforming uses. The remaining undeveloped and vegetated buffer is still heavily disturbed by past and current land uses.

PROPOSED PROJECT: Gramor Development WA, LLC plans to develop the Site with an approximately 90,000 sf self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities. The proposed project will reduce the developed footprint of the site from 2.46 acres to 1.84 acres.

ASSESSMENT OF DEVELOPMENTAL IMPACTS: The site has been engineered to minimize impacts to critical areas. No direct impacts to Wetland A are proposed with this Project. Buffer encroachments are being proposed for Wetland A that are consistent with the provisions of MCMC §18.06.430 (reasonable use). The proposed development will encroach upon the standard buffer of the wetland in order to provide sufficient area for the proposed development and required stormwater detention facility.

PROPOSED MITIGATION: The project proposes a combination of wetland enhancement and buffer restoration and enhancement to compensate for the proposed buffer encroachment. These mitigation efforts will dramatically improve the buffer functions and values from the existing condition. The proposed mitigation will result in a net gain in critical area functions and values compared to existing conditions. The total mitigation consists of:
• Wetland Enhancement: 36,733 sf
• Buffer Restoration from Pre-Existing Impacts: 27,889 sf
• Buffer Enhancement: 11,889 sf

Critical Area Protection: All post-construction wetland and buffer areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.

Performance Monitoring: All mitigation areas will be monitored and maintained for a minimum of 5 years to ensure goals, objectives, and performance standards are met.

Performance Security: A performance security device shall be secured by the applicant to ensure that all mitigation work is completed according to the approved plans. A separate performance security device shall also be secured to ensure monitoring and maintenance is carried out as specified in the approved mitigation plan for the duration of the monitoring period.
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**Chapter 8. Monitoring Plan**

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**Chapter 11. Summary**

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CHAPTER 1. INTRODUCTION

1.1 Report Purpose
This report is the result of a critical areas study for the Cubes Self Storage project (referred to hereinafter as Project Site or Site). The Site is located on the west side of SR-527 south of 173rd St SE in Mill Creek, Washington (Figure 1). The Applicant (Gramor Development WA, LLC) proposes to develop the Site with a public storage facility. The purpose of this report is to:
1) identify, categorize, and describe existing site conditions, such as wetlands, streams, or other critical habitats and their respective buffers, 2) describe potential impacts to critical areas resulting from the proposed development, and 3) describe a mitigation plan to offset impacts to critical areas or their buffers. The report has been prepared to comply with the requirements of Mill Creek Municipal Code (MCMC) §18.06 – Environmentally Critical Areas.

This report will provide and describe the following information:
- General property description;
- Methodology for critical areas investigation;
- Results of critical areas background review and field investigation;
- Regulatory review;
- Description of the proposed project;
- Assessment of project impacts to critical areas; and
- Proposed mitigation plan.

1.2 Statement of Accuracy
Critical areas characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

CHAPTER 2. GENERAL PROPERTY DESCRIPTION AND LAND USE

2.1 Project Location
The Cubes Self Storage property is a trapezoid-shaped 3.6-acre parcel. The Site address is 17414 Bothell-Everett Highway in the City of Mill Creek. The Snohomish County Tax Parcel number for the Site is 27050700401300. The Public Land Survey System Location of the parcel is the NW ¼ of the SE ¼ of Section 7, T27N, Range 5E, Willamette Meridian.

2.2 General Property Description
The Site is currently developed as a landscape plant nursery with associated outbuildings and parking. The topography of the Site is sloped from the east to the west. The eastern approximately ½ of the Site appears to be graded and level. Additional grading and artificially level ground exists along the north property line extending from the toe-of-slope of the eastern ½ westward to the Site’s northwestern property corner. The relatively steep slopes of the areas of apparent filling and grading lead down to more gently-sloped undisturbed land located in the southwestern ¼ of the Site. The property is bound on the east side by SR-527 and on the west side by North Creek Park.

Surrounding properties are developed as single-family residences, commercial properties farther north and south, and North Creek Park to the west.
2.3 Land Use and Zoning
Future growth within City limits is guided by the Land Use map and policies established within the *City of Mill Creek Comprehensive Plan 2015* (Mill Creek 2015). According to this document the Site is zoned as Business Park (BP) and must conform to certain criteria contained within the document. Properties in the vicinity of the Project Site are developed as business offices or low-density single-family residences. A few of the properties in the vicinity of the Project Site are undeveloped.

CHAPTER 3. METHODOLOGY

The critical areas analysis of the Site involved a two-part effort. The first part consisted of a preliminary assessment of the Site and the immediate surrounding area using existing published environmental information. This information includes:

1) Wetland and soil information from resource agencies;
2) Critical areas map information from Snohomish and the City of Mill Creek;
3) Orthophotography;
4) LiDAR terrain data;
5) Priority Habitat and Species information from WDFW and other resource agencies; and
6) Relevant studies completed or on-going in the vicinity of the Site.

The second part consisted of site investigations where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, hydrology, and stream conditions. This information was used to help characterize the site and define the limits of critical areas on-site and offsite for regulatory purposes (see Section 3.2 – Field Investigation below).

3.1 Background Data Reviewed
Background information from the following sources was reviewed prior to field investigations:

- US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory) ([www.wetlandsfws.er.usgs.gov/wtlnds/launch.html](http://www.wetlandsfws.er.usgs.gov/wtlnds/launch.html), 2018);
- City of Mill Creek Comprehensive Plan (City of Mill Creek 2015);
- Snohomish County GIS Database (Snohomish County 2018);
- Washington Department of Natural Resources (WDNR) Natural Heritage Database (2018).

3.2 Field Investigation
The Site has been evaluated by Talasaea Consultants on 27 May 2016 and 4 May 2018.

The wetland delineation utilized the routine approach described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U.S. Army Corps of Engineers, 2010). Wetlands were classified according to MCMC §18.06.910.

Plant species were identified according to the taxonomy of Hitchcock and Cronquist (Hitchcock, et al. 1969). Taxonomic names were updated and plant wetland status was assigned according to *North American Digital Flora: National Wetland Plant List, Version 3.3* (Lichvar, et al. 2016).
Wetland classes were determined using the U.S. Fish and Wildlife Service’s system of wetland classification (Cowardin, et al. 1979). Vegetation was considered hydrophytic within a suspected wetland area if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (i.e., facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps regional supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to; drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historical records, visual observation of saturated soils, and visual observation of inundation.

Soils on the Site were considered hydric if one or more of the hydric soil indicators listed in the Corps Regional Supplement were present. Indicators include: presence of organic soils, reduced, depleted or gleyed soils, or, redoximorphic features in association with reduced soils. Determination of hydric soil conditions typically involves the comparison of soil colors to standardized Munsell Soil Color chips (Munsell Color 1988). It is important to note that the lack of a hydric soil indicator does not equate to the lack of a hydric soil. There is only a positive association between hydric soil indicators and the presence of hydric soils. Additional documentation may be necessary in circumstances where the presence or absence of hydric soils may determine the outcome of a wetland delineation.

An evaluation of the vegetation, soils, and hydrology was made along the interface of wetland and upland. Wetland boundary points were then determined from this information and marked with flagging and surveyed. Appendix A contains data forms prepared by Talasaea for vegetation, soils, and hydrology information that aided in the wetland boundary determination.

CHAPTER 4. RESULTS

This section describes the results of our background research and field investigation. For the purpose of this report, the term “vicinity” describes an area approximately 300 feet around the Project Site.

4.1 Analysis of Existing Information

The following sources provided information on site conditions based on data compiled from resource agencies and local government:

4.1.1 USFWS Wetlands Online Mapper (National Wetlands Inventory)
The National Wetlands Inventory (NWI) identifies one large, approximately 89-acre freshwater emergent, seasonally flooded, wetland (PEM1C) occurring adjacent to the western property boundary (Figure 2). Pockets of other wetland types occur in the broad area, but are all part of this same large, wetland complex. This wetland extends off-site to the north and south as part of North Creek Park.

4.1.2 Natural Resources Conservation Service Web Soil Survey
The NRCS identifies two soil map units within the Project Site: Everett very gravelly sandy loam, 0-8% slopes and 8-15% slopes (Figure 3). The Everett soil series is not listed as hydric by the National Technical Committee for Hydric Soils. Mukilteo muck is identified off-site to the west and is considered to be a hydric soil.

4.1.3 Snohomish County GIS Database
Snohomish County does not map any wetlands on the subject property, but identifies a freshwater emergent wetland to the west consistent with the NWI mapping.
4.2 Analysis of Existing Site Conditions

One (1) wetland (Wetland A) was identified on the Project Site (Sheet W1.0 in Appendix D). No streams were identified on, or in the vicinity of, the Site.

4.2.1 Wetland A

Wetland A is a large wetland that extends off-site to the west, north, and south. The on-site portion of Wetland A is a small area of palustrine forested wetland (PFO) and palustrine emergent (PEM) located along the west and south sections of the Site (Photo 1). The on-site portion of Wetland A is approximately 36,733 sf. The forested vegetation includes black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), and Sitka willow (*Salix sitchensis*). Scrub-shrub vegetation includes salmonberry (*Rubus spectabilis*) and black twinberry (*Lonicera involucrata*). Emergent vegetation includes lady fern (*Athyrium filix-femina*), reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), and field horsetail (*Equisetum arvense*). Invasive species include reed canarygrass, yellow archangel (*Lamium galeobdolon*), creeping buttercup, and Himalayan blackberry (*Rubus armeniacus*).

Wetland A was rated and classified on 17 May 2017 by Sound Ecological Endeavors pursuant to the requirements of MCMC §18.06.910 using the *Washington State Wetland Rating System for Western Washington* (Hruby, 2014). Wetland A met the criteria for classification as a Category II wetland. The wetland rating form prepared by Sound Ecological Endeavors is included as Appendix B.

![Photo 1. Wetland A view to the south (5/4/2018).](image)

4.2.2 Wetland A Buffer

The buffer for Wetland A is heavily disturbed with pre-existing non-conforming structures, as well as cleared areas and an access road (Sheet W1.0, Appendix D). The Site is developed with a landscape plant nursery, as well as several outbuildings including sheds and an abandoned greenhouse.

There is little native vegetation present throughout the wetland buffer. The only area dominated with native vegetation is located southeast of Wetland A. Native vegetation includes black...
cottonwood, red alder, red elderberry (Sambucus racemosa), and Sitka mountain ash (Sorbus sitchensis). Invasive vegetation present in the wetland buffer includes Himalayan blackberry, reed canarygrass, evergreen bugloss (Anchusa arvensis), and yellow archangel.

CHAPTER 5. REGULATORY REVIEW

5.1 City of Mill Creek Regulations
Wetlands on the project site are subject to the City of Mill Creek critical areas regulations under MCMC §18.06 Environmentally Critical Areas. Wetland buffers are determined based on the wetland rating and proposed land use intensity. Category II wetlands with low impact land uses proposed have a 100-foot standard buffer. Mill Creek only identifies low impact and high impact land use for establishing prescriptive buffers.

5.2 State and Federal Regulations
Wetlands and streams on the Site are subject to applicable State and Federal regulations. Wetland impacts are regulated at the Federal level by Sections 404 and 401 of the Clean Water Act. The U.S. Army Corps of Engineers (Corps) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands under Corps jurisdiction. Any project that is subject to Section 404 permitting is also required to comply with Section 401 Water Quality Certification, which is administered by the Washington State Department of Ecology (WDOE). No direct impacts to wetlands or streams are proposed for the current site development plan. Therefore, the project will not need to apply for any Section 404 Nationwide or Individual Permits or Section 401 Water Quality Certification.

CHAPTER 6. PROJECT DESCRIPTION

6.1 Project Description
Gramor Development WA, LLC plans to develop the Site with an approximately 90,000 sf self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities (Sheet W1.1, Appendix D). The proposed project will reduce the developed footprint of the site from 2.46 acres (existing conditions) to 1.84 acres.

6.2 Stormwater Treatment Design
The stormwater management system proposed for the project will collect and treat all runoff generated from impervious surfaces onsite before being conveyed into a detention pond. Clean roof runoff will enter the detention pond directly. Water will exit the detention pond through a dispersion trench uphill from the Wetland A boundary along the north side of the property. The proposed stormwater treatment system has been designed to meet or exceed the stormwater requirements as required by the City of Mill Creek, which is currently using the February 2012 DOE Stormwater Management Manual for Western Washington, as amended in 2014. Ensuring that all runoff from the new impervious surfaces is treated by the proposed stormwater system, the water entering Wetland A will be relatively clean and will be an improvement compared with existing conditions.

6.3 Assessment of Development Impacts
The site has been engineered to minimize impact to critical areas to the extent practicable. No direct impacts to Wetland A are proposed with this Project. However, the Project is proposing reasonable use for the property as allowed per MCMC §18.06.430. The following discussion represents code in MCMC §18.06.430.
An exception to the provisions of this chapter may be considered by the hearing examiner if application of this chapter would deny all reasonable use of the subject property and upon showing by the applicant all of the following elements:

A. The proposed activity will result in minimal alteration of existing conditions, contours, vegetation, fish and wildlife resources, hydrological conditions, and geologic conditions and will have a minimal effect on critical area functions;

The existing condition of the Site, including almost the entire wetland buffer, is heavily disturbed as it’s actively used as a landscape plant nursery. Greenhouses, access roads, equipment storage, and other structures occur within the buffer. Additionally, many areas of the buffer that are not covered by structures or parking areas have had much of the native vegetation removed. What vegetation is present is primarily invasive species. While no grading is proposed within the wetland, clearing and grading will take place as part of the buffer restoration and enhancement plan. Grades will generally be maintained in the portion of the property that includes the self-storage building and associated parking. The Project design includes measures to maintain and/or improve water quality and quantity control (detention) so that fish and wildlife resources as well as hydrological conditions will not be impacted. Full dispersion of stormwater to the wetland will ensure that there will be no net loss of hydrology from the Site. Habitat conditions will be improved by removing derelict structures in the buffer, along with removal of invasive plant species and replanting with native trees and shrubs. In summary, the proposed project would result in a net improvement to the condition of the wetland and associated buffer both on- and off-site.

B. The proposed activity will not jeopardize the continued existence of endangered, threatened, sensitive, or monitored species as listed by the federal or state government;

There are no known endangered, threatened, sensitive, or monitored species occurring on or using the Site. However, listed salmonid species are known to use North Creek, which is off-site to the west and is associated with the greater wetland complex of which the on-site wetland is a part. The proposed development will result in a substantial improvement in water quality for runoff leaving the Site and will help support habitat conditions vital to Federally- and State-listed threatened or endangered salmonids using North Creek.

C. The proposed activity will not cause material degradation of habitat, ground water or surface water quality;

The proposed project would be a net improvement to on-site habitat, groundwater, and surface water through removal of much of the existing impervious surfaces and derelict buildings on the western half of the Site, incorporation of all site runoff into the proposed stormwater facility for treatment prior to discharging the runoff into the wetland, and full restoration and enhancement of the on-site buffer remaining post-development.

D. The proposed activity will comply with all local, state, and general laws, including those related to environmental protection, sediment control, pollution control, floodplain restrictions, and on-site wastewater disposal;

All applicable Local, State, and Federal laws pertaining to environmental protection, sediment and pollution control, and on-site wastewater disposal will be followed. No floodplain restrictions exist on the property as no floodplain is mapped on-site. Any floodplain protections provided by the wetland on-site will be protected through the enhancement and preservation of the wetland and adjacent buffers.
E. There will be no damage to public or private property and no threat to the public or safety of people on or off the site; and

The proposed project will not harm public or private property and will not pose a threat to the public or safety of the public.

F. The inability to derive reasonable economic use of the property is not the result of actions by the applicant in segregating or dividing the property and/or adding to the undevelopable condition.

The inability to derive reasonable economic use of the property is the result of its landscape position adjacent to the large North Creek complex. While the majority of the property is well above the wetland, in terms of elevations, the wetland itself rates quite high because of its large, complex nature. Wetlands that are rated high have correspondingly larger buffers compared to lower-rated wetlands. In this instance, the standard buffer for a Low Intensity Land Use encumbers most of the Site. None of these reasons are a result of the actions of the Applicant.

CHAPTER 7. PROPOSED MITIGATION

7.1 City of Mill Creek Policies and Guidance

The mitigation proposed for critical areas impacts is in accordance with the following:

- MCMC §18.06, Environmentally Critical Areas.
- Stormwater BMPs as defined in MCMC Chapter 15.14 Surface Water Management Program.

7.2 Mitigation Sequencing

The design of the proposed project employs mitigation sequencing as required by MCMC §18.06.610. The requirements of this chapter state the following:

“A. When an alteration to a critical area is proposed, the applicant shall first demonstrate that all reasonable efforts have been taken to avoid or minimize impacts in that order (consistent with MCMC 18.06.210).

B. Unless otherwise provided in this chapter, compensatory mitigation shall be provided for all unavoidable alterations of a critical area or buffer in accordance with an approved critical area report and mitigation plan, and consistent with best available science, to ensure no net loss of critical area functions and values. Mitigation shall not be implemented until final city approval of the critical area report and a mitigation plan prepared in accordance with MCMC 18.06.530 and 18.06.620 is granted.

C. Mitigation shall be in-kind and on-site whenever possible. The director may approve exceptions to this requirement for proposals prepared in accordance with the innovative mitigation standards in MCMC 18.06.640.

D. All areas at which mitigation is performed shall be permanently protected and managed to avoid degradation and ensure protection of critical area functions and values into perpetuity. Permanent protection shall be achieved through deed restriction or other protective covenant in accordance with MCMC 18.06.820. Management shall be specified in a manner acceptable to the director. (Ord. 2004-603 § 2)”

Avoiding Impacts: The proposed project has been designed to avoid impacts to on-site critical areas and buffers to the maximum extent practicable, while still allowing for an economically
viable development that meets all code requirements. No direct impacts to any wetlands are proposed. However, the wetland buffer is proposed to be modified.

**Minimizing Impacts:** The proposed project has also been designed to minimize impacts to on-site critical areas to the maximum extent practicable. The buffer encroachment is necessary in order to achieve a site plan that will function and be economically viable while minimizing the impacts to onsite buffers. The proposed development will reduce the footprint of developed areas from 2.45 acres (existing) to 1.84 acres (proposed), in effect giving back approximately 0.61 acres as restored buffer. The areas of proposed mitigation will be permanently protected, with critical area fencing and signage to clearly identify those preserved critical areas.

### 7.3 Proposed Mitigation

The project proposes a combination of several different mitigation measures intended to compensate for buffer functions and values lost through buffer width encroachment. The project is proposing a combination of buffer restoration and enhancement, wetland enhancement, and by providing an overall reduction in the developed footprint on the Site. The proposed mitigation will result in a net gain in critical area functions and values compared to existing conditions. The total mitigation proposed consists of ([Sheet W1.1, Appendix D](#)):

- Wetland Enhancement: 36,733 sf
- Buffer Restoration from Pre-Existing Impacts: 27,889 sf
- Buffer Enhancement: 11,889 sf

The proposed mitigation measures are described in more detail below. The Project is proposing to modify the buffers through requesting a reasonable use exception for the property as allowed per MCMC §18.06.430.

#### 7.3.1 Buffer Restoration

Large areas of the buffer are currently developed with greenhouses, parking areas, equipment storage areas, and other elements of a built environment. These areas will undergo extensive efforts to clear all derelict structures, trash, and debris, including the removal of any invasive plant species. Restoration measures will include amending soils following grading per civil plans with a minimum of 9-inches of high-quality topsoil, stabilizing all bare-soil areas with three (3) inches of bark mulch, and replanting with a variety of native evergreen and deciduous trees and shrubs. Removal of contaminated soils will be completed as necessary, based on studies performed by others. This area will be regraded as part of the site development, and restoration efforts will be done on the final post-development grades.

In addition, large woody debris including down logs and stumps will be placed in the restored buffer to provide habitat complexity that is lacking in the existing conditions.

#### 7.3.2 Buffer Enhancement

The Project will enhance the remaining sections of wetland buffer where native plants exist through removal of the numerous invasive species present and replanting with a variety of native evergreen and deciduous trees and shrubs.

#### 7.3.3 Wetland Enhancement

The on-site portion of Wetland A will be enhanced through the removal of invasive plant species present and replanting with a variety of native evergreen and deciduous trees and shrubs. Particular care will be taken to address the yellow archangel present, as well as to cut back the reed canarygrass and overplant with fast-growing trees and shrubs.
7.3.4 **Critical Area Protection**

All post-construction wetland and buffer areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.

7.3.5 **Standard Mitigation Measures**

Standard mitigation measures as outlined by the Department of Ecology will be implemented on the Site to further reduce the risk of long-term impacts to critical areas resulting from the proposed development.

- Directing lights away from the wetland;
- Locating noise-generating activities away from the wetland;
- Ensuring that toxic runoff from parking lots, roads, or landscaping (herbicides and pesticides) do not run into the wetland;
- Use fencing or dense vegetation along the buffer edge to prevent human or pet intrusions into the buffer,
- Best Management Practices for dust; and,
- Remove nonnative plants and replace with approved native vegetation, to be bonded and monitored for five years with an 80% survival of plantings.

**Table 1. Standard Mitigation Measures**

<table>
<thead>
<tr>
<th>Examples of Disturbances</th>
<th>Measures to Minimize Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lights</strong></td>
<td>The buffer will be separated from the development by a retaining wall and dense plantings of native vegetation. Lighting will be placed so that illumination is directed away from the wetland buffer.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Noise-generated tasks will be directed away from the wetland buffer.</td>
</tr>
<tr>
<td><strong>Toxic Runoff</strong></td>
<td>No pesticides or herbicides will be used within 100 feet of the wetland (the use of herbicides to control non-native, invasive species in the course of routine mitigation monitoring and maintenance will be allowed). Road runoff will be collected and transferred to the project’s on-site stormwater treatment and detention facility. No direct discharge of road runoff or untreated stormwater runoff into the wetland buffer will be possible.</td>
</tr>
<tr>
<td><strong>Stormwater runoff</strong></td>
<td>No untreated stormwater runoff into the wetland buffer will occur. Untreated and treated water will be routed to the on-site stormwater pond. The outfall from the stormwater pond will discharge into the wetland buffer through an engineered dispersion trench located within the wetland buffer uphill from the wetland.</td>
</tr>
<tr>
<td><strong>Change in Water Regime</strong></td>
<td>The water regimes for the on-site wetland will not significantly change.</td>
</tr>
<tr>
<td><strong>Pets and Human Disturbances</strong></td>
<td>The wetland and buffer will be separated from the development by a retaining wall that will naturally preclude access into the critical areas.</td>
</tr>
</tbody>
</table>
7.4 Mitigation Design Elements

7.4.1 Planting
Plant species have been chosen for a variety of qualities, including: adaptation to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values. Native tree and shrub species have been chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the mitigation areas to wildlife for food and cover. Planting will be planned to occur during the dormant season (late fall, winter, or early spring) to maximize the chances for successful plant establishment and survival.

7.4.2 Habitat Features
Down logs and stumps will be incorporated into the buffer mitigation areas to provide ecologically important habitat features for wildlife. All down woody material shall be coniferous species (western red cedar, Douglas fir, western hemlock, or Sitka spruce) obtained from the project Site. Down logs and stumps provide the slow release of nutrients as the wood decays, and also provide cover for amphibians, small mammals, and other wildlife.

7.4.3 Irrigation
The mitigation areas are primarily located in existing forested areas within a ravine. Therefore, a temporary irrigation system is not anticipated to be needed. Planting shall occur between November to February to take advantage of seasonal plant dormancy. All plants shall be watered immediately upon being installed. Plants may need supplemental watering during the first one or two seasons after planting during the dry season (generally June 15th to October 15th). Plants shall be monitored for drought stress, and if supplemental watering is required, it can be provided manually using a water truck. Watering shall occur at a minimum rate of one inch per week during the dry season.

7.4.4 Critical Area Protection
All post-construction critical areas will be permanently protected in Critical Area tracts, and buffer areas will be protected from human and pet intrusion with fencing. Critical area signs will be installed along the mitigation boundaries.
7.5 Mitigation Goals, Objectives, and Performance Standards

The primary goal of the mitigation project is to replace the functions and values lost through development impacts to the buffer for Wetland A. In order to accomplish this goal, the proposed mitigation plan will accomplish the following:

- Wetland Enhancement: 36,733 sf
- Buffer Restoration from Pre-Existing Impacts: 27,889 sf
- Buffer Enhancement: 11,889 sf

The success of the above mitigation actions will be evaluated based upon specific objectives and performance standards including invasive species removal and creating species diversity. Objectives and performance standards will be included in the final mitigation plan. Each objective will include one or more measurable performance standards. All mitigation areas will be monitored and maintained for a minimum of 5 years to ensure all goals, objectives, and performance standards are met.

Mitigation actions will be evaluated through the following objectives and performance standards. See Chapter 8.3 for a description of the monitoring methods that will be used to evaluate the approved performance standards.

**Objective A:** Restore and enhance the habitat structure and plant species diversity in the buffer restoration and enhancement areas. Enhancement areas already contain a native canopy, but will require restoration of the understory after removal of invasive species.

**Performance Standard A1:** At least 4 species of desirable native plants will be present in the buffer restoration areas combined during each year of the monitoring period.

**Performance Standard A2:** Percent survival of all planted woody species must be at least 100% at the end of Year 1 (per contractor warranty), and at least 80% for each subsequent year of the monitoring period.

**Performance Standard A3:** Coverage of native woody species will be 10% at the end of Year 1, 20% at the end of Year 2, and 30% at the end of Year 3. Woody coverage may be comprised of both planted, existing, and recolonized native species; however, to maintain species diversity, at no time shall a recolonized species (e.g., red alder) comprise more than 35% of the total calculated aerial woody coverage.

**Objective B:** Limit the amount of invasive and exotic species within the on-site wetland and wetland buffer restoration areas.

**Performance Standard B1:** After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels of 10% or less total cover throughout the mitigation areas. These species include, but are not limited to: Scot’s broom, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed, and creeping nightshade.

**Objective C:** Increase the overall habitat functions of the post-development Wetland A enhanced buffers by incorporating habitat features (i.e., snags with bird nest boxes, down logs, rootwads, and stumps) into the buffer enhancement and restoration areas.

**Performance Standard C1:** After construction and for the entirety of the monitoring period, the enhanced buffer area for Wetland A will contain at least 15 habitat features,
including down woody material (logs, rootwads, stumps etc.) and snags with swallow
nest boxes.

7.6 Construction Sequencing
The following provides the general sequence of activities anticipated to be necessary to
complete this project. Some of these activities may be conducted concurrently as the project
progresses.

1. Hold pre-construction meeting between the Contractor, Owner, City staff, and
   Environmental Consultant to review the work areas, clearing limits, and scope of work.
2. Survey and flag clearing limits/work area limits and critical area buffers.
3. Obtain approval of clearing limits from City and Environmental Consultant.
4. Install silt fencing and/or tree/vegetation protection fencing at clearing limits.
5. Install other erosion control BMPs per the TESC plan.
7. Restore soils in buffer mitigation areas (install topsoil or organic soil amendments,
   includes the removal of contaminated soils as determined to be necessary by others).
8. Mulch all cleared/graded/disturbed soil areas in mitigation areas.
9. Install plant material as indicated on the mitigation planting plan.
10. Complete site cleanup and install critical area fence and signs.

CHAPTER 8. MONITORING PLAN

8.1 Monitoring Schedule
Performance monitoring of the mitigation areas will be conducted according to all applicable
code/regulatory requirements and permit conditions. MCMC 18.06.630 outlines the basic
requirements for monitoring for the City of Mill Creek. Monitoring will occur for a minimum of
five years, and will be conducted according to the schedule presented in Table 2 below.
Monitoring will be performed by a qualified biologist or ecologist.

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Maintenance Review</th>
<th>Performance Monitoring</th>
<th>Report Due to Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Completion &amp; 30 Days after Planting</td>
<td>Fall</td>
<td>x</td>
<td>Baseline Data Collected</td>
<td>x</td>
</tr>
<tr>
<td>1</td>
<td>Spring</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2</td>
<td>Spring</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3</td>
<td>Spring</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5</td>
<td>Spring</td>
<td>x</td>
<td>x</td>
<td>x*</td>
</tr>
</tbody>
</table>

*Obtain final approval to facilitate bond release from the City of Mill Creek (presumes
performance criteria are met).
8.2 Monitoring Reports
Each monitoring report will adhere to the requirements of MCMC 18.06.630 and will also utilize the Corps document titled Annual Monitoring Report Format Requirements (USACE Regulatory Guidance Letter No. 08-03, OCT 2008). The reports will include:

1. Project Overview;
2. Requirements;
3. Summary Data;
4. Maps and Plans; and
5. Conclusions.

If the performance criteria are met, monitoring will cease at the end of year five, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

8.3 Monitoring Methods
The following monitoring methods will be used to evaluate the approved performance standards.

8.3.1 Methods for Monitoring Vegetation Establishment
Vegetation monitoring methods may include plant counts; photo-points; random sampling; sampling plots, quadrats, or transects; stem density; visual inspection; and/or other methods deemed appropriate by the permitting agency or agencies. Vegetation monitoring components may include general appearance, health, mortality, colonization rates, percent survival, volunteer plant species, and invasive weed cover, depending on the metrics defined in the performance standards. Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. The species and location of all shrubs and trees within this area will be recorded at the time of the baseline assessment, and will be evaluated during each monitoring event to determine percent survival.

8.3.2 Permanent Photo Stations
Locations will be established within the mitigation area from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant community. Review of the photos over time will provide a semi-quantitative representation of success of the planting plan. Vegetation sampling transect/plot/quadrat and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

8.3.3 Wildlife
Birds, mammals, reptiles, amphibians, and invertebrates observed in the wetland and buffer areas (either by direct or indirect means) will be identified and recorded during scheduled monitoring events, and at any other times observations are made. Direct observations include actual sightings, while indirect observations include tracks, scat, nests, song, or other indicative
signs. The kinds and locations of the habitat with greatest use by each species will be noted, as will any breeding or nesting activities.

8.3.4 Site Stability
Observations will be made of the general stability of slopes and soils in the mitigation areas during each monitoring event. Any evidence of soil erosion or slumping of slopes will be recorded and the Owner notified so that corrective measures can be taken.

CHAPTER 9. MAINTENANCE AND CONTINGENCY

Regular maintenance reviews will be performed according to schedule presented in Table 2 to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the site will be implemented within ten (10) business days of submission of a maintenance memo to the maintenance contractor and permittee.

Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If, during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the City to develop a Contingency Plan in order to get the project back into compliance with the performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted to City by December 31st of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented during the course of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- During year one, replace all dead woody plant material (M).
- Water all plantings at a rate of 1” of water every week between June 15 – October 15 during the first two years after installation, and for the first two years after any replacement plantings (C & M).
- Replace dead plants with the same species or a substitute species that meets the goals and objectives of the mitigation plan, subject to Talasaea and City approval (C).
- Re-plant area after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease/shade/sun conditions, wildlife damage, etc.) (C).
- Remove/control weedy or exotic invasive plants (e.g., Scot's broom, reed canarygrass, Himalayan blackberry, purple loosestrife, Japanese knotweed, etc.) by manual or chemical means approved by permitting agencies. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful, and would require prior City approval. All non-native vegetation must be removed and disposed of off-site. (C & M).
- Weed all trees and shrubs to the dripline and provide 3-inch deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).
- Remove trash and other debris from the mitigation areas twice a year (M).
- Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (e.g., thinning and removal of dead or diseased portions of trees/shrubs) (M).
- Repair or replace damaged structures including signs or fences (M).
CHAPTER 10. FINANCIAL GUARANTEES

The Applicant shall provide a financial guarantee (bond, assignment of funds, or similar instrument as approved by the City) to ensure that the mitigation plan is fully implemented and monitoring and maintenance is performed as proposed. The financial guarantee shall be in accordance with the requirements of MCMC 18.06.650, and shall be in place prior to the commencement of mitigation construction. The financial guarantee shall be in the amount of 125 percent of the estimated cost of the uncompleted actions or the estimated cost of restoring the functions and values of the critical area at risk, whichever is greater. The final amount shall be based on a detailed itemized cost estimate of the mitigation work. The financial guarantee shall remain in place until the City determines, in writing, that the standards bonded for have been met. Once the mitigation installation has been accepted by the director, the bond may be reduced to 25 percent of the original mitigation cost estimate and shall become a maintenance surety.

CHAPTER 11. SUMMARY

The Cubes Self Storage site is an approximately 3.6-acre parcel located at 17414 Bothell-Everett Highway in the City of Mill Creek, Washington. The Site is currently developed as a landscape plant nursery with several outbuildings and an abandoned greenhouse. Properties to the north and south are developed as single-family residences. North Creek Park is located immediately to the west.

One wetland (Wetland A) was identified on the Project Site. Wetland A is a Category II wetland, which requires a 100-foot low-impact land use buffer. No streams were identified on or within the vicinity of the Site. Much of the wetland buffer contains pre-existing non-conforming uses with very little native vegetation remaining.

The Gramor Development WA, LLC plans to develop the Site with a self-storage facility comprised of one 3-story building with associated drive aisles, parking stalls, and stormwater facilities. The proposed project will reduce the developed footprint of the site from 2.45 acres to 1.84 acres. No direct impacts to Wetland A are proposed with this Project. Buffer encroachments are being proposed for Wetland A consistent with the provisions of Mill Creek MCMC §18.06.430 (reasonable use).

The proposed development will encroach into the standard buffer of the wetland, but will result in a substantial increase in wetland and buffer functions and values given the existing disturbed condition. The project proposes a combination of wetland enhancement and buffer restoration and enhancement to compensate for the proposed buffer encroachment. The total mitigation consists of:

- Wetland Enhancement: 36,733 sf
- Buffer Restoration from Pre-Existing Impacts: 27,889 sf
- Buffer Enhancement: 11,889 sf

All impacts will be fully mitigated according to the requirements of MCMC Chapter 18.06. The mitigation will be monitored for a minimum of 5 years per City requirements.
CHAPTER 12. REFERENCES


FIGURES

Figure 1. Vicinity Map
Figure 2. National Wetlands Inventory Map
Figure 3. NRCS Soil Survey Map
DRIVING DIRECTIONS:
1. FROM MILL CREEK CITY HALL, HEAD SOUTHEAST ON MAIN STREET TOWARD MILL CREEK BLVD. CONTINUE FOR 300FT.
2. TURN LEFT ONTO MILL CREEK BLVD. CONTINUE FOR 450FT.
3. TURN RIGHT ONTO WA-527 SOUTH. CONTINUE FOR 1.1 MILES.

DESTINATION WILL BE ON THE LEFT:
17414 BOTHELL EVERETT HNY,
MILL CREEK, WASHINGTON 98012
**FIGURE #2**

NATIONAL WETLANDS INVENTORY MAP
CUBES SELF STORAGE
MILL CREEK, WASHINGTON
**Legend**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description, Slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Everett Very Gravelly Sandy Loam, 0-8% slopes.</td>
</tr>
<tr>
<td>18</td>
<td>Everett Very Gravelly Sandy Loam, 8-15% slopes.</td>
</tr>
<tr>
<td>34</td>
<td>Mukiteo Muck</td>
</tr>
</tbody>
</table>


**NRCS Figure Layers**

- Map Unit Boundary

---

**Figure #3**

NRCS Soils Map

Cubes Self Storage

MILL CREEK, WASHINGTON
APPENDIX A

Wetland Determination Data Forms
Talasaea Consultants, 2018
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TAL-1579B City/County: Mill Creek Sampling Date: 5/4/2018
Applicant/Owner: David Pauin State: WA Sampling Point: WL-A-UPL1
Investigator(s): Kristen Numata Section, Township, Range: SE 1/4 T71N, R5E, W.M.
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 20.
Subregion (LRR): A Lat: 47.840 Long: -122.217 Datum: NAD 83
Soil Map Unit Name: Everett very gravelly sandy loam, B-15% slopes. NWI classification: None.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are “Normal Circumstances” present? Yes [x] No [ ]
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes [x] No [ ]
Hydric Soil Present? Yes [ ] No [x]
Wetland Hydrology Present? Yes [x] No [ ]
Is the Sampled Area within a Wetland? Yes [ ] No [x]

Remarks: Vegetation was dominated by FAC species, but no FACW or wetter. Plot located on hillside in the south-central area of the Site, East of TP-1-WET.

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Atrnus rubra</td>
<td>80</td>
<td>Yes</td>
<td>FAC</td>
<td>Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 3 (B)</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 3 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rubus spectabilis</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>Total Cover:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rubus ursinus</td>
</tr>
<tr>
<td>2. Ranunculus repens</td>
</tr>
<tr>
<td>3. Rubus armeniacus</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
</tr>
<tr>
<td>Total Cover: 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 3 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. None.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>Total Cover:</td>
</tr>
</tbody>
</table>

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

Remarks: Plot dominated by facultative species, but no FACW or wetter.

*Rubus armeniacus planted in herbaceous strata due to young, new growth.
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>10YR 4/2</td>
<td>100</td>
<td>-</td>
<td>Loam</td>
<td>restricted by roots.</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 Histric (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 [X]

**Remarks:** restricted by roots below 12'. No hydric soil indicators present.

### HYDROLOGY

**Wetland Hydrology Indicators:**

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Oxygenated Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR A)
- Other (Explain in Remarks)

- 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)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

**Field Observations:**

- Surface Water Present? Yes [ ] No [X]
- Water Table Present? Yes [ ] No [X]
- Saturation Present? Yes [ ] No [X]

**Depth (inches):** ____________________

**Wetland Hydrology Present?** Yes [ ] No [X]

**Remarks:** No wetland hydrology present.
**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: **TAL - 1579B**
City/County: **Mill Creek**
Sampling Date: **5/4/2013**

Applicant/Owner: **David Pruitt**
State: **WA**
Sampling Point: **WL-A-WET**

Investigator(s): **Kristen Numata**
Section, Township, Range: **SE 1/4 S7, T27N, R5E W.M.**

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

Subregion (LRR): **A**
Lat: **47.840**
Long: **-122.217**
Datum: **NAD 83**

Soil Map Unit Name: **Everett very gravelly sandy loam**
8-15% slopes, NWI classification: **None**.

**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?** Yes ☑ No ☐

**Are "Normal Circumstances" present?** Yes ☑ No ☐
(if needed, explain any answers in Remarks.)

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

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

**Remarks:** Plot located west of TP-1-UPL in southcentral area of site.

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

**Tree Stratum (Plot size: 5m)**

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Alnus rubra</em></td>
<td>60</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Populus balsamifera</em></td>
<td>20</td>
<td>Yes</td>
<td>FAC</td>
</tr>
</tbody>
</table>

**Total Cover: 80**

**Sapling/Shrub Stratum (Plot size: 3m)**

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Crataegus monogyna</em></td>
<td>15</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Spiraea douglasii</em></td>
<td>10</td>
<td>Yes</td>
<td>FACW</td>
</tr>
<tr>
<td><em>Loniceria involucrata</em></td>
<td>5</td>
<td>No</td>
<td>FAC</td>
</tr>
</tbody>
</table>

**Total Cover: 30**

**Herb Stratum (Plot size: 1m)**

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ranunculus repens</em></td>
<td>75</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Equisetum arvense</em></td>
<td>15</td>
<td>No</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Athyrium filix-femina</em></td>
<td>5</td>
<td>No</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Urtica dioica</em></td>
<td>5</td>
<td>No</td>
<td>FAC</td>
</tr>
</tbody>
</table>

**Total Cover: 50**

**Woody Vine Stratum (Plot size: 3m)**

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover: 100**

**% Bare Ground in Herb Stratum: 0**

**% Cover of Biotic Crust: 0**

**Remarks:** Plot vegetation is hydrophytic.
### SOIL

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>10YR 3/2</td>
<td>100</td>
</tr>
<tr>
<td>4-10</td>
<td>10YR 3/1</td>
<td>80</td>
</tr>
<tr>
<td>10-18</td>
<td>10YR 3/2</td>
<td>90</td>
</tr>
</tbody>
</table>

**Texture:** Silty clay loam

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black Hist (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)
- Decomposed Matrix (F3)
- Redox Depressions (F8)

**Restrictive Layer (if present):**
- Type: 
- Depth (inches): 

**Hydric Soil Present?** Yes ☑ No 

**Remarks:** Saturation @ 10", water table @ 14". Meets criteria for indicator F6 - Redox dark surface.

### 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)
- Water-Stained Leaves (B9) (except 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)
- Other (Explain in Remarks)

**Field Observations:**
- Surface Water Present? Yes ☑ No ☐ Depth (inches): 14"
- Water Table Present? Yes ☑ No ☐ Depth (inches): 10"
- Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 10"

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

**Remarks:** Meets criteria for indicator A3 - Saturation. Wetland hydrology present.
APPENDIX B

Wetland Rating Forms

Prepared by
Sound Ecological Endeavors
(17 May 2017)
Wetland name or number: Worden A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Site West A Date of site visit: 5/17/17
Rated by: Rone Brewer Trained by Ecology?: Yes Date of training: Spring 2014
HGM Class used for rating: Depressional Wetland has multiple HGM classes?: Yes

NOTE: Form is not complete without the figures requested (figures can be combined).
Source of base aerial photo/map: Google Earth Pro

OVERALL WETLAND CATEGORY: X (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

   Category I – Total score = 23 - 27
   Category II – Total score = 20 - 22
   Category III – Total score = 16 - 19
   Category IV – Total score = 9 - 15

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>Improving Water Quality</th>
<th>Hydrologic</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Potential</td>
<td>H M L</td>
<td>H M L</td>
<td>H M L</td>
</tr>
<tr>
<td>Landscape Potential</td>
<td>H M L</td>
<td>H M L</td>
<td>H M L</td>
</tr>
<tr>
<td>Value</td>
<td>H M L</td>
<td>H M L</td>
<td>H M L</td>
</tr>
</tbody>
</table>

   Score Based on Ratings: 7 7 6 20

2. Category based on SPECIAL CHARACTERISTICS of wetland

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estuarine</td>
<td>I II</td>
</tr>
<tr>
<td>Wetland of High Conservation Value</td>
<td>I</td>
</tr>
<tr>
<td>Bog</td>
<td>I</td>
</tr>
<tr>
<td>Mature Forest</td>
<td>I</td>
</tr>
<tr>
<td>Old Growth Forest</td>
<td>I</td>
</tr>
<tr>
<td>Coastal Lagoon</td>
<td>I II</td>
</tr>
<tr>
<td>Interdunal</td>
<td>I II III IV</td>
</tr>
<tr>
<td>None of the above</td>
<td>X</td>
</tr>
</tbody>
</table>
## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>D 1.3, H 1.1, H 1.4</td>
<td>A1</td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>D 1.4, H 1.2</td>
<td>A2</td>
</tr>
<tr>
<td>Location of outlet <em>(can be added to map of hydroperiods)</em></td>
<td>D 1.1, D 4.1</td>
<td>A2</td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland <em>(can be added to another figure)</em></td>
<td>D 2.2, D 5.2</td>
<td>A2</td>
</tr>
<tr>
<td>Map of the contributing basin</td>
<td>D 4.3, D 5.3</td>
<td>Assumed</td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td>A3</td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin <em>(from Ecology website)</em></td>
<td>D 3.1, D 3.2</td>
<td>A4</td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found <em>(from web)</em></td>
<td>D 3.3</td>
<td>A4</td>
</tr>
</tbody>
</table>

### Riverine Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>H 1.2</td>
<td></td>
</tr>
<tr>
<td>Ponded depressions</td>
<td>R 1.1</td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland <em>(can be added to another figure)</em></td>
<td>R 2.4</td>
<td></td>
</tr>
<tr>
<td>Plant cover of trees, shrubs, and herbaceous plants</td>
<td>R 1.2, R 4.2</td>
<td></td>
</tr>
<tr>
<td>Width of unit vs. width of stream <em>(can be added to another figure)</em></td>
<td>R 4.1</td>
<td></td>
</tr>
<tr>
<td>Map of the contributing basin</td>
<td>R 2.2, R 2.3, R 5.2</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin <em>(from Ecology website)</em></td>
<td>R 3.1</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found <em>(from web)</em></td>
<td>R 3.2, R 3.3</td>
<td></td>
</tr>
</tbody>
</table>

### Lake Fringe Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>L 1.1, L 4.1, H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Plant cover of trees, shrubs, and herbaceous plants</td>
<td>L 1.2</td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland <em>(can be added to another figure)</em></td>
<td>L 2.2</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin <em>(from Ecology website)</em></td>
<td>L 3.1, L 3.2</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found <em>(from web)</em></td>
<td>L 3.3</td>
<td></td>
</tr>
</tbody>
</table>

### Slope Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>H 1.2</td>
<td></td>
</tr>
<tr>
<td>Plant cover of <strong>dense</strong> trees, shrubs, and herbaceous plants</td>
<td>S 1.3</td>
<td></td>
</tr>
<tr>
<td>Plant cover of <strong>dense, rigid</strong> trees, shrubs, and herbaceous plants <em>(can be added to figure above)</em></td>
<td>S 4.1</td>
<td></td>
</tr>
<tr>
<td>Boundary of 150 ft buffer <em>(can be added to another figure)</em></td>
<td>S 2.1, S 5.1</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin <em>(from Ecology website)</em></td>
<td>S 3.1, S 3.2</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found <em>(from web)</em></td>
<td>S 3.3</td>
<td></td>
</tr>
</tbody>
</table>
HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.
If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?
   NO – go to 2
   YES – the wetland class is Tidal Fringe – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   NO – Saltwater Tidal Fringe (Estuarine)
   YES – Freshwater Tidal Fringe
   If your wetland can be classified as a Freshwater Tidal Fringe use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe it is an Estuarine wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3
   YES – The wetland class is Flats
   If your wetland can be classified as a Flats wetland, use the form for Depressional wetlands.

3. Does the entire wetland unit meet all of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).
   NO – go to 4
   YES – The wetland class is Lake Fringe (Lacustrine Fringe)

4. Does the entire wetland unit meet all of the following criteria?
   ___The wetland is on a slope (slope can be very gradual),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland without being impounded.
   NO – go to 5
   YES – The wetland class is Slope
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.
Wetland name or number ______

**NO – go to 6**

**YES – The wetland class is Riverine**

**NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

**NO – go to 7**

**YES – The wetland class is Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

**NO – go to 8**

**YES – The wetland class is Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<table>
<thead>
<tr>
<th>HGM classes within the wetland unit being rated</th>
<th>HGM class to use in rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope + Riverine</td>
<td>Riverine</td>
</tr>
<tr>
<td><strong>Slope + Depressional</strong></td>
<td><strong>Depressional</strong></td>
</tr>
<tr>
<td>Slope + Lake Fringe</td>
<td>Lake Fringe</td>
</tr>
<tr>
<td>Depressional + Riverine along stream within boundary of depression</td>
<td>Depressional</td>
</tr>
<tr>
<td>Depressional + Lake Fringe</td>
<td>Depressional</td>
</tr>
<tr>
<td>Riverine + Lake Fringe</td>
<td>Riverine</td>
</tr>
<tr>
<td>Salt Water Tidal Fringe and any other class of freshwater wetland</td>
<td>Treat as ESTUARINE</td>
</tr>
</tbody>
</table>

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as Depressional for the rating.*
### DEPRESSIONAL AND FLATS WETLANDS

**Water Quality Functions** - Indicators that the site functions to improve water quality

#### D 1.0. Does the site have the potential to improve water quality?

<table>
<thead>
<tr>
<th>Characteristics of surface water outflows from the wetland:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).</td>
</tr>
<tr>
<td>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</td>
</tr>
<tr>
<td>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing</td>
</tr>
</tbody>
</table>

#### D 1.2. The soil in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4  No = 0  **4**

#### D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):

| Wetland has persistent, ungrazed, plants > 95% of area | **5** |
|--------------------------------------------------------|
| Wetland has persistent, ungrazed, plants > 1/2 of area | **3** |
| Wetland has persistent, ungrazed plants > 1/10 of area | **1** |
| Wetland has persistent, ungrazed plants < 1/10 of area | **0** |

#### D 1.4. Characteristics of seasonal ponding or inundation:

This is the area that is ponded for at least 2 months. See description in manual.

| Area seasonally ponded is > 1/2 total area of wetland | **4** |
|------------------------------------------------------|
| Area seasonally ponded is > 1/4 total area of wetland | **2** |
| Area seasonally ponded is < 1/4 total area of wetland | **0** |

**Total for D 1** Add the points in the boxes above  **10**

**Rating of Site Potential** If score is: **12-16 = H; 6-11 = M; 0-5 = L** Record the rating on the first page

#### D 2.0. Does the landscape have the potential to support the water quality function of the site?

| Does the wetland unit receive stormwater discharges? | Yes = 1  No = 0  **1** |
|----------------------------------------------------|
| Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? | Yes = 1  No = 0  **1** |
| Are there septic systems within 250 ft of the wetland? | Yes = 1  No = 0  **0** |
| Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? | Yes = 1  | No = 0  **0** |

**Total for D 2** Add the points in the boxes above  **2**

**Rating of Landscape Potential** If score is: **3 or 4 = H; 1 or 2 = M; 0 = L** Record the rating on the first page

#### D 3.0. Is the water quality improvement provided by the site valuable to society?

| Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? | Yes = 1  No = 0  **0** |
|-------------------------------------------------------------|
| Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? | Yes = 1  No = 0  **1** |
| Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)? | Yes = 2  No = 0  **2** |

**Total for D 3** Add the points in the boxes above  **3**

**Rating of Value** If score is: **X 2-4 = H; 1 = M; 0 = L** Record the rating on the first page

---

Wetland Rating System for Western WA: 2014 Update
Rating Form – Effective January 1, 2015
### DEPRESSIONAL AND FLATS WETLANDS

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

#### D 4.0. Does the site have the potential to reduce flooding and erosion?

<table>
<thead>
<tr>
<th>D 4.1. Characteristics of surface water outflows from the wetland:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland is a depression or flat depression with no surface water leaving it (no outlet)</td>
</tr>
<tr>
<td>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet</td>
</tr>
<tr>
<td>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch</td>
</tr>
<tr>
<td>Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks of ponding are 3 ft or more above the surface or bottom of outlet</td>
</tr>
<tr>
<td>Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet</td>
</tr>
<tr>
<td>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet</td>
</tr>
<tr>
<td>The wetland is a “headwater” wetland</td>
</tr>
<tr>
<td>Wetland is flat but has small depressions on the surface that trap water</td>
</tr>
<tr>
<td>Marks of ponding less than 0.5 ft (6 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The area of the basin is less than 10 times the area of the unit</td>
</tr>
<tr>
<td>The area of the basin is 10 to 100 times the area of the unit</td>
</tr>
<tr>
<td>The area of the basin is more than 100 times the area of the unit</td>
</tr>
<tr>
<td>Entire wetland is in the Flats class</td>
</tr>
</tbody>
</table>

Total for D 4: Add the points in the boxes above 6

**Rating of Site Potential**  If score is: 12-16 = H; 6-11 = M; 0-5 = L  Record the rating on the first page

#### D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

<table>
<thead>
<tr>
<th>D 5.1. Does the wetland receive stormwater discharges?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 1  No = 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D 5.2. Is &gt;10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 1  No = 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at &gt;1 residence/ac, urban, commercial, agriculture, etc.)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 1  No = 0</td>
</tr>
</tbody>
</table>

Total for D 5: Add the points in the boxes above 3

**Rating of Landscape Potential**  If score is: 3 = H; 1 or 2 = M; 0 = L  Record the rating on the first page

#### D 6.0. Are the hydrologic functions provided by the site valuable to society?

<table>
<thead>
<tr>
<th>D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):</td>
</tr>
<tr>
<td>• Flooding occurs in a sub-basin that is immediately down-gradient of unit.</td>
</tr>
<tr>
<td>• Surface flooding problems are in a sub-basin farther down-gradient.</td>
</tr>
<tr>
<td>• Flooding from groundwater is an issue in the sub-basin.</td>
</tr>
<tr>
<td>The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why______________</td>
</tr>
<tr>
<td>There are no problems with flooding downstream of the wetland.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes = 1  No = 0</td>
</tr>
</tbody>
</table>

Total for D 6: Add the points in the boxes above 1

**Rating of Value**  If score is: 2-4 = H; 1 = M; 0 = L  Record the rating on the first page

---

Wetland Rating System for Western WA: 2014 Update
Rating Form – Effective January 1, 2015
Wetland name or number ______

<table>
<thead>
<tr>
<th>HABITAT FUNCTIONS - Indicators that site functions to provide important habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H 1.0. Does the site have the potential to provide habitat?</strong></td>
</tr>
<tr>
<td><strong>H 1.1. Structure of plant community:</strong> Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</td>
</tr>
<tr>
<td>___ Aquatic bed 4 structures or more: points = 4</td>
</tr>
<tr>
<td>___ X Emergent 3 structures: points = 2</td>
</tr>
<tr>
<td>___ X Scrub-shrub (areas where shrubs have &gt; 30% cover) 2 structures: points = 1</td>
</tr>
<tr>
<td>___ X Forested (areas where trees have &gt; 30% cover) 1 structure: points = 0</td>
</tr>
<tr>
<td>If the unit has a Forested class, check if:</td>
</tr>
<tr>
<td>____ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon</td>
</tr>
<tr>
<td><strong>H 1.2. Hydroperiods</strong></td>
</tr>
<tr>
<td>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).</td>
</tr>
<tr>
<td>___ Permanently flooded or inundated 4 or more types present: points = 3</td>
</tr>
<tr>
<td>___ X Seasonally flooded or inundated 3 types present: points = 2</td>
</tr>
<tr>
<td>___ X Occasionally flooded or inundated 2 types present: points = 1</td>
</tr>
<tr>
<td>___ X Saturated only 1 type present: points = 0</td>
</tr>
<tr>
<td>___ X Permanently flowing stream or river in, or adjacent to, the wetland</td>
</tr>
<tr>
<td>___ Seasonally flowing stream in, or adjacent to, the wetland</td>
</tr>
<tr>
<td>___ Lake Fringe wetland 2 points</td>
</tr>
<tr>
<td>___ Freshwater tidal wetland 2 points</td>
</tr>
<tr>
<td><strong>H 1.3. Richness of plant species</strong></td>
</tr>
<tr>
<td>Count the number of plant species in the wetland that cover at least 10 ft². Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</td>
</tr>
<tr>
<td>If you counted: &gt; 19 species points = 2</td>
</tr>
<tr>
<td>5 - 19 species points = 1</td>
</tr>
<tr>
<td>&lt; 5 species points = 0</td>
</tr>
<tr>
<td><strong>H 1.4. Interspersion of habitats</strong></td>
</tr>
<tr>
<td>Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. If you have four or more plant classes or three classes and open water, the rating is always high.</td>
</tr>
<tr>
<td>None = 0 points</td>
</tr>
<tr>
<td>Low = 1 point</td>
</tr>
<tr>
<td>Moderate = 2 points</td>
</tr>
<tr>
<td>All three diagrams in this row are HIGH = 3 points</td>
</tr>
</tbody>
</table>
Wetland name or number ______

### H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- **X** Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
- **X** Standing snags (dbh > 4 in) within the wetland
- **X** Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- **X** Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- **X** At least 1/4 ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- **X** Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

Total for H 1 Add the points in the boxes above 13

### Rating of Site Potential
If score is: ___15-18 = H; **X** 7-14 = M; ___0-6 = L

### H 2.0. Does the landscape have the potential to support the habitat functions of the site?

#### H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).

*Calculate:* % undisturbed habitat \(\_3\) + [(% moderate and low intensity land uses)/2] \(\_0\) = **3** % If total accessible habitat is:
- > 33 3% of 1 km Polygon points = 3
- 20-33% of 1 km Polygon points = 2
- 10-19% of 1 km Polygon points = 1
- < 10% of 1 km Polygon points = 0

#### H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

*Calculate:* % undisturbed habitat \(\_13\) + [(% moderate and low intensity land uses)/2] \(\_0\) = **13** %

- Undisturbed habitat > 50% of Polygon points = 3
- Undisturbed habitat 10-50% and in 1-3 patches points = 2
- Undisturbed habitat 10-50% and > 3 patches points = 1
- Undisturbed habitat < 10% of 1 km Polygon points = 0

#### H 2.3. Land use intensity in 1 km Polygon:

- > 50% of 1 km Polygon is high intensity land use points = (- 2)
- ≤ 50% of 1 km Polygon is high intensity points = 0

Total for H 2 Add the points in the boxes above -1

### Rating of Landscape Potential
If score is: ___4-6 = H; **1**-3 = M; **X** < 1 = L

### H 3.0. Is the habitat provided by the site valuable to society?

#### H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

- **X** It has 3 or more priority habitats within 100 m (see next page)
- It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- It is mapped as a location for an individual WDFW priority species
- It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

#### Rating of Value
If score is: **X** 2 = H; **1** = M; **0** = L
Wetland name or number ____

**WDFW Priority Habitats**


Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest - Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests - Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.
### CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

**Wetland Type**

*Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*

<table>
<thead>
<tr>
<th>SC 1.0. Estuarine wetlands</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the wetland meet the following criteria for Estuarine wetlands?</td>
<td>Yes – Go to <strong>SC 1.1</strong>  No = <strong>Not an estuarine wetland</strong></td>
</tr>
<tr>
<td>— The dominant water regime is tidal,</td>
<td></td>
</tr>
<tr>
<td>— Vegetated, and</td>
<td></td>
</tr>
<tr>
<td>— With a salinity greater than 0.5 ppt</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 1.1.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</td>
<td>Yes = <strong>Category I</strong>  No - Go to <strong>SC 1.2</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 1.2.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</td>
<td></td>
</tr>
<tr>
<td>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <em>Spartina</em>, see page 25)</td>
<td></td>
</tr>
<tr>
<td>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</td>
<td></td>
</tr>
<tr>
<td>— The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</td>
<td>Yes = <strong>Category I</strong>  No = <strong>Category II</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 2.0. Wetlands of High Conservation Value (WHCV)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</td>
<td>Yes – Go to <strong>SC 2.2</strong>  No – Go to <strong>SC 2.3</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 2.2.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</td>
<td>Yes = <strong>Category I</strong>  No = <strong>Not a WHCV</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 2.3.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a></td>
<td>Yes – Contact WNHP/WDNR and go to <strong>SC 2.4</strong>  No = <strong>Not a WHCV</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 2.4.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</td>
<td>Yes = <strong>Category I</strong>  No = <strong>Not a WHCV</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 3.0. Bogs</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <em>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 3.1.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</td>
<td>Yes – Go to <strong>SC 3.3</strong>  No – Go to <strong>SC 3.2</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 3.2.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</td>
<td>Yes – Go to <strong>SC 3.3</strong>  No = <strong>is not a bog</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC 3.3.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</td>
<td>Yes = <strong>Is a Category I bog</strong>  No – Go to <strong>SC 3.4</strong></td>
</tr>
</tbody>
</table>

**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.

<table>
<thead>
<tr>
<th>SC 3.4.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</td>
<td>Yes = <strong>Is a Category I bog</strong>  No = <strong>Is not a bog</strong></td>
</tr>
<tr>
<td>Wetland name or number ______</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

**SC 4.0. Forested Wetlands**

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? **If you answer YES you will still need to rate the wetland based on its functions.**

- **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

Yes = Category I  
No = Not a forested wetland for this section

**SC 5.0. Wetlands in Coastal Lagoons**

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

Yes – Go to SC 5.1  
No = Not a wetland in a coastal lagoon

**SC 5.1.** Does the wetland meet all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than 1/10 ac (4350 ft²)

Yes = Category I  
No = Category II

**SC 6.0. Interdunal Wetlands**

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **If you answer yes you will still need to rate the wetland based on its habitat functions.**

In practical terms that means the following geographic areas:

- Long Beach Peninsula: Lands west of SR 103
- Grayland-Westport: Lands west of SR 105
- Ocean Shores-Copalis: Lands west of SR 115 and SR 109

Yes – Go to SC 6.1  
No = not an interdunal wetland for rating

**SC 6.1.** Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

Yes = Category I  
No – Go to SC 6.2

**SC 6.2.** Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

Yes = Category II  
No – Go to SC 6.3

**SC 6.3.** Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

Yes = Category III  
No = Category IV

**Category of wetland based on Special Characteristics**

If you answered No for all types, enter “Not Applicable” on Summary Form
Wetland name or number _____

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Wetland Cowardin Classes
Worden Property
Lat. 48.83904 ; Long. −122.21533

Figure A1
Subject Property
Conveyance
Slope
Slope
Storm Sewer
Detention Pond
Detention Pond
Top of Slope
Approx. Residence
Stormwater Tributary
Wetland Bndry.
Saturated
Permanent Watercourses
Occasionally Flooded
Ponded Depressions
Outlet
Development Distance
150 ft

Scale:
1 inch = 1000 ft

Wetland Hydroperiods & Ponded Depressions
Worden Property

Lat. 48.83904; Long. -122.21533

Figure A2

Sound Ecological Endeavors, LLC; R. Brewer; 2/27/15; 1245 hrs; V1.0
Figure A3

Accessible & Undisturbed Habitats and Land Use Intensity
Worden Property
Lat. 48.83904; Long. -122.21533
No 303(d) waters within 1 mile.

North Creek TMDL for Fecal Coliform - 2001 - 2 miles downstree
Last samples collected 2006, unreliable data. Current Status Ur

Ecology 303(d) Waters
Worden Property
Lat. 48.83904 ; Long. -122.21533

Scale:
Not to Scale

Figure
A4
APPENDIX C

Photodocument,
Talasaea Consultants, 2018
The following is a compilation of photos taken on 4 May 2018 of the Cubes Self Storage project.

Included in this photodocument are typical photos of site conditions.

**Photo 1.** Panorama of greenhouse and pre-existing Wetland A buffer disturbances, facing northwest.

**Photo 2.** Panorama of greenhouse and access road, facing southwest.
Photo 3. View of greenhouse and pre-existing Wetland A buffer disturbances, facing northeast from within Wetland A.

Photo 4. Pre-existing Wetland A buffer disturbances, typical.
Photo 5. Landscape and nursery uses on-site, typical.
APPENDIX D

Conceptual Critical Area Mitigation Plans (24”x36”)
Sheet W1.0: Existing Conditions Plan
Sheet W1.1: Proposed Site Plan, Impacts and Mitigation Overview Plan
Sheet W2.0: Clearing, Grubbing, & Habitat Feature Plan
Sheet W3.0: Plant Community Plan, Preliminary Plant List