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CRITICAL AREA STUDY AND MITIGATION PLAN

FOR

BURNSTEAD – STROM SITE

PARCEL # 262605-9014
REDMOND, WASHINGTON

Wetland Resources, Inc. Project #11045

Prepared By:

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EXECUTIVE SUMMARY

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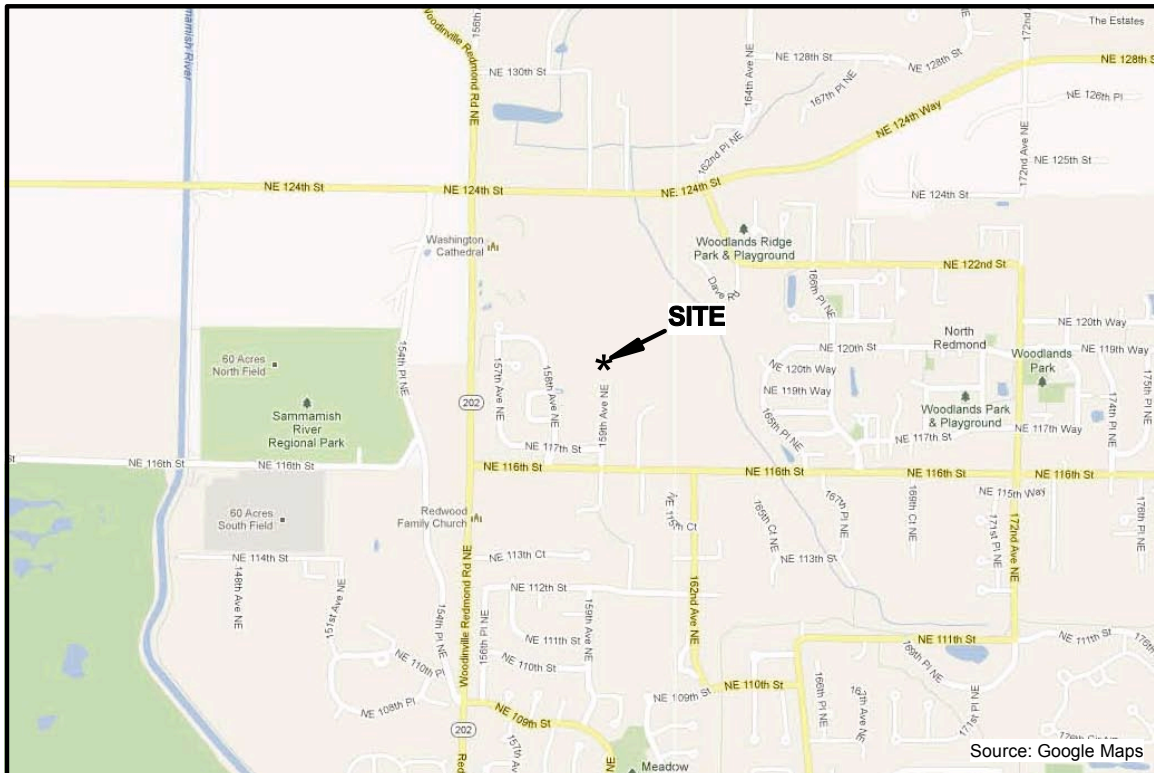
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Property Location:

The subject 5.74-acre site is located northeast of 158th Ave NE and NE 118th Way in the city of Redmond, WA (parcel #2626059014: within a portion of Section 26, Township 26N, Range 5E, W.M.).

Vicinity Map:



Source: Google Maps

On-site Critical Areas:

Wetland A, B, and C are slope wetlands less than 6,000 SF. Wetlands A and C are Category III wetlands with 150-foot buffers. Wetland B is a Category IV wetland with a 50-foot buffer. See Critical Area Study for details.

Stream 1 is a Class II stream with a 150-foot buffer. Streams 2 and 3 are Class III streams with 100-foot buffers. See Critical Area Study for details.

Project Description:

The applicant is proposing a 13-lot single-family residential subdivision with associated access road and stormwater detention facility in the eastern half of the subject property.

This project is designed to comply with RMZ 21.64.020.B.8, which allows a maximum 35 percent of the outer 50-foot buffer of the Class II stream buffer to be cleared and graded. The project engineer has carefully designed a plan that produces no net effective impervious surfaces by allowing the backyards of the lots to infiltrate. The project stormwater conveyance system in the north portion of the project site is allowed according under RMZ 21.64.020.B.9.

To achieve the development goals on this site, the following actions will be proposed within critical areas and/or protective buffers:

- 1) Reduce high-intensity buffers (150 feet) to minimum 100-foot buffers
- 2) Designate portions of the on-site wetlands as buffer
- 3) Temporarily disturb a portion of the on-site proposed buffer areas
- 4) Average a portion of buffer associated with Stream 3 (Type III)

Direct impacts to critical areas will be avoided on this site. Mitigation will be provided in the form of on-site buffer restoration and off-site wetland enhancement. Details of proposed mitigation, monitoring, maintenance, etc. are provided in the mitigation plan, starting on page 8.

INTRODUCTION

The subject 5.74-acre site is located northeast of 158th Ave NE and NE 118th Way in the city of Redmond, WA (within a portion of Section 26, Township 26N, Range 5E, W.M.). Wetland Resources, Inc. (WRI) investigated the subject site in April and November 2011 to delineate and assess regulated wetlands and streams on the site. The fieldwork was conducted by Scott Brainard (Principal Wetland Ecologist, PWS), Louis Emenhiser (Senior Wetland Ecologist, PWS), and Andrea Bachman (Senior Wetland Ecologist, PWS). This report has been prepared by Andrea Bachman. Andrea Bachman is a Senior Wetland Ecologist at Wetland Resources, Inc. and has 13 years of work experience as a consulting ecologist and is a certified Professional Wetland Scientist (PWS #2462).

The 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), (2010 Regional Supplement) was used to determine wetland conditions on this site; and the Redmond Zoning Code (RDZ) 21.64 was used to determine critical area classifications and projection requirements. WRI identified three wetlands and three streams during the April 2011 site visit.

The proposed development project will include a 13-lot residential subdivision in the eastern half of the site. To accomplish this, the applicant proposes temporary buffer impacts, and stream and wetland “paper-fill”. All temporary and permanent impacts will be mitigated.

SITE DESCRIPTION

Access to this property can be gained from the south, at the terminus of 159th Ave. NE. The site is comprised of undeveloped forestland. The eastern part of the site slopes gently to the northwest, while the western part of the site slopes steeply to the west into an existing stream corridor/ravine. Adjacent land use consists of single-family residential development to the south and west, and undeveloped land to the north and east. Typical vegetation on the site consists of big leaf maple (*Acer macrophyllum*), western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), and western hemlock (*Tsuga heterophylla*) in the canopy, with salmonberry (*Rubus spectabilis*), Oso-berry (*Oemleria cerasiformis*), vine maple (*Acer circinatum*), sword fern (*Polystichum munitum*), and piggyback plant (*Tolmea menzeisii*) in the understory.

During the field investigation, WRI identified three wetlands (Wetlands A, B, and C) and three streams (Streams 1, 2 and 3) within the steeply sloped ravine area in the western half of the site. Wetland A, B, and C and Streams 2 and 3 all drain into Stream 1. Stream 1 flows north through the site and continues off-site to the north.

Wetlands A and C both receive a total of 31 points for functions, including 23 points for habitat functions. Wetlands A and C therefore classify as Category III wetlands with 150-foot wide protective buffers. Wetland B receives a total of 28 points for functions, which equates to a Category IV rating. Category IV wetlands are typically dedicated 50-foot protective buffers.

Stream 1 is a Class II stream because it meets the criteria for fish habitat. Class II streams are dedicated 150-foot protective buffers (100-foot inner buffer + 50-foot outer buffer). Streams 2

and 3 are intermittent Class III streams because they drain to a Class II stream. They will be dedicated 100-foot protective buffers.

WETLAND AND STREAM CLASSIFICATIONS – COWARDIN SYSTEM

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classifications for the on-site wetlands and stream are as follows:

Wetland A, B, C: Palustrine, Forested, Broad-Leaved Deciduous, Saturated

Stream 1: Riverine, Upper Perennial, Streambed, Cobble-gravel

Streams 2 & 3: Riverine, Intermittent, Unconsolidated Bottom, Sand

WETLAND AND STREAM CLASSIFICATIONS – CITY OF REDMOND

Under RZC 21.64, the on-site wetlands are classified according to the Washington State Department of Ecology (DOE) Wetland Rating System (SCC 30.62A.230(2); Hruby 2004). Completed rating forms are provided at the end of this report. Wetland buffer widths vary depending upon the intensity of the adjacent land use. The classification and buffer width for each wetland is as follows:

Wetlands A & C - Category III

Wetlands A and C are slope wetlands with similar features and vegetation composition. Both of these wetlands receive a total score of 31 points for functions on the DOE Wetland Rating Form, including a habitat score of 23 points. Wetlands attaining a total score between 30-50 points for functions on the DOE Wetland Rating Form are classified as Category III. In the city of Redmond, Category III wetlands with habitat scores of 23 in high intensity land use typically receive 150-foot protective buffers.

Wetlands B - Category IV

Wetland B is a slope wetland that receives a total score of 28 points for functions on the DOE Wetland Rating Form, including a habitat score of 20 points. Wetlands attaining fewer than 30 points for functions on the DOE Wetland Rating Form are classified as Category IV. In the city of Redmond, Category IV wetlands in high intensity land use typically receive 50-foot protective buffers.

Stream 1 – Class II

Stream 1 is not designated as a Class I “Shoreline of the State”. It has the potential to support fish because it is a perennial stream on a relative low gradient (<5%) and flows to a stream with documented fish habitat. In the city of Redmond, Class II streams typically receive a 100-foot inner protective buffer with a 50-foot protective outer buffer for a total of a 150-foot buffer.

Streams 2 & 3 – Class III

Streams 2 & 3 are short, intermittent drainages along slopes steeper than 40%. They drain to Stream 1, but do not support fish habitat. These streams are therefore classified as Class III streams. In the city of Redmond, Class III intermittent streams are dedicated 100-foot buffers.

WETLAND DETERMINATION REPORT

Methodology

The 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), (2010 Regional Supplement) was used for this determination, as required by the City of Redmond during the permitting process. Under this method, the process for making a wetland determination is based on three sequential steps:

- 1) Examination of the site for hydrophytic vegetation (species present and percentage cover).
- 2) If hydrophytic vegetation is found, then the presence of hydric soils is determined.
- 3) Determination of the presence of wetland hydrology in the area examined under the first two steps.

Vegetation Criteria

The 2010 Regional Supplement defines hydrophytic vegetation as “assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or have sufficient frequency and duration to influence plant occurrence.” Field indicators were used to determine whether the vegetation meets the definition for hydrophytic vegetation.

Wetland Soils Criteria and Mapped Description

The 2010 Regional Supplement defines hydric soils as “soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” Field indicators were used to determine whether a given soil meets the definition for hydric soils.

The soils underlying this site are mapped in the Soil Survey of King County Area Washington, 1973 edition as Alderwood gravelly sandy loam, 6 to 15 percent slopes (AgC).

The AgC soil unit is described as rolling with irregularly shaped areas ranging from 10 to about 600 acres in size. The A horizon ranges from very dark brown to dark brown. The B horizon is dark brown, grayish brown, and dark yellowish brown. Permeability is moderately rapid in the surface layer and subsoil and very slow in the substratum. Available water capacity is described as low. Included within this soil unit are the poorly drained Norma, Bellingham, Seattle, Tukwila, Shalcar soils, and Alderwood soils that have slopes more gentle or steeper than 6 to 15 percent. Included soil units make up no more than 30 percent of the total acreage.

Wetland Hydrology Criteria

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively.

Additionally, areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days \geq 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between five and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than five percent of the growing season are non-wetlands. Field indicators were used to determine whether wetland hydrology parameters were met on this site.

BOUNDARY DETERMINATION FINDINGS

On-site Wetlands

The on-site wetlands are dominated by the following plant species: salmonberry (*Rubus spectabilis*, Fac+), devil's club (*Oplaxtonix horridus*, Fac+), piggyback plant (*Tolmea menzeisii*, Fac), lady fern (*Athyrium filix-femina*, Fac+), and skunk cabbage (*Lysichiton americanum*, Obl).

The soil profile within the areas mapped as wetlands is typically very dark grayish brown (10YR 3/2) clay loam with dark yellowish brown (10YR 4/4) redoximorphic features from the surface to greater than 18 inches. The soils were saturated within the upper 12 inches of the surface at the time of the April 2011 site visit.

The dominance of species rated "Facultative" or wetter meets the criteria for hydrophytic vegetation in these wetlands. Based on field indicators, it appears that the areas mapped as wetlands are saturated to the surface for more than 12.5 percent of the growing season, thereby fulfilling wetland hydrology criteria.

Non-wetland Areas

Non-wetland areas on this site are dominated by the following species: big leaf maple (*Acer macrophyllum*, FacU), western red cedar (*Thuja plicata*, Fac), red alder (*Alnus rubra*, Fac), western hemlock (*Tsuga heterophylla*, FacU), salmonberry (*Rubus spectabilis*, Fac+), Oso-berry (*Oemleria cerasiformis*, FacU), vine maple (*Acer circinatum*, Fac-), trailing blackberry (*Rubus ursinus*, FacU), and sword fern (*Polystichum minutum*, FacU).

The soil profile within the non-wetland areas of the site is typically dark brown (10YR 3/3) gravelly sandy loam within the upper 6 inches of the surface and dark yellowish brown (10YR 4/4) gravelly sandy loam from 6 to 18 inches below the surface. The soils were moist throughout the profile during the April 2011 site visit. The soil type described above does not indicate persistent wetland hydrology.

Based on the lack of field indicators, it appears that areas of the site mapped as non-wetland are not saturated to the surface for more than 12.5 percent of the growing season, thereby not fulfilling wetland hydrology criteria.

FUNCTIONS AND VALUES ASSESSMENT

Methodology

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretations. This assessment pertains specifically to the on-site wetland systems, but is typical for assessments of similar systems common to western Washington.

Functions and Values Components

Wetlands in western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are stormwater control, water quality improvement, fish and wildlife habitat, aesthetic value, recreational opportunities, and education. The most commonly assessed functions are Stormwater Storage/Floodflow Attenuation, Water Quality, and Wildlife Habitat. Assessments of these functions for the project site are provided below.

Existing Conditions

Wetlands A, B, and C are hydrogeomorphically (HGM) classified as a slope wetlands because they are located on a hillside and contain ground water seeps that “daylight” and flow through the wetlands without being impounded. Slope wetlands do not improve water quality or control floodwaters to the same extent as depressional or riverine wetlands because they lack the physical characteristics to be able to impound surface water for treatment and/or flood control.

Water Quality

Because of their location on a relatively steep slope with little potential for ponding, the subject wetlands have limited potential to perform water quality improvement functions. These wetlands generally rate low for this function.

Hydrologic Control

While these wetlands function to maintain base flows for the on-site Class II stream, they have little potential for reducing peak flows. Similar to water quality functions, the on-site wetlands have a severely limited potential to provide flood control functions because they lack the ability to trap and retain excess stormwater. The wetlands contain moderate coverage of rigid vegetation that may help slow velocity somewhat.

Wildlife Habitat

These wetlands have potential to provide wildlife habitat functions, due to their connections to in-stream habitats and surrounding wooded areas. The overall level of habitat function offered by these wetlands is moderate because of the existing development in the area and the limited habitat complexity within the wetlands themselves.

In conclusion, Wetlands A, B, and C are slope wetlands with limited hydrologic and water quality functions and moderate habitat functions. Wetlands A and C are rated as a low Category

III wetlands, as evidenced by their score of 31 points on the DOE Rating form. With a 3-point difference, Wetland B has been rated as a Category IV wetland.

STREAM ASSESSMENT/RECONNAISSANCE REPORT

Wetland Resources, Inc. visited the subject property on November 7, 2011 to evaluate the on-site streams.

Stream 1 – Class II

Stream 1 is a perennial stream that flows north for approximately 590 lineal feet through the subject property. Off-site to the north, this stream crosses under NE 124th St. and then flows in a westbound direction to drain into the Sammamish River.

The streambed within the on-site segment is comprised of large cobbles with lesser amounts of gravel over a heavily incised clay substrate. Supporting hydrology to this stream comes from hillside seep wetlands located within the on-site steep ravine as well as approximately 40 acres of surface water runoff from upslope developed areas.

Stability of side slopes adjacent to the stream channel is moderately unstable in some areas. This is largely due to existing hillside seeps. As water saturates the side slopes, the soils become unstable and eventually slough off into the stream channel. There is evidence of such occurrences along the on-site segment of Stream 1. The existing intact vegetation along the stream banks does, to some extent, function to control slope stability and control sediment. However, there are a few small sections of stream bank that are nearly vertical and saturated where vegetation will not establish.

The riparian vegetation along Stream 1 is considered intact and moderately complex with multiple strata. Trees and shrubs overhang the stream channel provide excellent shade, protection, and temperature control. Leaf litter from deciduous species provides a good source of nutrients. The densely forested riparian corridor has potential to contribute valuable large woody debris features into the stream.

The side slopes of Stream 1 are steep and narrow. The lack of a wide, flat bank is an indicator that the stream has limited potential for flood attenuation during storm events. The adjacent slope wetlands serve virtually no flood control function.

The lack of wide, vegetated riparian wetlands along the stream are indicators that water quality control functions within the stream are limited. However, the seep wetlands and upland buffers do function to support clean water that enters the stream channel.

There are no known downstream obstructions that would prevent fish passage into the stream. The low gradient of approximately 8 percent combined with an average channel width of between 3-4 is an indicator that the stream could support anadromous fish habitat. Ideal spawning conditions appear to be somewhat limited, due to limited gravel and pools within the stream. The stream appears to have a greater potential for smaller resident species.

Based on the conditions of Stream 1, it has been classified as a Class II and is dedicated a 150-foot protective buffer.

Stream 2 Class III

Stream 2 flows out of an on-site seep wetland (Wetland B) into Stream 1. It is a seasonal stream less than 2-feet wide at the bankfull widths with a gravel bottom. It is situated on a slope greater than 16 percent. The stream is approximately 40 feet long between Wetland B and Stream 1. Based on these characteristics alone, this stream has virtually no potential for supporting fish habitat.

The riparian vegetation is similar to that of Stream 1. The channel is deep and the side slopes show evidence of moderate instability, as soils appear to have sloughed off adjacent to the channel in past seasons. The contributing small slope wetland provides moderate water quality functions for the stream. Flood control is limited because this stream/wetland complex is small relative to the remaining drainage basin.

This stream has been classified by the city of Redmond as a headwater stream with a surface water connection to a Class II stream. It is therefore classified as a Class III stream with a 100-foot buffer. No impacts are proposed for this stream or its associated buffer.

Stream 3—Class III

Stream 3 is a seasonal stream less than 2 feet wide with a sand/gravel bottom. It was dry at the time of our November 2011 site investigation. It is located in the southern part of the subject property on a 40 percent slope. The stream is approximately 60 feet long on-site and flows directly to Stream 1. Based on these existing characteristics, Stream 3 has no potential for supporting anadromous or resident fish habitat.

The riparian vegetation is similar to that of Stream 1, and provides similar functions of temperature control, sediment control, and taking up excess nutrients. The forested riparian areas provide moderate water quality control and flood control. The channel is relatively deep and the side slopes show evidence of moderate instability, as clay and sandy soils appear to have sloughed off in past seasons.

This stream has been classified by the city of Redmond as a headwater stream with a surface water connection to a Class II stream. It is therefore classified as a classified as a Class III stream with a 100-foot buffer. No impacts are proposed for this stream or its associated buffer.

PROJECT DESCRIPTION AND MITIGATION

The applicant is proposing a 13-lot single-family residential subdivision with associated access road and stormwater detention facility in the eastern half of the subject property.

This project is designed to comply with RMZ 21.64.020.B.8, which allows a maximum 35 percent of the outer 50-foot buffer of the Class II stream buffer to be cleared and graded. The project engineer has carefully designed a plan that produces no net effective impervious surfaces by allowing the backyards of the lots to infiltrate. The project stormwater conveyance system in the north portion of the project site is allowed according under RMZ 21.64.020.B.9.

To achieve the development goals on this site, the following actions will be proposed within critical areas and/or protective buffers:

- 1) Reduce high-intensity buffers (150 feet) to minimum 100-foot buffers**
- 2) Designate portions of the on-site wetlands as buffer**
- 3) Temporarily disturb a portion of the on-site proposed buffer areas**
- 4) Average a portion of buffer associated with Stream 3 (Type III)**

The four listed actions above are further described in detail below.

1) Reduce high-intensity buffers (150 feet) to minimum 100-foot buffers

The applicant will propose to reduce the on-site wetland buffers according to Redmond Municipal Code Section 21.64.030(B)(5), provided the following requirements are achieved:

- (A.) A relatively undisturbed vegetated corridor at least 100 feet wide is protected between the wetlands and any other priority habitats as defined by the Washington State Department of Fish and Wildlife. The corridor must be protected for the entire distance between the wetland and the priority habitat via some type of legal protection such as a conservation easement; and
- (B.) Measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied. Those measures are described below.

- A. Lights: Residential developments increase the amount of artificial light into the wooded habitat areas and wetlands. Privacy fencing will be proposed along the backs of the lots to minimize this. With the fencing along the backsides of all the properties and the locations of the new homes at the top of the slopes, it is expected that the amount of light from new homes will be directed away from the on-site critical areas.
- B. Noise: Residential areas result in increased noise. In the short term, temporary noise from construction is expected to last no longer than 6 months and will be directed away from the on-site stream and wetlands to the greatest extent possible. Long-term effects from noise associated with the increased use of the site will likely be minimal. This is because no access into the NGPE will be allowed for residents. The distance between the development and the nearest potential fish habitat is approximately 150 feet.
- C. Toxic runoff, Stormwater runoff, and change in water regime: Storm water runoff for the access road and front of the lots will be collected via tight lined storm pipe and directed to the storm water vault. The vault will treat storm water meeting the city of Redmond's standards, for impurities and suspended solids, and release only treated storm water to the downstream storm system.

Stormwater from the back yards of Lots 4-13 will be allowed to infiltrate through flow dispersion. This is intended to promote natural recharge conditions within the adjacent buffers and riparian area, which WRI supports. No direct discharge from the development to wetlands is expected.

- D. Pets and human disturbance: To prevent disturbance from pets and humans into the NGPE, the applicant will construct a privacy fence along the backsides of the properties located adjacent to the NGPE. In addition, the entire NGPE on this site will be placed in a separate permanently protected tract.

Conclusion: Through proper implementation of the mitigation measures described above, it appears that maintaining the 100-foot protective corridor for the wetlands on this site shall be allowed pursuant to Section 21.64.030(B)(5).

2) Designate portions of the on-site wetlands as buffer

In order to achieve the desired lots sizes and densities allowed in Redmond, unavoidable and permanent buffer reductions are proposed. To achieve this, the proposal is to designate portions of the on-site wetlands as buffers. This method is known as paper filling, whereby a wetland area is not to be physically filled but will be treated and mitigated as such in order to preserve buffer functions and comply with minimum buffer requirements.

This action is being proposed in order to maintain a relatively undisturbed vegetated corridor at least 100 feet wide, as proposed in action #1 described above. The action would result in a total of 2,569 (753 + 1,534 + 282) square feet of wetland areas to be designated as buffer areas. These include Wetlands A, B, and C, respectively.

As mitigation for designating wetland areas as buffers, the applicant proposes ‘Enhancement Only’ measures, as allowed in the Redmond Zoning Code (see Table 1 below). The proposed enhancement area will be off-site within a dedicated Native Growth Protection Easement for the Kensington residential development. The wetland area located within this offsite tract is connected to Stream 1 on the subject site. It is currently dominated by invasive species and conditions have potential to improve through enhancement. For further details and justification on proposed off-site mitigation measures, please see the Mitigation Approach section on Page 11 in this report.

Per Table 21.64.030B, required acreage replacement ratios are as follows:

Table 1: City of Redmond Required Acreage Replacement Ratios

Category and Type of Wetland	Creation or Reestablishment	Rehabilitation (Restoration)	Reestablishment or Creation (R/C) and Enhancement	Enhancement Only
Category I Forested	6:1	12:1	1:1 R/C and 10:1 E	24:1
Category I based on score	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C and 2:1 E	6:1

For the proposed indirect wetland impacts, the applicant proposes the following mitigation measures:

Table 2: Proposed Impact and Mitigation Ratios

Name of Critical Area	Category/Type	Impact Area (SF)	Enhancement Only Ratio (Per RZC 21.64.030B)	Enhancement Only
Wetland A	Category III	753	8:1	6,056 SF
Wetland B	Category IV	2,130	6:1	12,780 SF
Wetland C	Category III	282	8:1	2,256 SF

Total = 15,830 SF

A discussion of the mitigation sequencing, as required by RZC 21.664, is provided below.

Avoiding the impact by not taking a certain action or parts of actions:

The site is severely constrained by physical features including streams, wetlands, regulated buffers, steep topography, as well as minimum lot size requirements and lot densities. Therefore, the proposal to permanently reduce parts of the buffer and dedicate part of the onsite critical areas as buffer appears to be unavoidable. Despite unavoidable impacts to buffers, direct impacts to wetlands and stream will be avoided.

Minimizing the impact by limiting the degree or magnitude of the action and its implementation:

The impact will be minimized to the greatest extent possible by proposing only to impact the outermost portion of the buffers and completely avoiding the critical areas. Additional actions to minimize impacts include directing noise and light away from critical areas, treating all stormwater from the site before it is released in a controlled system, and placing a fence along the backs of the properties to minimize human and pet disturbance.

Rectifying the impact by repairing, rehabilitating, or restoring the affected environment:

Repairing, rehabilitating, and/or restoring the affected environment generally does not apply to this action. Impacts on the site are permanent and generally there is no opportunity to rehabilitate the already functional and forested site.

Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action:

As mitigation for dedicating 2,569 square feet of wetland areas as buffer, the applicant proposes mitigation in the form of enhancement only according to the required ratios under RZC 21.64.030B. The total area to be enhanced will amount to 15,830 square feet.

Because the subject site is currently in good condition and is comprised of intact native vegetation (including multiple vegetation strata), there are limited enhancement opportunities existing on the site. However, the native growth protection easement immediately off-site to the south has potential for enhancement. The offsite wetland areas are the headwaters of Stream 1. The off-site Critical Area Tract is vegetated with sporadic immature red alder trees in the canopy and dense Himalayan blackberry in the understory. Himalayan blackberry is an invasive species that should be eradicated so that native tree and shrubs may establish for improved habitat diversity. The plan will result in a total of 15,830 square feet of wetland enhancement as mitigation for paper filling wetland areas on the subject property.

3) Temporarily disturb a portion of the on-site proposed buffer areas

The applicant's grading plans demonstrate that grading work will occur in the outer portions of the on-site buffers. Due to existing site topography, the temporary impacts within the buffer are necessary to create level lot elevations. Grading will result in temporary disturbance within 11,650 square feet of buffer on the site. Following the grading work, all bare ground areas will be restored with a quality topsoil, native vegetation, grass seed and mulch.

A discussion of the mitigation sequencing, as required by RZD 21.664, is provided below:

Avoiding the impact by not taking a certain action or parts of actions

Given the site topography, there appears to be no practical alternative for creating level building surfaces that would result in complete avoidance of the critical area buffer.

Minimizing the impact by limiting the degree or magnitude of the action and its implementation.

The applicant has minimized impacts to the greatest extent possible by limiting the grading to only the outer portions of the buffer.

Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

The temporarily impacted areas shall be fully restored to native vegetation. This will amount to a total of 11,650 square feet of restoration.

Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

Not applicable

Compensating for the impact by replacing or providing substitute resources or environments.

Not applicable

4) Average a portion of buffer associated with Stream 3 (Type III)

The applicant is proposing to buffer average a small portion of the 100-foot regulated buffer associated with Stream 3 (Type III) in the southern part of the site. The total area to be reduced will amount to 1,122 square feet. A slightly larger amount (1,237 SF) of buffer will be added in the north, as that is the only available area outside of all of the regulated buffer limits on the site.

Based on examination of aerial images, it appears that the proposed buffer reduction area will avoid direct impacts to rooted trees. The proposed additional buffer area will be temporarily disturbed during construction, but will be restored and significantly enhanced with a diversity of native species during the development. The result will be an improved buffer habitat on the site. The minimum buffer width on Stream 3 (Type III) will be approximately 83 feet from the upper limits of stream channel, resulting in a 17 percent buffer reduction.

Since there is no fish habitat in Stream 3, the primary ecological functions offered within the stream and its buffer are limited to water quality improvement and upland habitat functions. These functions are expected to be maintained since the project stormwater plans are designed to protect the on-site critical areas and because more than 80 feet of native forest habitat will remain intact between Stream 3 and the development. Additional protection will be provided in the form of permanent fencing, as described earlier, along the proposed buffer line to prevent

intrusion into the buffer areas. Therefore, no impacts to stream or habitat functions are expected as a result of this buffer averaging plan.

Overall, the proposed buffer averaging plan will result a slightly larger buffer area to be dedicated back to the site. The proposal will result in no loss of habitat functions and will provide added protection through permanent fencing along the final buffer line. Based on these anticipated conditions, it appears that this buffer averaging proposal complies with the goals and objectives outlined under RZC 21.64.020.B.

MITIGATION APPROACH

Pursuant to RZC 21.64.010.2(a-i), below is an explanation of location and timing of the proposed mitigation plan:

The applicant proposes to enhance the wetland system within an adjacent property south of the subject site. The reason for proposing off-site mitigation is because there is little enhancement opportunity on the subject site. The on-site wetlands and buffer areas are currently vegetated with intact native species. Inter-planting native species among existing established native vegetation would do little to mitigate the proposed impacts.

The off-site wetland proposed for enhancement is within a protected NGPE tract (in city of Redmond) in the existing residential subdivision to the south. It is hydrologically connected to Stream 1 on the subject site, and appears to be part of the headwater system associated with this drainage. Based on the existing condition of this off-site NGPE tract there appears to be plenty of opportunity to improve habitat functions through enhancement planting. Currently the wetland is vegetated with immature red alder in the canopy with dense Himalayan blackberry in the understory. Improvement could be achieved through removal of invasive blackberry and planting of native trees and shrubs.

Based on the existing conditions on the subject site and the adjacent site to the south, proposing off-site mitigation in the form of enhancement appears to be the most feasible option.

As mitigation for designating a total of 2,569 square feet of wetland as buffers, the applicant proposes to enhance a total of 15,830 square feet of wetland areas, including areas along an existing stream channel. Enhancement will be achieved through careful removal of invasive species and planting native species. Since the proposed on-site impacts do not involve direct physical fill of the critical areas, the mitigation ratios are appropriate.

The water source for the new plantings is expected to come from the wetland and stream system. The existing hydrology will increase the chances of success within the enhancement area. All of the mitigation will be completed either prior to or concurrently with the development on the subject property.

POST MITIGATION FUNCTIONS AND VALUES

Post Mitigation Functions and Values

The total area of temporary impact amounts to approximately 11,650 square feet. Trees will be avoided wherever possible. Native vegetation will be restored within all temporarily disturbed areas. Through proper installation of the restoration plan described below, no loss of buffer functions and values is expected on the site.

For reducing the upland buffers and proposing to dedicate wetland areas as buffer, the applicant will enhance a significant portion of the wetland system immediately offsite to the south. The enhancement plan will replace and improve impacted functions and values to the maximum extent possible. The proposed enhancement plan will result in a total of 15,830 square feet of off-site wetland enhancement. Because the wetland/stream system to be enhanced is associated with the on-site Class II stream (Stream 1), the proposed enhancement plan is expected to provide sufficient mitigation.

The selected trees and shrubs will grow and mature under developed conditions to create valuable habitat for a variety of birds and small mammals that may occur in the area. Native trees provide shade, protection, food, nesting and a variety of other opportunities for wildlife species.

Once established, the native vegetation will have the ability to take in excess hydrology and nutrients from runoff, thereby benefiting hydrologic control and water quality improvement functions on-site and in downstream systems. These are important functions to protect and improve in this developed setting.

Through proper implementation, the proposed wetland/steam enhancement and buffer restoration are expected to adequately replace and improve the critical area functions. Overall, the proposed mitigation plan appears to meet the goals and objectives of RZC 21.64.

PROJECT GOALS

The goal of this mitigation plan is to restore temporarily impacted buffer areas with native vegetation. This will be achieved if the mitigation areas support a minimum 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover and emergent species and less than 20 percent cover of invasive species by the end of five years.

SIGNS AND FENCING

Sensitive area signs shall be installed along the proposed buffer boundary on the subject site. Sign design specifications shall follow those recommended by the City. In addition, fencing shall be installed along the buffer to minimize disturbance from residents and domestic animals to the greatest extent possible. The fence will not be a standard split-rail fence, but a minimum 6 feet tall wood privacy fence.

BUFFER RESTORATION PLAN

A total of 11,650 (10,800 + 850) square feet of buffer will be temporarily disturbed during site preparation and grading. Following the installation of the pipe, the disturbed soils will be restored to original horizontal structure and a minimum 12" of high-nutrient topsoil will be applied to the disturbed area prior plantings. All bare ground areas will be restored with native vegetation. Spacing is based on the triangular spacing formula for 4-foot spacings. Plant quantities may be adjusted upon installation, if it is determined that the disturbance area is smaller or larger than anticipated. The following plant species are proposed:

Buffer Restoration/Enhancement (11,650 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
1. Big-leaf maple	<i>Acer macrophyllum</i>	5 gal	15'	30
2. Western red cedar	<i>Thuja plicata</i>	5 gal	15'	30
3. Osoberry	<i>Oemleria cerasiformis</i>	2 gal	4'	165
4. Snowberry	<i>Symphoricarpos albus</i>	2 gal	4'	160
5. Vine maple	<i>Acer circinatum</i>	2 gal	4'	160
6. Salmonberry	<i>Rubus spectabilis</i>	2 gal	4'	120
7. Salal	<i>Gaultheria shallon</i>	2 gal	4'	120
8. Dwarf Oregon grape	<i>Mahonia nervosa</i>	2 gal	4'	100
9. Sword fern	<i>Polystichum munitum</i>	1 gal	4'	140

WETLAND ENHANCEMENT

A total of approximately 15,830 square feet wetland within the off-site native growth protection easement will be enhanced, including areas along the stream channel. Enhancement will begin with careful removal of invasive species, such as Himalayan blackberry (*Rubus armeniacus*). All invasive plant cuttings will be removed from the designated enhancement areas and exported off-site. The areas will then be planted with a diversity of native trees and shrubs. Trees will be planted on 12-foot centers and shrubs will be planted on 5-foot centers. The combination of new plantings and existing native vegetation should be adequate to achieve the plant density standards outlined in the definitions of success later in this report. Plantings will be in groups of 2-3 like species, however, the actual placement of individual plants shall mimic natural, asymmetric vegetation patterns. The following species shall be planted within the designated off-site enhancement areas:

Wetland Enhancement (15,830 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
1. Western red cedar	<i>Thuja plicata</i>	5 gal	12'	32
2. Sitka spruce	<i>Picea sitchensis</i>	5 gal	12'	32
3. Sitka willow	<i>Salix sitchensis</i>	5 gal	12'	27
4. Oregon ash	<i>Fraxinus latifolia</i>	5 gal	12'	20
5. Pacific willow	<i>Salix lucida</i>	5 gal	12'	20
6. Red-twig dogwood	<i>Cornus sericea</i>	2 gal	5'	234
7. Pacific ninebark	<i>Physocarpus capitatus</i>	2 gal	5'	184
8. Black twinberry	<i>Lonicera involucrata</i>	2 gal	5'	184
9. Salmonberry	<i>Rubus spectabilis</i>	2 gal	5'	134

PLANTING NOTES

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or City staff.

Handling: Plants shall be handled to avoid all damage, including breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species' horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Bare root plants are subject to the following special requirements, and shall not be used unless planted between November 1 and March 1, and only with the permission of the landscape designer, wetland biologist, and City of Redmond staff. Bare root plants must have enough fibrous root to insure plant survival. Roots must be covered at all times with mud and/or wet straw, moss, or other suitable packing material until time of installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage: Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows, and treated in a manner suitable to that species' horticultural requirements. Plants must be reinspected by the wetland biologist and/or landscape designer prior to installation.

Damaged plants: Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

Plant Names: Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland biologist, or City of Redmond staff. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition: Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

Roots: All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland biologist. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half

an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland biologist and/or City of Redmond staff.

Sizes: Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form: Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single-trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

Timing of Planting: Unless otherwise approved by City of Redmond staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

Weeding: Existing and exotic vegetation in the planting areas will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is allowed without the written permission of the City of Redmond staff.

Soil Amendments: Unless otherwise specified and approved by the City of Redmond, organic matter (compost or approved equal) will be incorporated into the entire planting area, not including areas inside the dripline of existing trees and shrubs. One unit of loose, well-composted organic material should be incorporated with two units of silt loam topsoil to a depth of eight to ten inches (only three to four inches within three feet of existing drip lines) and mixed thoroughly.

Site conditions: The contractor shall immediately notify the landscape designer and/or wetland biologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Planting Pits: Planting pits shall be circular or square with vertical sides, and shall be 6” deeper and 12” larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

Fertilizer: Slow release fertilizer may be used if pre-approved by the City of Redmond. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

Water: Plants shall be watered midway through backfilling, and again upon completion of backfilling. For spring plantings (if approved), a rim of earth shall be mounded around the base of the tree or shrub no closer than the drip line, or no less than 30 inches in diameter, except on steep slopes or in hollows. Plants shall be watered a second time within 24-48 hours after installation. The earthen rim / dam should be leveled prior to the second growing season.

Staking: Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

Plant Location: Three-foot by two-inch by one quarter-inch (3' x 2" x 1/4") lath stakes or suitable flagging material shall be placed next to or on each planting to assist in locating the plants while removing the competing non-native vegetation and to assist in locating the plants during the monitoring period.

Arrangement and Spacing: The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City of Redmond staff.

Inspection(s): A wetland biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Mulch: All landscaped areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than two to four inches of organic compost or certified weed free straw after planting. Compost or certified weed free straw shall be kept well away (at least two inches) from the trunks and stems of woody plants.

Temporary Erosion and Sedimentation Control

Prior to beginning any development or mitigation activities, erosion control fencing shall be installed as described in the grading plan construction drawings. A pre-construction meeting between the City of Redmond, the consulting wetland professional, contractor and equipment operator(s) will be held prior to any construction activities to inspect the location of siltation fencing.

All sedimentation control facilities shall be kept in place and functioning until vegetation is firmly established. Refer to site engineer's TESC plan for all erosion and sedimentation control details.

TEMPORARY IRRIGATION SYSTEM

An above ground irrigation system capable of full head to head coverage of all planted areas will be provided. The temporary irrigation system shall either utilize control and point of connection (POC) from the site irrigation system, or shall include a separate POC and controller with a backflow prevention device per water jurisdiction inspection and approval. The system shall be zoned to provide optimal pressure and uniformity of coverage, as well as separation of areas of full sun or shade and slopes in excess of 5%.

The system shall be operational by June 15 (or at time of planting) and winterized by October 15. Irrigation shall be provided for the first two years of the monitoring period, and as needed during subsequent years of maintenance. The irrigation system shall be programmed to provide 1” inch of water per week (one cycle with two start times per week or every three days). A chart describing the location of all installed or open zones and corresponding controller numbers shall be placed inside the controller and given to the owner's representative.

In addition to the temporary irrigation system, a soil moisture retention agent will be incorporated into the backfill of planting pits to minimize the potential for plant desiccation in the mitigation areas.

PROJECT MONITORING PROGRAM

Requirements for monitoring project:

1. At the time of construction; 30 days after planting; early in the growing season of the second year; end of the growing season of the second year; and annually thereafter Initial compliance/as-built report prepared within 30 days following planting
2. Two inspections (early and end of growing season) during years 1 and 2, and one annual inspection for years 3, 4, and 5.
3. Annual reports including final report (one report submitted in the fall of each monitored year)

Purpose for Monitoring

The purpose for monitoring this planting plan shall be to evaluate its success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are being met. The property owner shall grant access to the planting area for inspection and maintenance to the contracted landscape and/or wetland specialist and the City of Redmond during the period of the bond or until the project is evaluated as successful.

Vegetation Monitoring

Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the planting site plans in the first monitoring report (they may be drawn on approved enhancement plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage in accordance with the King County Sensitive Areas Restoration Guidelines (2002). Monitoring of vegetation sampling points shall occur annually between May 15 and September 1 (prior to leaf drop), unless otherwise specified.

Vegetative success equals 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover and emergent species and less than 20 percent cover of invasive species;

Water Quality Monitoring

Water quantity monitoring will be required as part of the mitigation monitoring program. At least two sampling points for collecting water samples will be selected within Stream 1 (Type II). Ideally one sample site will be located downstream of the proposed development (northwest corner of the site) and one sample site will be located upstream within the off-site mitigation area. Visual observations will be made within the on-site wetlands and in the off-site wetland mitigation area.

Visual observations shall include water level, peak flows, soil saturation depth, soil moisture within root zone, inundation and overall water coverage. Water sampling methods shall include temperature, pH, dissolved oxygen, total suspended solids, total metals, herbicides and pesticides.

Photo points

Permanent photo points will be established within the enhancement areas. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Monitoring Reports

Monitoring reports shall be submitted by October 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

- 1) Site plan and vicinity map;
- 2) Historic description of project, including date of installation, current year of monitoring, restatement of planting / restoration goals, and performance standards;
- 3) General appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, invasive weeds, and/or other components deemed appropriate by the Department and a qualified consultant;
- 4) Slope condition, site stability, any structures or special features;
- 5) Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures;
- 6) Water quality monitoring data, including sample data and visual observations;
- 7) Wildlife Monitoring Methods shall include visual sightings, aural observations, nests, scat, tracks, and/or other means deemed appropriate by the Department and a qualified consultant. Wildlife monitoring components shall include species counts, species diversity, breeding activity, habitat type, nesting activity, location, usage, and/or other components deemed appropriate by the Department and a qualified consultant;
- 8) Assessment of nuisance / exotic biota and recommendations for management; and
- 9) Color photographs (4" x 6" in size) taken from permanent photo-points that shall be depicted on the monitoring report map.

Performance Standards

Vegetative success equals 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover and emergent species and less than 20 percent cover of invasive species.

MAINTENANCE

The planting areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with King County Sensitive Areas Restoration Guidelines (2002) and approved plans. Maintenance may include, but will not be limited to, removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by City of Redmond staff, shall be applied by a licensed applicator following all label instructions. Mulch should be replenished during the maintenance visits, every second year, or as needed.

Silt Fencing: Following plant installation, or at the end of year 1, any silt fencing should be removed.

Duration and Extent: In order to achieve performance standards, the Permittee shall have the planting area maintained for the duration of the five-year monitoring period. Maintenance will include watering, weeding around the base of installed plants, pruning, replacement, restaking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to insure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance.

Survival: The Permittee shall be responsible for the health of 100 percent of all newly installed plants for *one growing season* after installation has been accepted by the City of Redmond. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The Permittee shall replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or City of Redmond staff.

Installation Timing for Replacement Plants: Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland biologist, and/or City of Redmond staff.

Standards for Replacement Plants: Replacement plants shall meet the same standards for size and type as those specified for the original installation unless otherwise directed by the landscape designer, wetland biologist, and/or City of Redmond staff.

Replanting: Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland biologist, and/or City of Redmond staff.

Herbicides / Pesticides: Chemical controls shall not be used in the planting area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Redmond staff.

General: The Permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this planting area.

CONTINGENCY PLAN

If 20 percent of the plants are severely stressed during any of the inspections, or it appears 20 percent may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

PERFORMANCE BOND

Upon approval of this mitigation proposal, a performance bond amount shall be determined by completing the City of Redmond's mitigation security worksheet. The performance bond shall be provided to the City for a period of five years from the time of successful installation of the project. The bond shall be released if the project is deemed successful after five years.

USE OF THIS REPORT

This Critical Area Study and Mitigation Plan is supplied to Burnstead Construction Company as a means of describing critical area conditions, as required by the City of Redmond during the permitting process. This report is based largely on readily observable conditions and to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. Reports may be adversely affected due to the physical condition of the site and the difficulty of access, which may lead to observation or probing difficulties.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists and wildlife biologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



Andrea Bachman
Senior Ecologist, PWS

REFERENCES

- Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. December 1979. U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C.
- Corps of Engineers Wetlands Delineation Manual, 1987. Technical Report Y-87-1. Environmental Laboratory. U.S. Army Engineer Waterway Experiment Station. Vicksburg, MS.
- Elbroch, Mark. 2001. Bird tracks and sign: a guide to North American species. Stackpole books, Mechanicsburg, PA.
- Elbroch, Mark. 2003. Mammal tracks and sign: a guide to North American species. Stackpole books, Mechanicsburg, PA.
- Johnson, R.E., and K.M. Cassidy. 1997. Terrestrial mammals of Washington State: Location data and predicted distributions. Volume 3 in Washington State Gap Analysis – Final Report (K.M. Cassidy, C.E. Grue, M.R. Smith, and K.M. Dvornich, eds.). Washington Cooperative Fish and Wildlife Research Unit, University of Washington, Seattle.
- National List of Plant Species that Occur in Wetlands, Northwest Region. 1996. U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C.
- Peterson, R.T. 1990. Peterson field guide to western birds. Houghton Mifflin Company, New York, NY.
- Redmond Zoning Code 21.64. Redmond, Washington. April 2011.
- Soil Survey of King County Area Washington. November 1973. U.S. Department of Agriculture, Soil Conservation Service. Washington, D.C.
- Stebbins, Robert. 1966. Peterson field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston, MA.
- Washington Department of Fish and Wildlife’s Priority Habitat and Species Management Recommendations, Volume IV: Birds. Pileated Woodpecker. Lewis and Azzerad. Washington Department of Fish and Wildlife. 2003.
- Washington State Wetlands Identification and Delineation Manual. Washington State Department of Ecology. Publication #96-94. March 1997.

APPENDIX A: MAPS AND PHOTOS

- **FIGURE 1: NWI MAP**
- **FIGURE 2: CITY OF REDMOND WETLAND INVENTORY MAP**
- **FIGURE 3: WETLAND RATING MAP**
- **FIGURE 4: OFF-SITE WETLAND ENHANCEMENT LOCATION MAP**
- **PHOTO PAGES (2/2)**

FIGURE 1: NWI MAP

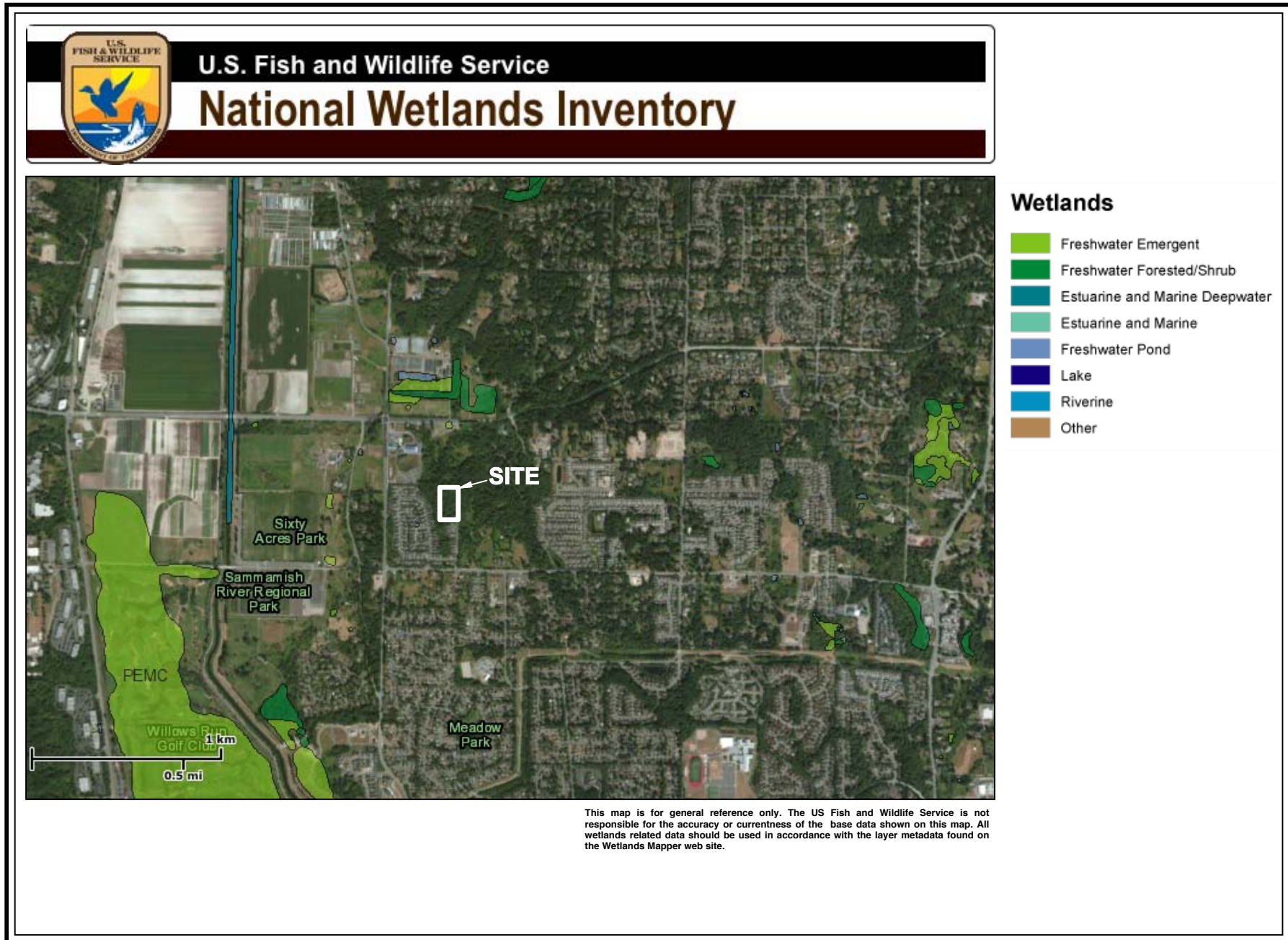
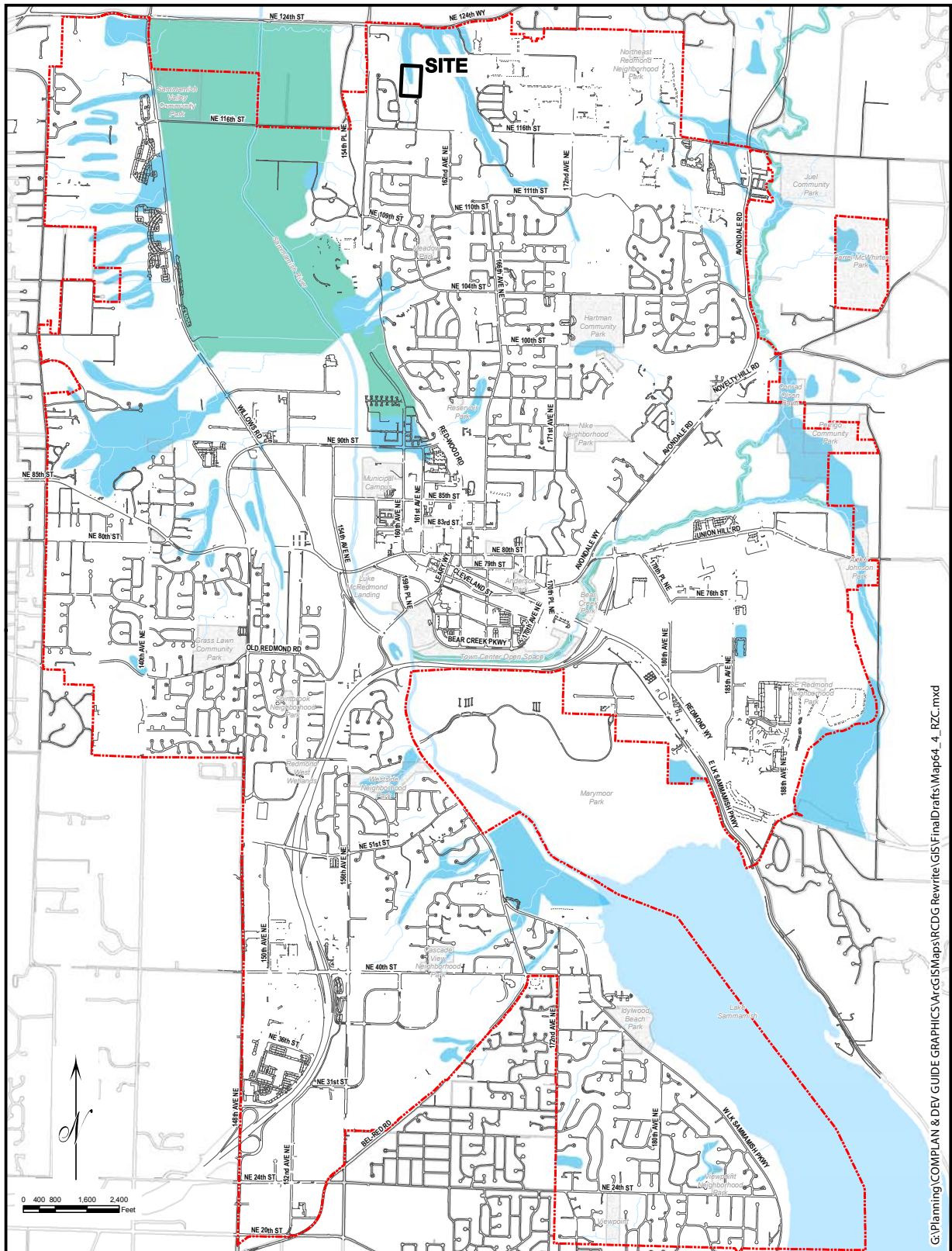


FIGURE 2: CITY OF REDMOND WETLAND INVENTORY MAP



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City of Redmond

Critical Areas Map
Effective: April 16, 2011

Map 64.4 Wetlands

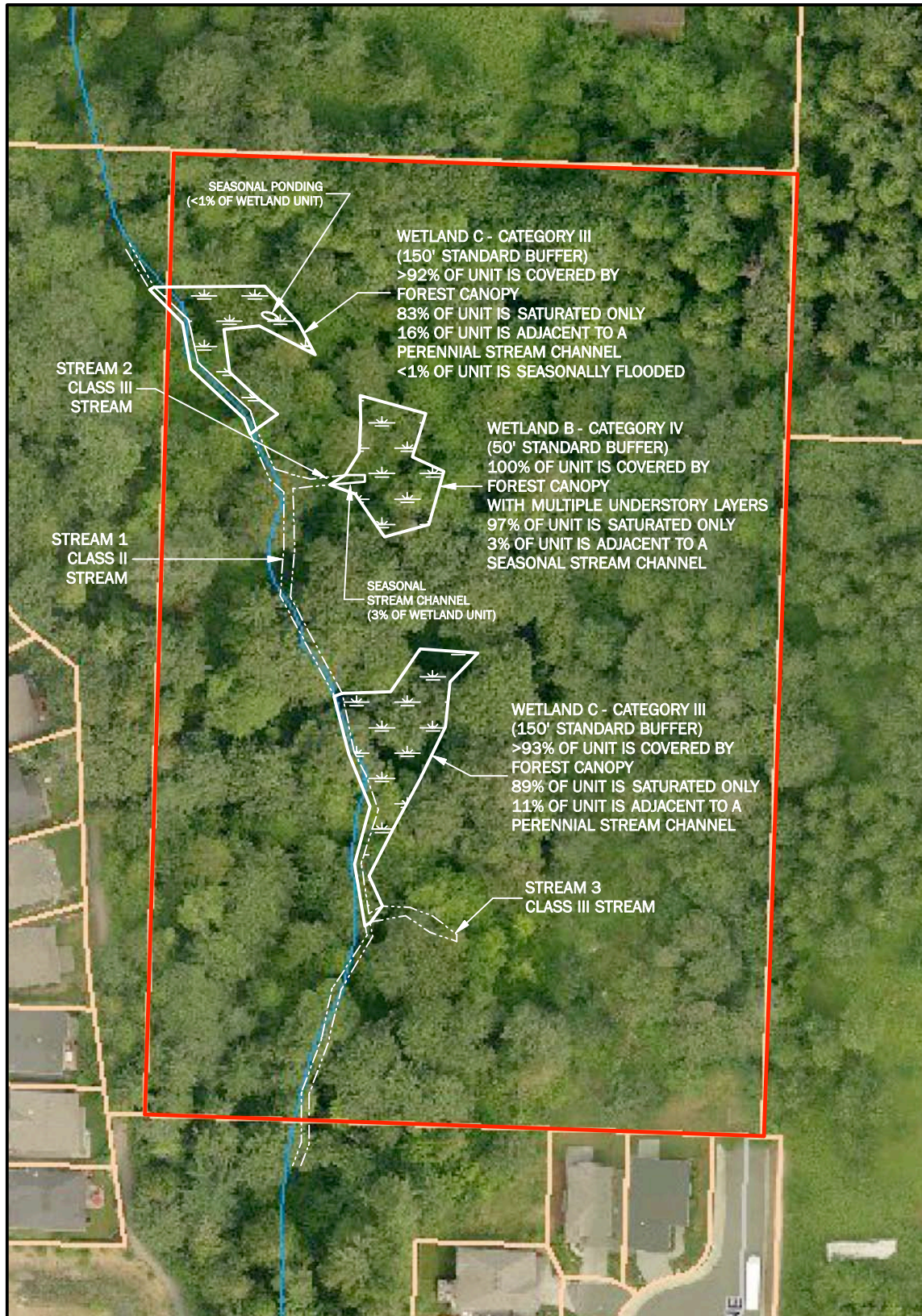
Legend:

- Mixed Wetland/Upland
- Wetland
- Redmond City Limits

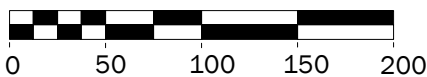
Sources:
USGS National Wetland Inventory
Aerial Photo Interpretation
SCS Soil Survey
City of Redmond

Note:
This map shall be used as a general guide. It represents approximate locations. Consult the Critical Areas Ordinance (CAO) for reporting requirements. In the event there is a conflict between the map and the criteria or standards of the CAO, the criteria shall prevail.

FIGURE 3: WETLAND RATING MAP



Scale 1" = 100'



Wetland Resources, Inc.
 Conservation / Mitigation / Restoration / Habitat Creation / Permit Assistance
 9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
 Phone: (425) 337-3174
 Fax: (425) 337-3045
 Email: mailbox@wetlandresources.com

FIGURE 3: WETLAND RATING MAP
BURNSTEAD CONSTRUCTION - STROM PROPERTY
 REDMOND, WASHINGTON

Burnstead Construction Co. Attn: Tiffany Brown
 11980 NE 24th St., #200 Bellevue, WA 98005

FIGURE 3
 Job #11045
 Drawn by: A. Bachman
 Date: March 6, 2013

FIGURE 4: OFF-SITE WETLAND ENHANCEMENT LOCATION MAP




APPROX. SCALE:
1" = 40'

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FIGURE 4: OFF-SITE WETLAND ENHANCEMENT LOCATION MAP

Burnstead Construction Co. FIGURE 4
Attn: Tiffany Brown Job #11045
11980 NE 24th St., #200 Drawn by: A. Bachman
Bellevue, WA 98005 Date: March 6, 2013



PHOTO 1: STANDING IN THE NORTHERN PART OF THE SITE, LOOKING SOUTH



PHOTO 2: VIEW OF STREAM 1, LOOKING NORTH



PHOTO 3: VIEW OF STREAM 2

PHOTO PAGE 1
BURNSTEAD CONSTRUCTION - STROM PROPERTY
REDMOND, WASHINGTON
Burnstead Construction Co.
Attn: Tiffany Brown
1.1980 NE 24th St., #200
Bellevue, WA 98005
(Page 1/2)
Job #11045
Drawn by: A. Bachman
Date: December 12, 2011

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E., Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com



PHOTO 4: VIEW OF STREAM 1, LOOKING NORTH



PHOTO 5: VIEW OF STREAM 1, LOOKING SOUTH



PHOTO 6: STANDING IN THE SOUTHEASTERN CORNER OF THE SITE, LOOKING NORTH

PHOTO PAGE 2

BURNSTEAD CONSTRUCTION - STROM PROPERTY
 REDMOND, WASHINGTON

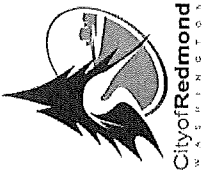
Burnstead Construction Co. (Page 2/2)
 Attn: Tiffany Brown Job #11045
 11980 NE 24th St., #200 Drawn by: A. Bachman
 Bellevue, WA 98005 Date: December 12, 2011

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APPENDIX B: CRITICAL AREA SUMMARY SHEETS

- **WETLAND SUMMARY SHEET**
- **STREAM SUMMARY SHEET**



WETLAND SUMMARY SHEET

Wetland Summary		Buffer Summary			Wetland Impacts		Mitigation Summary				
Label ¹	Category ²	Size ³	Required ⁴	Proposed ⁵	Increase ⁶ Reduce ⁷	Averaging ⁸	Fill ⁹	Paper Fill ¹⁰	Ratio ¹¹	Area ¹²	Location ¹³
A	III	3,100 SF	150'	100'	reduce			753 SF	8:1	6,056 SF	See Sheet 2
B	IV	3,600 SF	50'	100'	increase			2,130 SF	6:1	12,780 SF	See Sheet 2
C	III	5,600 SF	150'	100'	reduce			282 SF	8:1	2,256 SF	See Sheet 2

¹ Wetland A, B, C, etc.
² Wetland category per City wetland classification system.
³ Area of wetland.
⁴ Required buffer width in feet per RCDG.
⁵ Proposed buffer width in feet.
⁶ Does the uniqueness of the wetland require an increased buffer? If so, what is the width in feet.
⁷ Is there a request to reduce the buffer width? If so, what is the width in feet.
⁸ Is buffer averaging being used? If so, what is the average buffer width in feet.
⁹ Amount of wetland fill.
¹⁰ Amount of paper fill.
¹¹ Required ratio for wetland mitigation per RCDG.
¹² Size of mitigation area.
¹³ Note location of mitigation area (keyed to the mitigation map).



STREAM SUMMARY SHEET

Stream Summary			Buffer Summary			Riparian Corridor Summary		
Label ¹	Type ²	Linear Feet ³	Required ⁴	Proposed ⁵	Averaging ⁶	Disturbed Area ⁷	Filled Area ⁸	Mitigation Area ⁹
1	II	590'	100' + 50'	100' + 50'	-	-	-	-
2	III	40'	100'	100'	-	-	-	-
3	III	60'	100'	83'	-1,122 SF			1,237 SF

Stream 3 buffer averaging: Minimum width = 83' buffer; Maximum width = 110' buffer. Reduction area = 1,122 SF; Addition area = 1,237 SF

- ¹ Stream A, B, C, etc.
- ² Stream type per City stream classification system.
- ³ Length of stream on the property.
- ⁴ Required buffer width in feet per RCDG.
- ⁵ Proposed buffer width in feet.
- ⁶ Note if buffer averaging is used. If so, identify minimum and maximum buffer widths in feet as well as area in square feet contained within the buffer prior to and after averaging.
- ⁷ Area of buffer that is disturbed in square feet.
- ⁸ Area of buffer to be filled in square feet, such as for a road crossing.
- ⁹ Location and size in square feet of riparian corridor mitigation.

APPENDIX C: FIELD DATA (SITES 1-6)

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <u>Burnstead - Strom Property</u>	Date: <u>4/27/11</u>
Applicant/owner: <u>Burnstead const.</u>	County: <u>King</u>
Investigator(s): <u>A. Bachmann</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>26/26/5</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID:
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>1</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Rubus spectabilis</u>	<u>S</u>	<u>45</u>	<u>Fact</u>				
<u>Oplapanix horridus</u>	<u>S</u>	<u>15</u>	<u>Fact</u>				
<u>Tolmiea menziesii</u>	<u>h</u>	<u>75</u>	<u>Fac</u>				
<u>Athyrium filix-femina</u>	<u>h</u>	<u>15</u>	<u>Fact</u>				
<u>Lysichiton americanum</u>	<u>h</u>	<u>5</u>	<u>Obl</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 5/5

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation <input checked="" type="checkbox"/>	Physiological/reproductive adaptations _____
Morphological adaptations _____	Wetland plant database _____
Technical Literature _____	Personal knowledge of regional plant communities _____
	Other (explain) _____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: <input type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no
Based on: _____ soil temp (record temp _____) other (explain)	Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: _____ inches	FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to saturated soil: <u>0</u> inches	Other (explain):	

Check all that apply & explain below:

Stream, Lake or gage data: _____
 Aerial photographs: _____ Other: _____

Wetland hydrology present? yes no

Rationale for decision/Remarks:

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Moderately well drained

Field observations confirm Yes No
mapped type?

Taxonomy (subgroup) _____

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18	A	10YR 3/2	10YR 4/4		Sa clw	

Hydric Soil Indicators: (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input checked="" type="checkbox"/> Matrix chroma \leq 2 with mottles |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Mg or Fe Concretions |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National/Local Hydric Soils List |
| <input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? yes no
Rationale for decision/Remarks:

Wetland Determination (circle)

Hydrophytic vegetation present?	<input checked="" type="radio"/> yes <input type="radio"/> no	Is the sampling point within a wetland?	<input checked="" type="radio"/> yes <input type="radio"/> no
Hydric soils present?	<input checked="" type="radio"/> yes <input type="radio"/> no		
Wetland hydrology present?	<input checked="" type="radio"/> yes <input type="radio"/> no		

Rationale/Remarks:

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <u>Burnstead - Strom Property</u>	Date: <u>9/27/11</u>
Applicant/owner: <u>Burnstead Const.</u>	County: <u>King</u>
Investigator(s): <u>A. Bachman</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>2612615</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID:
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>2</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Acer macrophyllum</i>	T	20	Fach	<i>Polystichum munitum</i>	H	20	Fach
<i>Thuja plicata</i>	T	15	Fac				
<i>Alnus Rubra</i>	T	15	Fac				
<i>Rubus spectabilis</i>	S	35	Fact				
<i>Demleria cerasiformis</i>	S	30	Fach				
<i>Rubus ursinus</i>	H	25	Fach				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 50

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	_____
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:
only 50% Fac

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: yes no	Sediment Deposits: yes no
Based on: _____ soil temp (record temp _____) other (explain)	Drift Lines: yes no	Drainage Patterns: yes no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. yes no	Local Soil Survey: yes no
Depth to free water in pit: _____ inches	FAC Neutral: yes no	Water-stained Leaves yes no
Depth to saturated soil: <u><18</u> inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Medium to very well drained

Field observations confirm Yes No
mapped type?

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-6	A	10YR 2/3	-	-	grsalo	
6-10	B	10YR 4/4	-	-	grsalo	

Hydric Soil Indicators: (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Matrix chroma \leq 2 with mottles |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Mg or Fe Concretions |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National/Local Hydric Soils List |
| <input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? yes no

Rationale for decision/Remarks:

soils do not meet criteria for wetland

Wetland Determination (circle)

Hydrophytic vegetation present?	yes	<u>no</u>	Is the sampling point within a wetland?	yes	<u>no</u>
Hydric soils present?	yes	<u>no</u>			
Wetland hydrology present?	yes	<u>no</u>			

Rationale/Remarks:

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <i>Burnstead - Strom Property</i>	Date: <i>11/7/11</i>
Applicant/owner: <i>Burnstead Const.</i>	County: <i>King</i>
Investigator(s): <i>A. Bachman</i>	State: <i>WA</i>
	S/T/R: <i>26/26/5</i>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: Transect ID: Plot ID: <i>3</i>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<i>Acer macrophyllum</i>	<i>T</i>	<i>30</i>	<i>FACU</i>	<i>Rubus ursinus</i>	<i>H</i>	<i>20</i>	<i>FACU</i>
<i>Thuja Pllicata</i>	<i>T</i>	<i>40</i>	<i>FAC</i>	<i>Urtica Diocora</i>	<i>H</i>	<i>15</i>	<i>FAC</i>
<i>Rubus Spectabilis</i>	<i>S</i>	<i>45</i>	<i>FAC</i>				
<i>Polystichum munroii</i>	<i>H</i>	<i>15</i>	<i>FACU</i>				
<i>Pteridium Aquilinum</i>	<i>H</i>	<i>15</i>	<i>FACU</i>				
<i>Geranium Robertum</i>	<i>H</i>	<i>10</i>	<i>FACU</i>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC *37%*

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation	_____	Physiological/reproductive adaptations	_____
Morphological adaptations	_____	Wetland plant database	_____
Technical Literature	_____	Personal knowledge of regional plant communities	_____
		Other (explain)	_____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: <input type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no
Based on: _____ soil temp (record temp <i>46°</i>) other (explain)	Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: _____ inches	FAC Neutral: <input type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input type="radio"/> yes <input type="radio"/> no
Depth to saturated soil: _____ inches	Other (explain):	
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____		

Wetland hydrology present? yes no

Rationale for decision/Remarks:

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Moderately well drained

Taxonomy (subgroup) _____

Field observations confirm Yes No
mapped type?

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-4	A	10YR 3/3	—	—	gr Salo	
4-18	B	10YR 4/4	—	—	gr Salo	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no
Rationale for decision/Remarks:

Does not meet criteria for wetland

Wetland Determination (circle)

Hydrophytic vegetation present?	yes	<u>no</u>	Is the sampling point within a wetland?	yes	<u>no</u>
Hydric soils present?	yes	<u>no</u>			
Wetland hydrology present?	yes	<u>no</u>			

Rationale/Remarks:

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <u>Burnstead Const - Storm property</u>	Date: <u>11/7/11</u>
Applicant/owner: <u>Burnstead Const.</u>	County: <u>King</u>
Investigator(s): <u>A. Bachman</u>	State: <u>WA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	S/T/R: <u>26/26/5</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	Community ID:
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	Transect ID:
Explanation of atypical or problem area:	Plot ID: <u>4</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Rubus Spectabilis</u>	<u>S</u>	<u>55</u>	<u>Fact</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100%

Check all indicators that apply & explain below:

- | | |
|---|--|
| Visual observation of plant species growing in areas of prolonged inundation/saturation <input checked="" type="checkbox"/> | Physiological/reproductive adaptations _____ |
| Morphological adaptations _____ | Wetland plant database _____ |
| Technical Literature _____ | Personal knowledge of regional plant communities _____ |
| | Other (explain) _____ |

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no	Water Marks: <input type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no
Based on: _____ soil temp (record temp <u>46°</u>) other (explain)	Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no
Dept. of inundation: _____ inches	Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no
Depth to free water in pit: _____ inches	FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input checked="" type="radio"/> yes <input type="radio"/> no
Depth to saturated soil: <u>0</u> inches	Other (explain):	

Check all that apply & explain below:

- Stream, Lake or gage data: _____
- Aerial photographs: _____ Other: _____

Wetland hydrology present? yes no

Rationale for decision/Remarks:

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Moderately well drained

Field observations confirm Yes No
mapped type?

Taxonomy (subgroup)

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18	A	10YR3/1	—	—	Sa Cl ₆	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

Hydric soils present? yes no
Rationale for decision/Remarks:
Meets wetland criteria

Wetland Determination (circle)

Hydrophytic vegetation present?	<u>yes</u>	no	Is the sampling point within a wetland?	<u>yes</u>	no
Hydric soils present?	<u>yes</u>	no			
Wetland hydrology present?	<u>yes</u>	no			

Rationale/Remarks:

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <u>Burnstead - Stron property</u>	Date: <u>11/7/11</u>
Applicant/owner: <u>Burnstead Const.</u>	County: <u>King</u>
Investigator(s): <u>A. Bachman</u>	State: <u>WA</u>
	S/T/R: <u>28/26/9</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no	Community ID: Transect ID: Plot ID: <u>S</u>
Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no	
Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no	
Explanation of atypical or problem area:	

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Rubus spectabilis</u>	<u>S</u>	<u>30</u>	<u>FAC</u>				
<u>Acer circinatum</u>	<u>S</u>	<u>25</u>	<u>FAC</u>				
<u>Tolmiea menziesii</u>	<u>H</u>	<u>15</u>	<u>FAC</u>				
<u>Urtica dioica</u>	<u>H</u>	<u>10</u>	<u>FAC</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 100

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation <input checked="" type="checkbox"/>	Physiological/reproductive adaptations _____
Morphological adaptations _____	Wetland plant database _____
Technical Literature _____	Personal knowledge of regional plant communities _____
	Other (explain) _____

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks:

HYDROLOGY

Is it the growing season? yes no

Based on: _____ soil temp (record temp 46°)
 other (explain)

Dept. of inundation: _____ inches

Depth to free water in pit: _____ inches

Depth to saturated soil: 10 inches

Check all that apply & explain below:

Stream, Lake or gage data: _____

Aerial photographs: _____ Other: _____

Wetland hydrology present? yes no

Rationale for decision/Remarks:

Water Marks: <input type="radio"/> yes <input type="radio"/> no on _____	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no
Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no
Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no
FAC Neutral: <input checked="" type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input checked="" type="radio"/> yes <input type="radio"/> no

Other (explain):

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Moderately well drained

Field observations confirm Yes No
mapped type?

Taxonomy (subgroup)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-18	A	10YR 3/2	10YR 4/4		Salo	

Hydric Soil Indicators: (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input checked="" type="checkbox"/> Matrix chroma \leq 2 with mottles |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> Mg or Fe Concretions |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National/Local Hydric Soils List |
| <input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix | <input type="checkbox"/> Other (explain in remarks) |

Hydric soils present? yes no

Rationale for decision/Remarks:

Wetland Determination (circle)

Hydrophytic vegetation present?	<u>yes</u>	no	Is the sampling point within a wetland?	<u>yes</u>	no
Hydric soils present?	<u>yes</u>	no			
Wetland hydrology present?	<u>yes</u>	no			

Rationale/Remarks:

NOTES:

DATA FORM 1 (Revised)
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

ATTACHMENT 13

Project/Site: <u>Burnstead - Stram Property</u> Applicant/owner: <u>Burnstead Const</u> Investigator(s): <u>A. Bachman</u>	Date: <u>11/7/11</u> County: <u>King</u> State: <u>WA</u> S/T/R: <u>26/26/5</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> yes <input type="radio"/> no Is the site significantly disturbed (atypical situation)? <input type="radio"/> yes <input checked="" type="radio"/> no Is the area a potential Problem Area? <input type="radio"/> yes <input checked="" type="radio"/> no Explanation of atypical or problem area: _____	Community ID: _____ Transect ID: _____ Plot ID: <u>6</u>

VEGETATION (For strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% cover	Indicator	Dominant Plant Species	Stratum	% cover	Indicator
<u>Acer macrophyllum</u>	<u>T</u>	<u>60</u>	<u>Fack</u>				
<u>Rubus spectabilis</u>	<u>S</u>	<u>45</u>	<u>Fack</u>				
<u>Corylus cornuta</u>	<u>S</u>	<u>15</u>	<u>Fack</u>				
<u>Polystichum munitum</u>	<u>H</u>	<u>45</u>	<u>Fack</u>				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC 25

Check all indicators that apply & explain below:

Visual observation of plant species growing in areas of prolonged inundation/saturation _____ Morphological adaptations _____ Technical Literature _____	Physiological/reproductive adaptations _____ Wetland plant database _____ Personal knowledge of regional plant communities _____ Other (explain) _____
--	---

Hydrophytic vegetation present? yes no

Rationale for decision/Remarks: _____

HYDROLOGY

Is it the growing season? <input checked="" type="radio"/> yes <input type="radio"/> no Based on: _____ soil temp (record temp <u>46°</u>) other (explain) _____ Dept. of inundation: _____ inches Depth to free water in pit: _____ inches Depth to saturated soil: <u>>10</u> inches	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Water Marks: <input type="radio"/> yes <input type="radio"/> no</td> <td style="width: 50%;">Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no</td> </tr> <tr> <td>Drift Lines: <input type="radio"/> yes <input type="radio"/> no</td> <td>Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no</td> </tr> <tr> <td>Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no</td> <td>Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no</td> </tr> <tr> <td>FAC Neutral: <input type="radio"/> yes <input type="radio"/> no</td> <td>Water-stained Leaves <input type="radio"/> yes <input type="radio"/> no</td> </tr> </table>	Water Marks: <input type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no	Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no	Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no	FAC Neutral: <input type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input type="radio"/> yes <input type="radio"/> no
Water Marks: <input type="radio"/> yes <input type="radio"/> no	Sediment Deposits: <input type="radio"/> yes <input type="radio"/> no								
Drift Lines: <input type="radio"/> yes <input type="radio"/> no	Drainage Patterns: <input type="radio"/> yes <input type="radio"/> no								
Oxidized Root (live roots) Channels <12 in. <input type="radio"/> yes <input type="radio"/> no	Local Soil Survey: <input type="radio"/> yes <input type="radio"/> no								
FAC Neutral: <input type="radio"/> yes <input type="radio"/> no	Water-stained Leaves <input type="radio"/> yes <input type="radio"/> no								
Check all that apply & explain below: Stream, Lake or gage data: _____ Aerial photographs: _____ Other: _____	Other (explain): _____								

Wetland hydrology present? yes no

Rationale for decision/Remarks: _____

SOILS

Map Unit Name AgC
(Series & Phase)

Drainage Class Moderately well drained

Field observations confirm Yes No
mapped type?

Taxonomy (subgroup) _____

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-3	A	10YR 3/3	—	—	Salo	
3-18	B	10YR 4/1	—	—	Salo	

Hydric Soil Indicators: (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma ≤ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National/Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

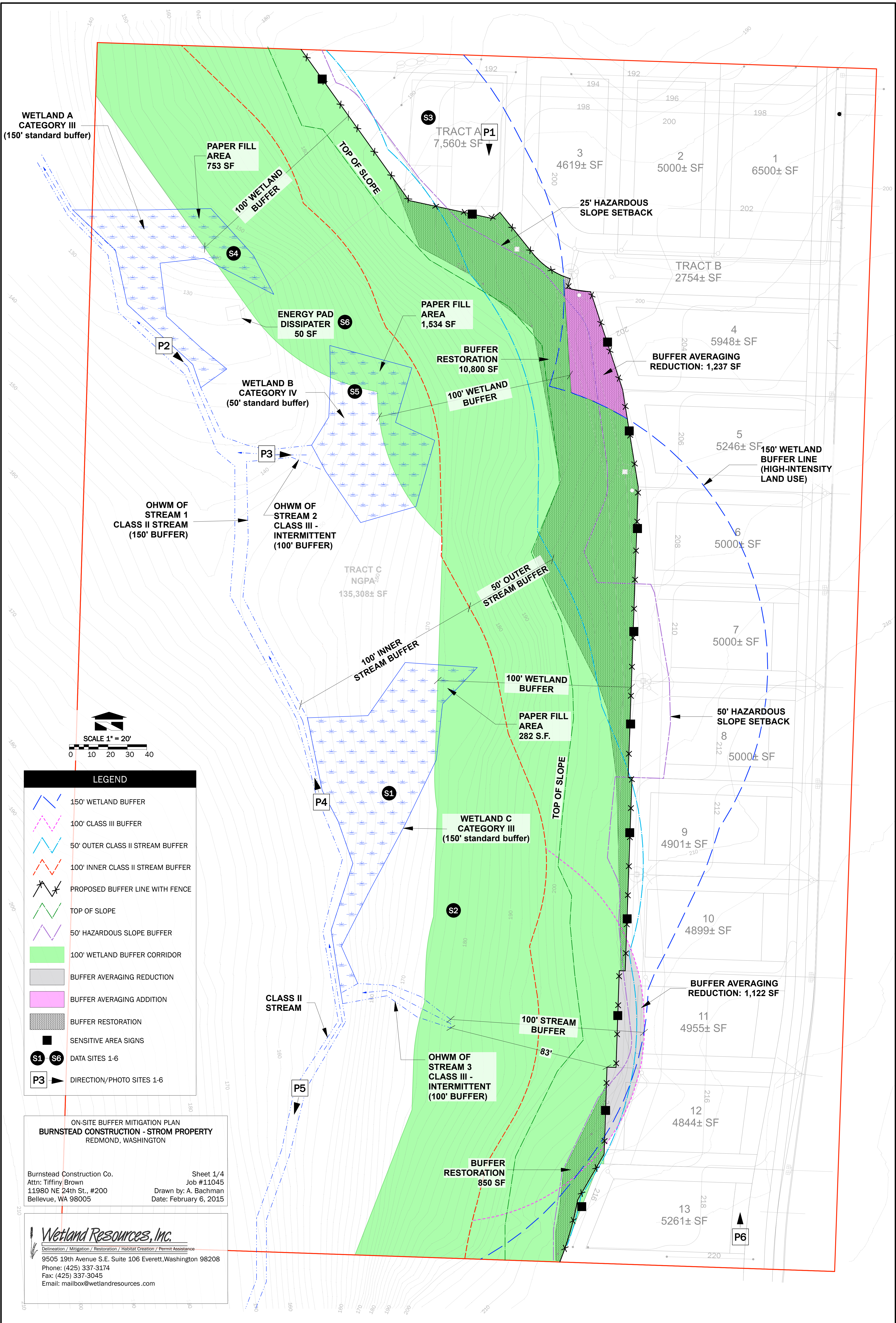
Hydric soils present? yes no
Rationale for decision/Remarks:

Wetland Determination (circle)

Hydrophytic vegetation present?	yes	<input checked="" type="radio"/> no	Is the sampling point within a wetland?	yes	<input checked="" type="radio"/> no
Hydric soils present?	yes	<input checked="" type="radio"/> no			
Wetland hydrology present?	yes	<input checked="" type="radio"/> no			

Rationale/Remarks:

NOTES:



**WETLAND A
CATEGORY III
(150' standard buffer)**

**PAPER FILL
AREA
753 SF**

**TRACT A
P1
7,560± SF**

**3
4619± SF**

**2
5000± SF**

**1
6500± SF**

**25' HAZARDOUS
SLOPE SETBACK**

**TRACT B
2754± SF**

**ENERGY PAD
DISSIPATER
50 SF**

**PAPER FILL
AREA
1,534 SF**

**BUFFER
RESTORATION
10,800 SF**

**4
5948± SF**

**BUFFER AVERAGING
REDUCTION: 1,237 SF**

**WETLAND B
CATEGORY IV
(50' standard buffer)**

**5
5246± SF**

**150' WETLAND
BUFFER LINE
(HIGH-INTENSITY
LAND USE)**

**OHWM OF
STREAM 1
CLASS II STREAM
(150' BUFFER)**

**OHWM OF
STREAM 2
CLASS III -
INTERMITTENT
(100' BUFFER)**

**6
5000± SF**

**TRACT C
NGPA
135,308± SF**

**50' OUTER
STREAM BUFFER**

**7
5000± SF**

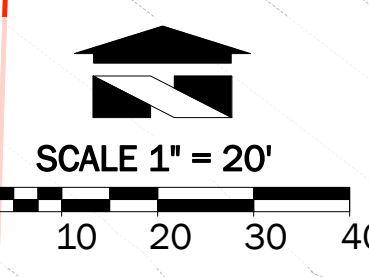
**100' INNER
STREAM BUFFER**

**100' WETLAND
BUFFER**

**8
5000± SF**

**PAPER FILL
AREA
282 S.F.**

**50' HAZARDOUS
SLOPE SETBACK**



LEGEND

- 150' WETLAND BUFFER
- 100' CLASS III BUFFER
- 50' OUTER CLASS II STREAM BUFFER
- 100' INNER CLASS II STREAM BUFFER
- PROPOSED BUFFER LINE WITH FENCE
- TOP OF SLOPE
- 50' HAZARDOUS SLOPE BUFFER
- 100' WETLAND BUFFER CORRIDOR
- BUFFER AVERAGING REDUCTION
- BUFFER AVERAGING ADDITION
- BUFFER RESTORATION
- SENSITIVE AREA SIGNS
- DATA SITES 1-6
- DIRECTION/PHOTO SITES 1-6

**CLASS II
STREAM**

**WETLAND C
CATEGORY III
(150' standard buffer)**

**9
4901± SF**

**100' WETLAND
BUFFER**

**10
4899± SF**

**11
4955± SF**

**12
4844± SF**

**13
5261± SF**

**OHWM OF
STREAM 3
CLASS III -
INTERMITTENT
(100' BUFFER)**

**100' STREAM
BUFFER**

83'

**BUFFER
RESTORATION
850 SF**

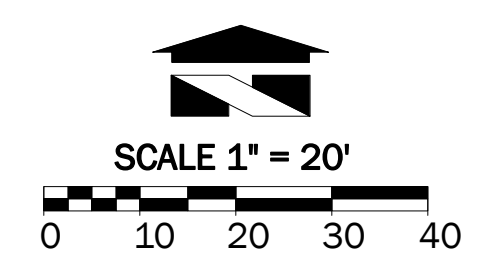
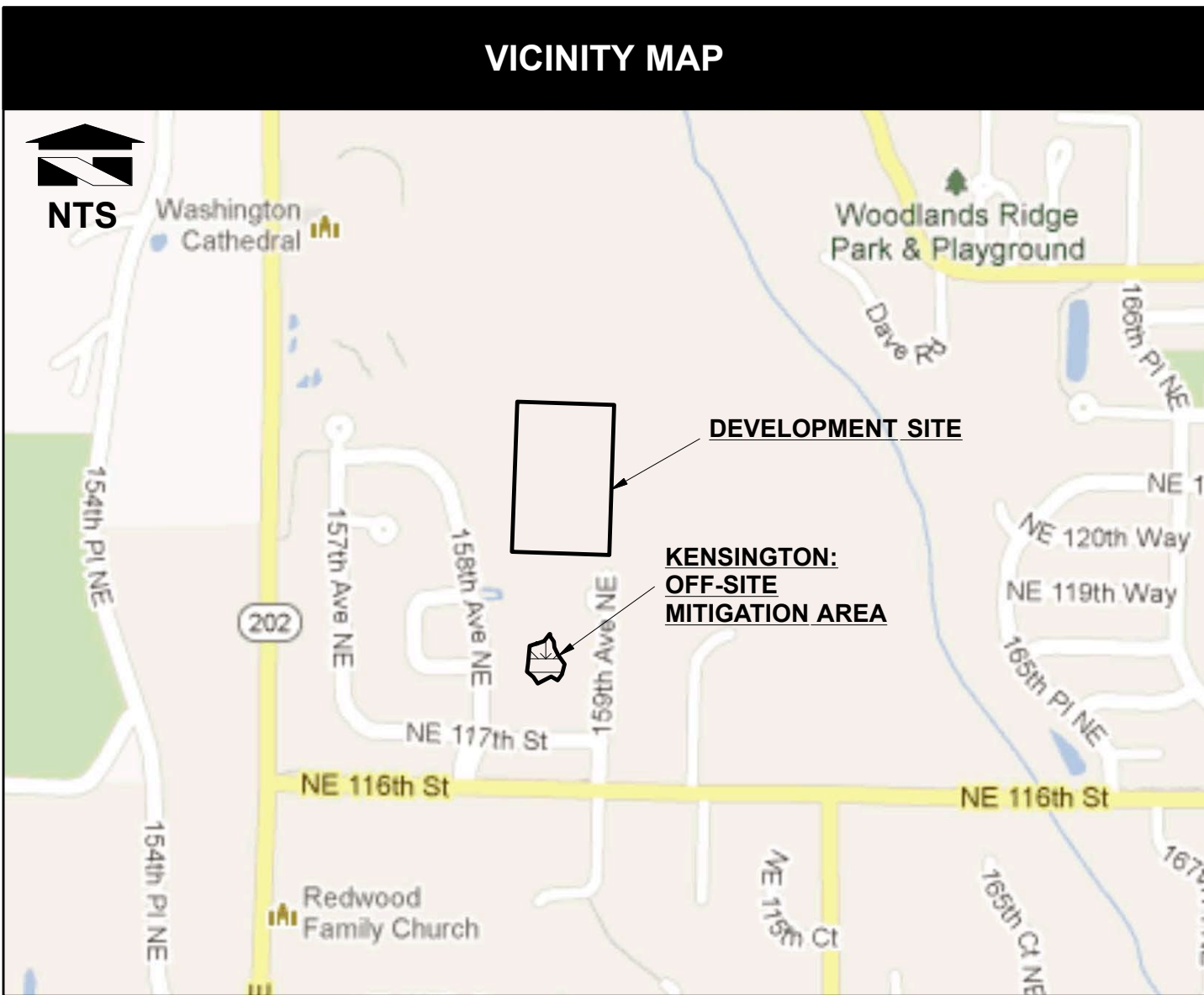
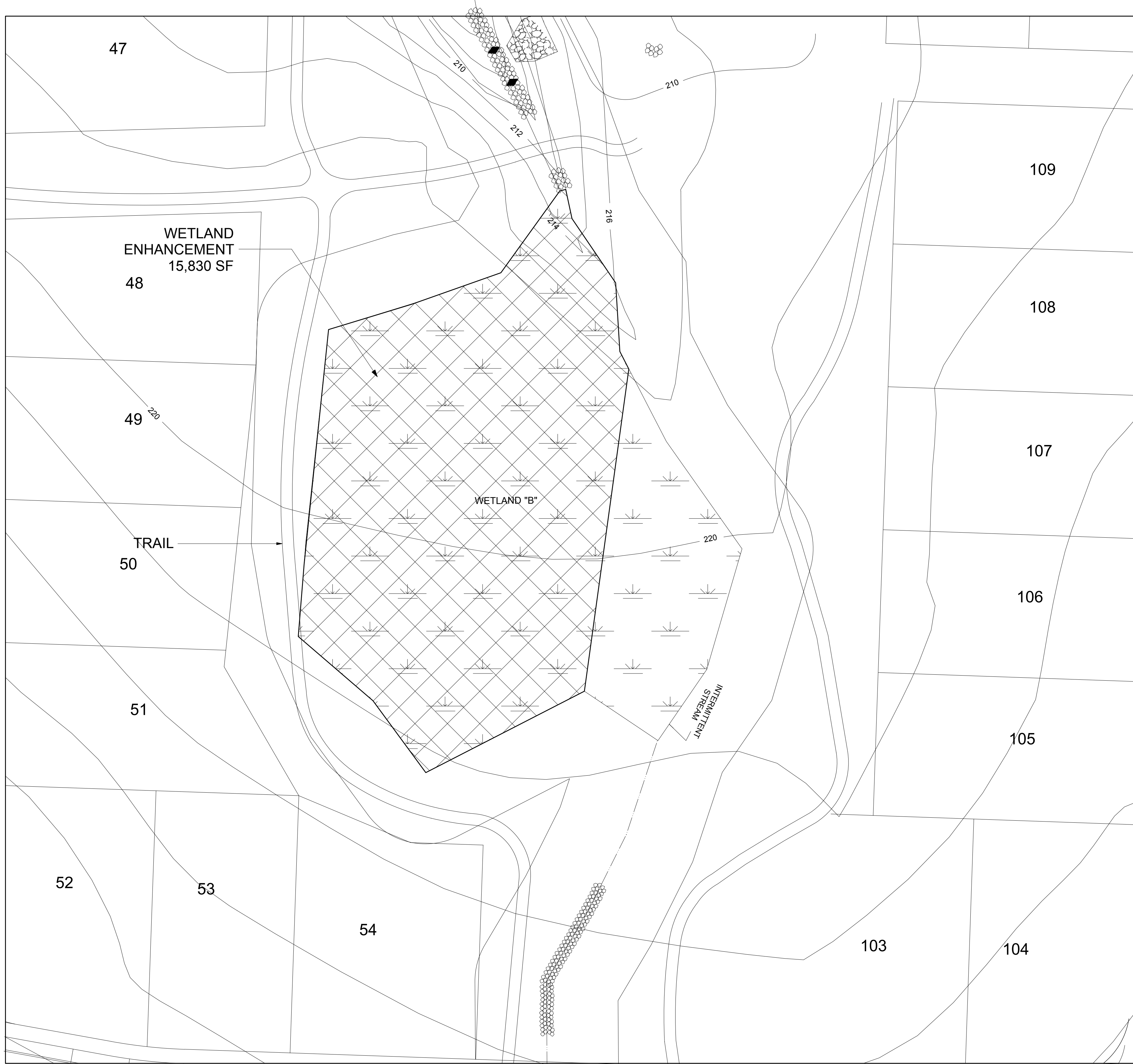
P6

**ON-SITE BUFFER MITIGATION PLAN
BURNSTEAD CONSTRUCTION - STROM PROPERTY
REDMOND, WASHINGTON**

Burnstead Construction Co. Sheet 1/4
Attn: Tiffany Brown Job #11045
11980 NE 24th St., #200 Drawn by: A. Bachman
Bellevue, WA 98005 Date: February 6, 2015

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

OFF-SITE MITIGATION PLAN BURNSTEAD CONSTRUCTION REDMOND, WASHINGTON



LEGEND	
	WETLAND
	WETLAND ENHANCEMENT

**OFF-SITE MITIGATION PLAN
BURNSTEAD CONSTRUCTION
REDMOND, WASHINGTON**

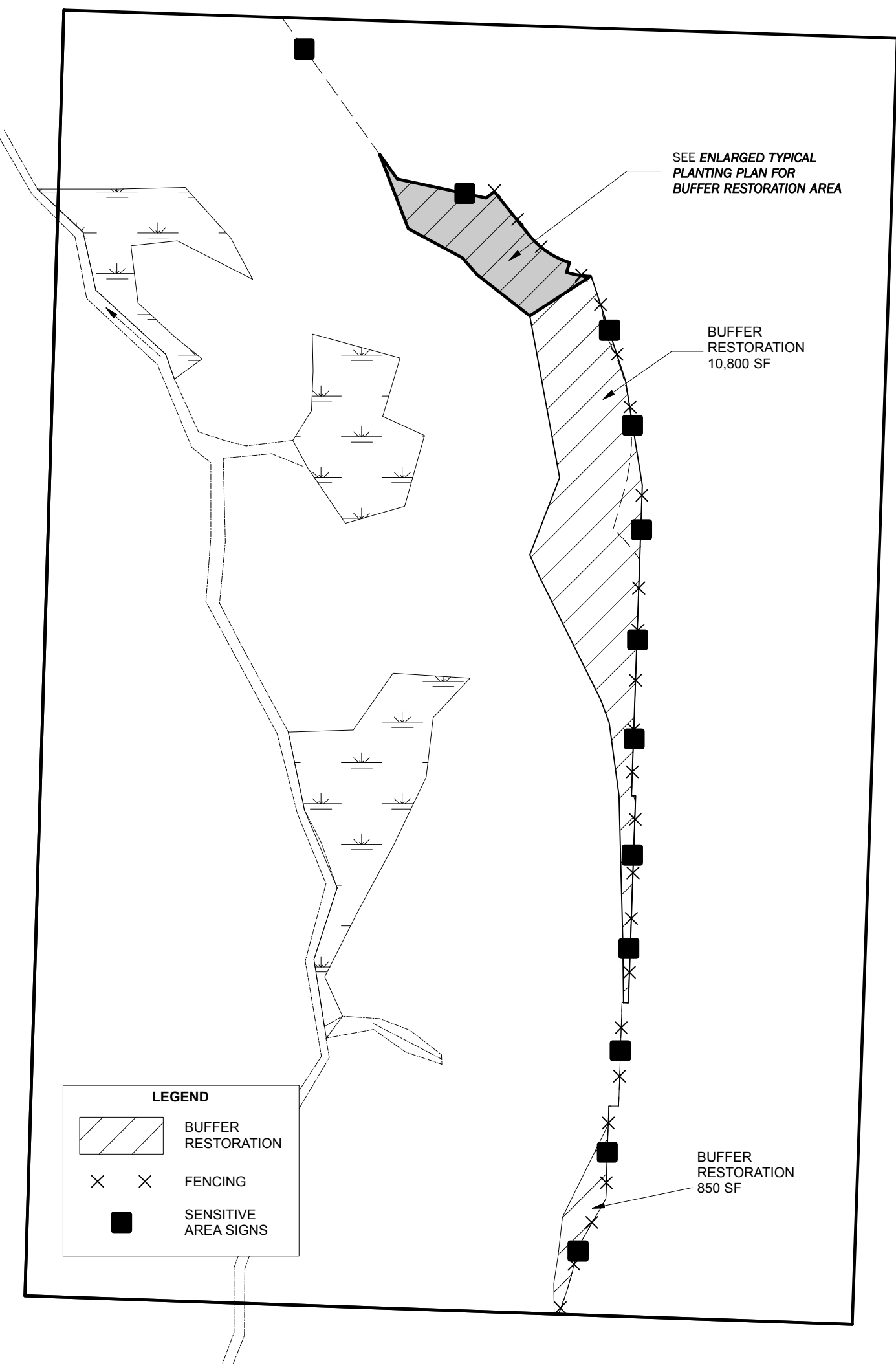
Burnstead Construction Co. Sheet 2/4
 Attn: Tiffany Brown Job #11045
 11980 NE 24th St., #200 Drawn by: A. Bachman
 Bellevue, WA 98005 Date: February 6, 2015

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
 9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
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Name of Critical Area	Category/Type	Impact Area (SF)	Enhancement Only Ratio <small>(Per RZC 21.64.030B)</small>	Enhancement Only
Wetland A	Category III	753	8:1	6,056 SF
Wetland B	Category IV	2,130	6:1	12,780 SF
Wetland C	Category III	282	8:1	2,256 SF
Total =				15,830 SF

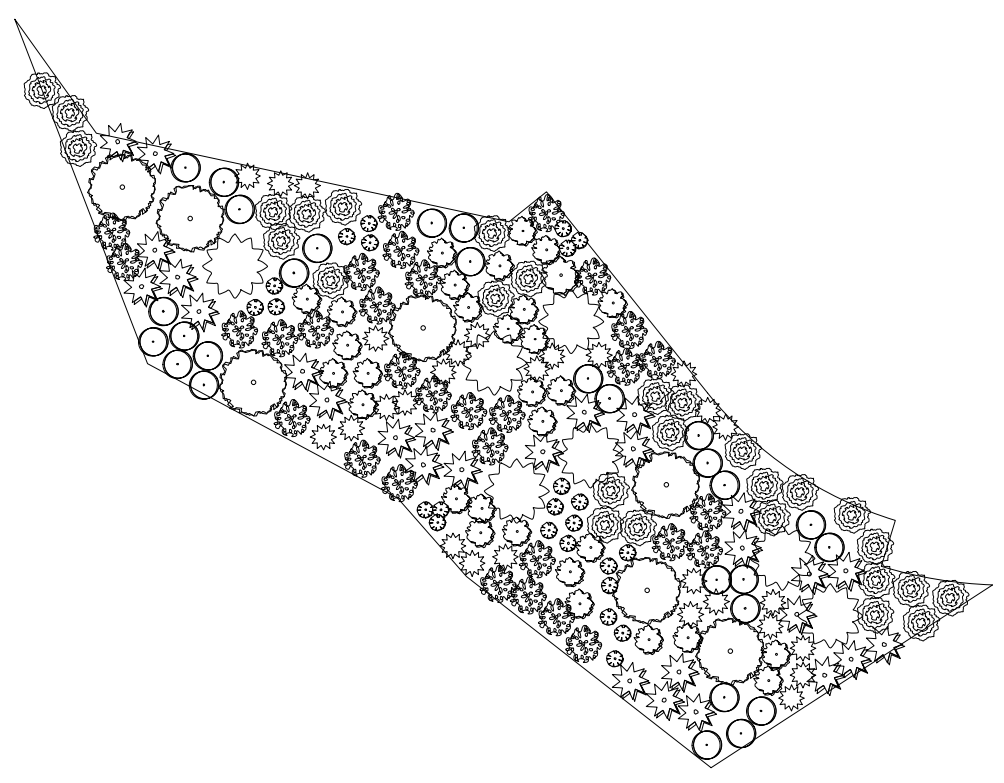
ON-SITE BUFFER RESTORATION PLAN

Scale 1" = 60'



ENLARGED TYPICAL PLANTING PLAN FOR BUFFER RESTORATION AREA

1" = 20'



A total of 11,650 (10,800 + 850) square feet of buffer will be temporarily disturbed during site preparation and grading. Following the installation of the pipe, the disturbed soils will be restored to original horizontal structure, and bare ground areas will be restored with native vegetation. Spacing is based on the triangular spacing formula for 4-foot spacings. Plant quantities may be adjusted upon installation, if it is determined that the disturbance area is smaller or larger than anticipated. The following plant species are proposed:

Buffer Restoration/Enhancement (11,650 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Big-leaf maple	<i>Acer macrophyllum</i>	5 gal	15'	30
Western red cedar	<i>Thuja plicata</i>	5 gal	15'	30
Osoberry	<i>Oemleria cerasiformis</i>	2 gal	4'	165
Snowberry	<i>Symphoricarpos albus</i>	2 gal	4'	160
Vine maple	<i>Acer circinatum</i>	2 gal	4'	160
Salmonberry	<i>Rubus spectabilis</i>	2 gal	4'	120
Salal	<i>Gaultheria shallon</i>	2 gal	4'	120
Dwarf Oregon grape	<i>Mahonia nervosa</i>	2 gal	4'	100
Sword fern	<i>Polystichum munitum</i>	1 gal	4'	140

Signs and Fencing
Sensitive area signs shall be installed along the proposed buffer boundary on the subject site. Sign design specifications shall follow those recommended by the City. In addition, fencing shall be installed along the buffer to minimize disturbance from residents and domestic animals to the greatest extent possible. The fence will not be a standard split-rail fence, but a minimum 6 feet tall wood privacy fence.

MITIGATION PLANTING PLAN
BURNSTEAD CONSTRUCTION - STROM PROPERTY
REDMOND, WASHINGTON

Sheet 3/4
Job #11045
Drawn by: A. Bachman
February 6, 2015

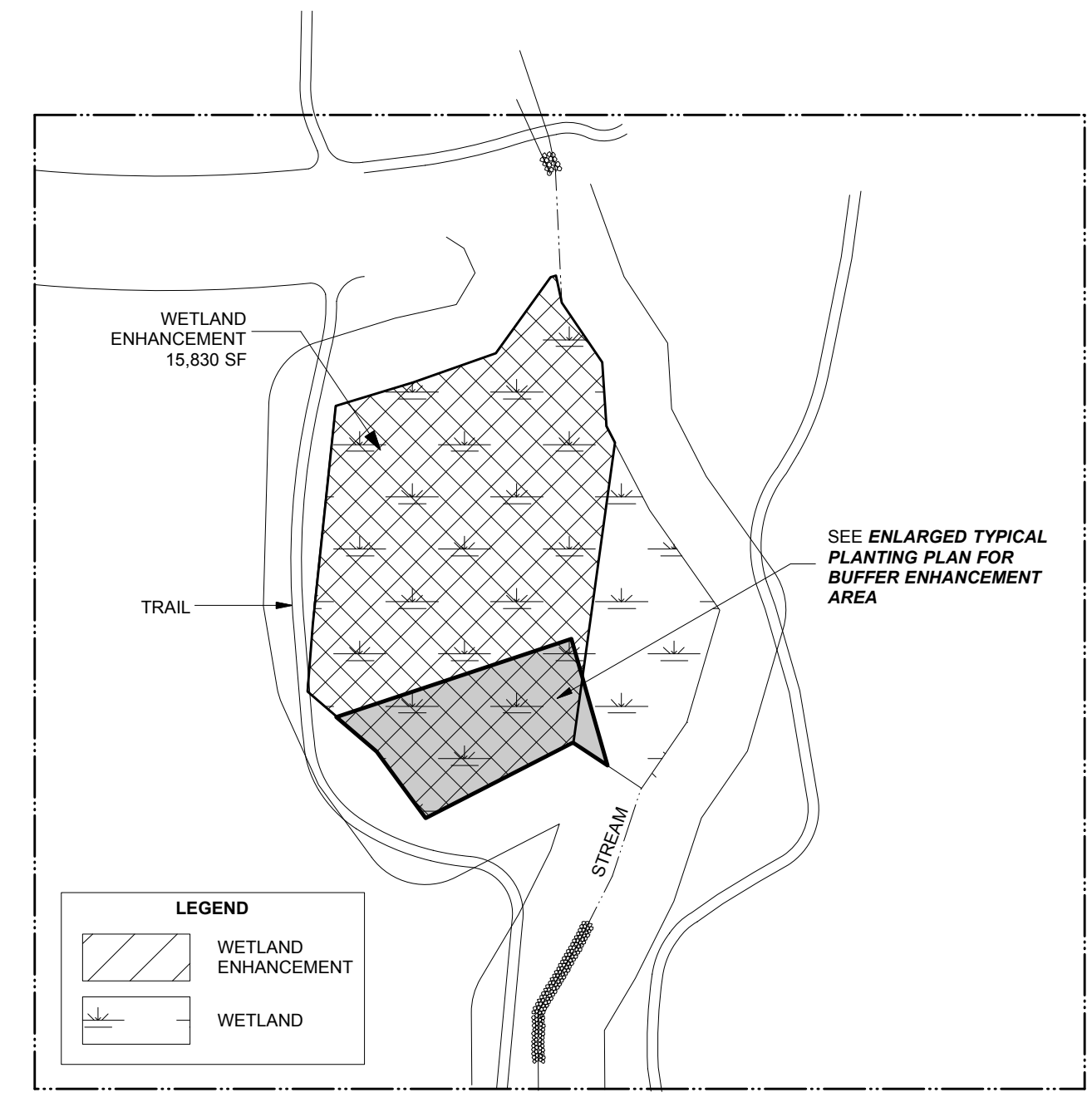
Burnstead Construction Co.
Attn: Tiffany Brown
11980 NE 24th St., #200
Bellevue, WA 98005

Wetland Resources, Inc.
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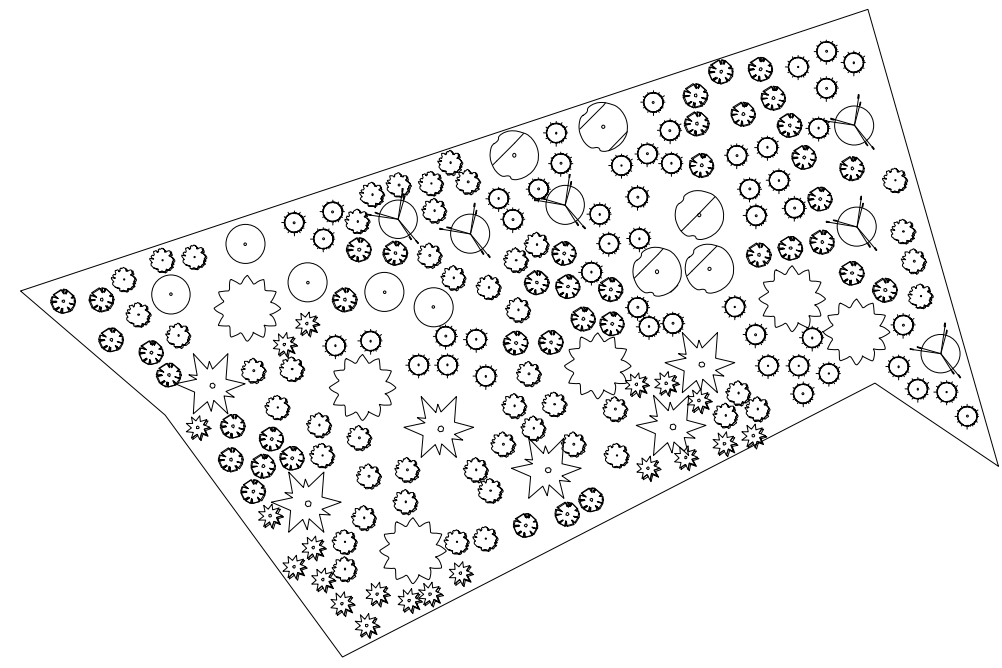
OFF-SITE WETLAND ENANCEMENT PLAN

Scale 1" = 60'



ENLARGED TYPICAL PLANTING PLAN FOR WETLAND ENHANCEMENT AREA

1" = 20'



Wetland Enhancement

A total of approximately 15,830 square feet wetland within the off-site native growth protection easement will be enhanced, including areas along the stream channel. Enhancement will begin with careful removal of invasive species, such as Himalayan blackberry (*Rubus armeniacus*). All invasive plant cuttings will be removed from the designated enhancement areas and exported off-site. The areas will then be planted with a diversity of native trees and shrubs. Five-gallon trees will be planted on 12-foot centers and two-gallon shrubs will be planted on 5-foot centers. The combination of new plantings and existing native vegetation should be adequate to achieve the plant density standards outlined in the definitions of success later in this report. Plantings will be in groups of 2-3 like species, however, the actual placement of individual plants shall mimic natural, asymmetric vegetation patterns. The following species shall be planted within the designated off-site enhancement areas:

Wetland Enhancement (15,830 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Western red cedar	<i>Thuja plicata</i>	5 gal	12'	32
Sitka spruce	<i>Picea sitchensis</i>	5 gal	12'	32
Oregon ash	<i>Fraxinus latifolia</i>	5 gal	12'	27
Sitka willow	<i>Salix sitchensis</i>	5 gal	12'	20
Pacific willow	<i>Salix lucida</i>	5 gal	12'	20
Red-twig dogwood	<i>Cornus sericea</i>	2 gal	5'	234
Pacific ninebark	<i>Physocarpus capitatus</i>	2 gal	5'	184
Black twinberry	<i>Lonicera involucrata</i>	2 gal	5'	184
Salmonberry	<i>Rubus spectabilis</i>	2 gal	5'	134

