CONCEPTUAL MITIGATION PLAN

PROSPECTOR 6

JULY 2022

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

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PROSPECTOR 6

JULY 20, 2022

PROJECT LOCATION
5110 83RD AVENUE NORTHEAST
MARYSVILLE, WASHINGTON 98270

PREPARED FOR
GROUNDHOG LAND DEVELOPMENT COMPANY, LLC
505 106TH AVENUE NORTHEAST, SUITE 110
BELLEVUE, WASHINGTON 98004

PREPARED BY
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Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Executive Summary

Soundview Consultants LLC (SVC) has been assisting Groundhog Land Development Company, LLC (Applicant) with a conceptual mitigation plan for a proposed residential development of an approximately 4.64-acre site located at 5110 83rd Avenue Northeast in the City of Marysville, Washington. The subject property consists of one parcel situated in the Southeast ¼ of Section 35, Township 30 North, Range 5 East, W.M. (Snohomish County Tax Parcel Number 00590700010500).

SVC investigated the subject property for the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species February of 2021. Using current methodology, the site investigation identified four potentially-regulated wetlands (Wetlands A-D) on the subject property. In addition, one potentially regulated offsite wetland (Offsite Wetland E) was identified within 150 feet south of the subject property. Wetlands A, B, D, and Offsite Wetland E are classified as Category III wetlands, which are subject to standard 75-foot buffers per Marysville Municipal Code (MMC) 22E.010.100(4). Wetland C is classified as Category IV wetland and is subject to a standard 35-foot buffer. No other potentially-regulated wetlands, waterbodies, or priority species were identified within 150 feet of the subject property during the site investigation.

The Applicant proposes residential redevelopment of the subject property to include 25 single-family residential lots, internal access roads, recreational areas open space, and associated utilities and infrastructure. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western portion of the site. However, in order to provide required site access and stormwater vault, direct wetland impacts are necessary and unavoidable. As such, the project requires the unavoidable fill of Wetlands A and B on the southeastern portion of the subject property. In addition, indirect impacts to Wetland D are necessary for the access road layout, which was designed to avoid direct impacts to additional wetlands. Buffer averaging per MMC 22E.010.100(5)(a) is also proposed for the buffers associated with Wetland D to avoid permanent wetland buffer impacts. The initial site design that was undesirable to the City offered an alternate access road alignment to the north which would have resulted in only partial fill of Wetlands C and D. Another option offered by the City would be to propose the road alignment directly adjacent to the northern property line to fill the lowest functioning wetland onsite; however, this option was not feasible for the overall site design. The current-proposed site design reduces impacts to the larger, higher functioning Wetland D. No other feasible option in design would result in less impacts to the identified critical areas while allowing a reasonable development of the subject property given the need for safe site access.

The necessary and unavoidable total fill of Wetlands A and B and indirect impacts to Wetlandd D will be compensated through the purchase of mitigation bank credits from the Snohomish Basin Mitigation Bank (SBMB). Permittee-responsible mitigation was carefully considered but was determined to be less ecologically feasible due to the small area of mitigation required that would be better provided through a larger-scale program. Wetland buffer creation is also proposed between Wetlands C and D to provide improved water quality functions, structural diversity, and habitat accessibility to the existing wetlands onsite compared to the existing paved driveway which does not provide any buffer function. The proposed use of a mitigation bank in combination with onsite buffer creation and enhancement was determined to be the best strategy that will result in a net gain in ecological functions within the project area and Snohomish River Watershed (Water Resource Inventory Area 7).

The table below identifies the onsite critical areas and summarizes the potential regulatory status by local, state, and federal agencies.

Wetland Name	Size Onsite (square feet)	Category[1]	Regulated Under MMC Chapter 22E.010	Regulated Under RCW 90.48	Regulated Under Section 404 of the Clean Water Act
Wetland A	1,189 SF	III	Yes	Yes	Potentially
Wetland B	2,840 SF	III	Yes	Yes	Potentially
Wetland C	910 SF	IV	Yes	Yes	Potentially
Wetland D	8,880 SF	III	Yes	Yes	Potentially
Offsite Wetland E	N/A	III	Yes	Yes	Potentially

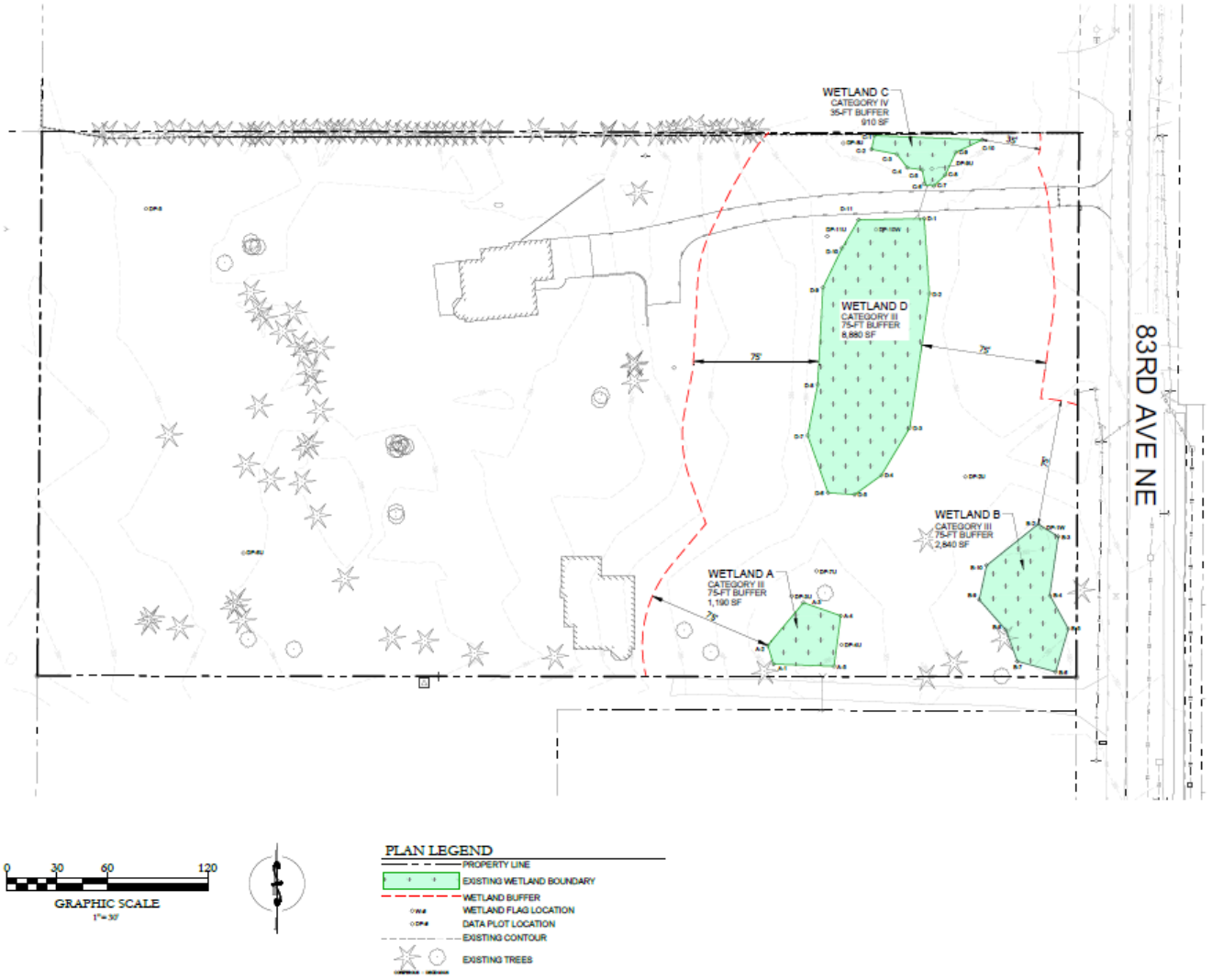
Note:

1. Current Washington State Department of Ecology (WSDOE) wetland rating system (Hruby, 2014) per MMC 22E.010.060.

The table below summarizes the proposed critical area impacts.

Critical Area	Impact Type	Impact Area
Wetland A	Direct	1,189 SF
Wetland B	Direct	2,843 SF
Wetland D	Indirect	3,569 SF
Buffer (Wetland C and D)	Temporary	3,126 SF

Site Map


WETLAND C
CATEGORY IV
35-FT BUFFER
910 SF
WETLAND D
CATEGORY III
75-FT BUFFER
8,880 SF
WETLAND B
CATEGORY III
75-FT BUFFER
2,840 SF
WETLAND A
CATEGORY III
75-FT BUFFER
1,190 SF
83RD AVE NE
75'
0 30 60 120
GRAPHIC SCALE
1"=30'
PLAN LEGEND
PROPERTY LINE
EXISTING WETLAND BOUNDARY
WETLAND BUFFER
WETLAND FLAG LOCATION
DATA PLOT LOCATION
EXISTING CONTOUR
EXISTING TREES

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CHAPTER 1. REGULATORY CONSIDERATIONS

The February 2021 site investigation identified four potentially-regulated wetlands (Wetlands A-D) on the subject property. In addition, one potentially regulated offsite wetland (Offsite Wetland E) was identified within 150 feet south of the subject property. No other potentially-regulated wetlands, waterbodies, or priority species were identified on or within 150 feet of the subject property during the site investigation.

1.1 Local Critical Area Requirements

1.1.1 Standard Buffer Requirements

Marysville Municipal Code (MMC) 22E.010.060.1 has adopted the current wetland rating system (Hruby, 2014). Category III wetlands generally provide a moderate level of function, have usually been disturbed in some way, and are often less diverse and/or more isolated in the landscape than Category II wetlands. Category III wetlands score between 16 and 19 points on the *Revised Washington State Wetland Rating System for Western Washington* (Hruby, 2014). Category IV wetlands generally provide low levels of function; they are often heavily disturbed, smaller, and/or more isolated in the landscape than Category I, II, or III wetlands. Category IV wetlands provide low levels of functions and score less than 16 points.

Wetlands A, B, D, and Offsite Wetland E are classified as Category III wetlands, which are subject to standard 75-foot buffers per MMC 22E.010.100(4). Wetland C is classified as Category IV wetland and is subject to a standard 35-foot buffer. An additional 15-foot building setback is also required from the outer edge of all critical area buffers per MMC 22E.010.380.

1.1.2 Mitigation Sequencing

The proposed residential development will result in direct impacts to Wetlands A and B and indirect impacts to Wetland D. Buffer averaging will also be utilized to further permanent buffer impacts. Impacts to wetlands and their associated buffers are permitted provided that the proposed activity will be designed to ensure no net loss of critical area functions and values. As impacts to Wetlands A, B, and D are unavoidable, mitigation sequencing as described per MMC 22E.010.110(1) is outlined below.

a. *Avoiding impacts altogether by not taking a certain action or parts of an action.*

The Applicant proposes residential redevelopment of the subject property to include 25 single-family residential lots, internal access roads, recreational areas open space, and associated utilities and infrastructure. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western portion of the site. However, in order to provide required site access and stormwater vault, direct wetland impacts are necessary and unavoidable. As such, the project requires the unavoidable fill of Wetlands A and B on the southeastern portion of the subject property. In addition, indirect impacts to Wetland D are necessary for the access road layout, which was designed to reduce impacts to Wetland D, the higher functioning wetland. Buffer averaging per MMC 22E.010.100(5)(a) is also proposed for the buffers associated with Wetland D to avoid permanent wetland buffer impacts. The initial site design that was undesirable to the City offered an alternate access road alignment to the north which would have resulted in only partial fill of Wetlands C

and D. Another option offered by the City would be to propose the road alignment directly adjacent to the northern property line to fill the lowest functioning wetland onsite; however, this option was not feasible for the overall site design. The current-proposed site design reduces impacts to the larger, higher functioning Wetland D. No other feasible option in design would result in less impacts to the identified critical areas while allowing a reasonable development of the subject property given the need for safe site access.

b. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.*

As described above, the proposed direct and indirect impacts are the minimum necessary to allow safe site access to the subject property. To minimize impacts, the lower intensity development (i.e. stormwater tracts) are located adjacent to the remaining critical areas as feasible to provide greater separation between the wetlands and the high intensity development. In addition, all appropriate best management practices (BMPs) and temporary erosion and sediment control (TESC) measures consisting of silt fencing, seeding of disturbed soils, and items outlined in the project's erosion and stormwater control plans, to be prepared by a Project Engineer prior to clearing and grading activities, will be implemented throughout the duration of the proposed project.

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

Repairing, rehabilitating, or restoring Wetlands A and B onsite via permittee-responsible mitigation was carefully considered but was determined to be less ecologically feasible due to the small area of mitigation required that would be better provided through a larger-scale program. Small permittee-responsible mitigation is not as ecologically beneficial for small, isolated areas due to the lack of watershed benefits when compared to purchasing wetland bank credits. Therefore, the proposed direct and indirect impacts will be compensated through the purchase of credits from the SBMB. However, all onsite buffers will be fully enhanced/restored to increase screening from the proposed development and adjacent roadway and increase ecological functions.

d. *Reducing or eliminating the impact over time by preservation and maintenance operations.*

Given that the onsite buffer areas consist of maintained lawn/fields and forested areas that contain non-native invasive understory species, buffer enhancement/restoration is proposed to increase ecological functions; these buffer areas will be maintained and monitored for a period of five years to ensure success of the actions. The remaining wetlands and associated buffers onsite will be protected via a critical areas tract, conservation easement, or other protective mechanism acceptable by the City of Marysville to limit development in perpetuity. In addition, critical areas fencing and signage will be placed around the wetlands and buffer areas post-development to limit intrusion into the areas as required per MMC 22E.010.370.

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

The necessary and unavoidable total fill of Wetlands A and B and indirect impacts to Wetland D will be compensated through the purchase of mitigation bank credits from the SBMB as onsite compensatory mitigation is less ecologically feasible.

f. *Monitoring the impact and taking appropriate corrective measures.*

Mitigation for the direct impacts to Wetlands A and B and indirect impacts to Wetland D will be entirely provided through the purchase of mitigation bank credits from the SBMB and therefore, will not require permittee-responsible mitigation monitoring. The mitigation areas provided will be maintained and monitored through the mitigation banking program for an appropriate timeline to ensure success of the mitigation actions. However, the proposed wetland buffer enhancement/restoration will be maintained and monitored for a period of 5 years as requested by the City of Marysville. Appropriate contingency measures will be implemented if monitoring indicates that goals and performance standards of the enhanhcement/restoration actions are not being met.

1.1.3 Mitigation Performance Standards

According to MMC 22E.010.120, adverse impacts to wetland functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in MMC 22E.010.110(1) (see Section 1.1.2 above). Proposals which include less preferred or compensatory mitigation shall demonstrate that:

1. *All feasible and reasonable measures will be taken to reduce impacts and losses to the original wetland;*

See responses to criteria 1 and 2 under Section 1.1.2 above for details regarding avoidance and minimization measures for the project.

2. *No overall net loss will occur in wetland functions, values and acreage; and*

Compensatory mitigation for the direct impacts to Wetlands A and B and indirect impacts to Wetland D will be provided through the purchase of mitigation bank credits from the SBMB. The direct Category III wetland impacts will utilize a mitigation ratio of 1:1 as determined by the mitigation bank (Habitat Bank LLC, 2016). The indirect impacts will utilize a mitigation ratio of 0.5:1, which is half of the standard ratio for direct impacts as described by WSDOE et al., (2021). Full compensation through the purchase of mitigation bank credits along with additional onsite buffer enhancement/restoration of the degraded buffer areas will ensure that no overall net loss will occur onsite or within the Snohomish River watershed from the proposed project.

3. *The restored, created or enhanced wetland will be as persistent and sustainable as the wetland it replaces.*

The mitigation provided through the purchase of credits from the SBMB will be much higher functioning than the existing degraded wetlands proposed to be impacted, as Wetlands A and B are small, isolated wetlands. The 199-acre Snohomish Basin Bank in Snohomish County consists of wetland re-establishment, wetland rehabilitation, restored floodplain, and associated upland/wetland buffer areas which will establish ideal habitat conditions for a wide range of fish and wildlife species, more than what could be provided onsite in an isolated landscape setting.

1.1.4 Buffer Averaging Plan

The proposed residential development will require buffer averaging for the buffer associated with Wetland D to allow the necessary space for the required stormwater infrastructure. According to MMC 22E.010.100.5.a, buffer width averaging shall be allowed when the applicant demonstrates that the averaging will not impair or reduce the habitat, water quality purification and enhancement, storm water detention, ground water recharge, shoreline protection and erosion protection and other

functions of the wetland and buffer; that lower-intensity land uses would be located adjacent to areas where buffer width is reduced; and that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging.

The proposed wetland buffer averaging plan will result in a net gain in contiguous wetland buffer area, which will ensure no net loss in ecological functions. Overall, a total of 1,962 square feet of buffer decrease will occur along the western portion of Wetland D, and a total of 4,970 square feet of buffer increase will occur on the northern and eastern portion of Wetland D, adjacent to the proposed development and existing roadway. The lower intensity stormwater open space areas are situated next to the wetlands to provide additional separation between the wetlands and high intensity residential lots. The buffer will only be decreased by 16 feet along the western portion, and the buffers will be fully restored/enhanced to increase ecological functions. Therefore, the modified buffer will continue to provide adequate screening as well as water quality, hydrologic, and habitat functions post-development.

1.1.6 Wetland Mitigation Banks

The project proposes the purchase of mitigation bank credits from the SBMB in order to compensate for the necessary, unavoidable direct impacts to Wetlands A and B and indirect impacts to Wetland D. Per MMC 22E.010.130, when mitigation bank use is proposed it shall be conducted in accordance with the following requirements:

1. *Credits from a wetland bank may be approved for use as compensation for unavoidable impacts to wetlands when:*
   (a) *The bank is certified under Chapter 173-700 WAC;*

   The Snohomish Basin Mitigation Bank was certified for use on August 12, 2005.

   (b) *The community development director determines that the wetland mitigation bank provides appropriate compensation for the authorized impacts; and.*

   Utilization of a mitigation bank is the most ecologically practicable mitigation option for the proposed project. The use of a mitigation bank will likely provide a higher level of ecological lift than small onsite or offsite, in-kind permittee responsible mitigation especially with the established resources for maintenance and monitoring over a longer term to ensure success of the mitigation actions. Creating and maintaining small areas of wetland are also more difficult due to a higher probability of the area becoming overtaken by non-native invasive plants. Further, many of the areas potentially available for onsite mitigation between the existing wetlands are currently forested and would provide greater function as upland connections between the existing aquatic areas. As such, the use of a mitigation bank is the most preferable option that will provide watershed-level benefits, more than what could be provided onsite in an isolated landscape.

   (c) *The proposed use of credits is consistent with the terms and conditions of the bank's certification.*

   The purchase of credits will be consistent with the terms and conditions of the bank's certification.

2. *Replacement ratios for projects using bank credits shall be consistent with the terms and conditions of the bank's certification.*

   All direct wetland impacts will be compensated at a 1:1 ratio for Category III wetlands, per Section 7.3 in the mitigation banking instrument document. According to section 6B4.7 per WSDOE et

al. (2021), when indirect impacts are proposed, agencies typically require compensation at one-half of the recommended ratio for permanent impacts. As such, the indirect impacts will utilize a mitigation ratio of 0.5:1, which is half of the standard ratio for Category III wetland impacts.

3. *Credits from a certified wetland mitigation bank may be used to compensate for impacts located within the service area specified in the bank's certification. In some cases, bank service areas may include portions of more than one adjacent drainage basin for specific wetland functions.*

   The purchase of credits from the SBMB will be utilized to compensate for the direct and indirect wetland impacts located within the service area in WRIA 7 – Snohomish River Watershed. The purchase of credits will result in much higher functioning wetlands when compared to the existing small, isolated critical areas proposed to be impacted.

1.1.7 Buffer Enhancement Requirements

Per MMC 22E.010.100(4), buffer enhancement/restoration will be provided for all remaining onsite buffers as they are currently degraded. A portion of the existing buffer between Wetlands C and D contains an access driveway that will be removed and considered an area of buffer creation given that this area has not provided ecological functions, but rather fragmented habitat. The proposed non-compensatory buffer restoration/enhancement will result in increased functions and protection of the wetlands and buffers from the proposed development. The proposed buffer enhancement actions will remove non-native invasive species and replant the reduced wetland buffer with a variety of native plants to selectively increase plant species diversity which will provide improved habitat conditions and function through establishing diverse vertical and horizontal vegetation strata beneficial to wildlife. The addition of diverse native trees and shrubs is anticipated improve water quality functions by increasing retention of sediments and pollution assimilation. The proposed buffer enhancement actions will result in net increase in ecological functions, including hydrological, biological, physical, and chemical functions, both onsite and in the greater watershed.

1.2 State and Federal Considerations

In a December 2, 2008 memorandum from the Environmental Protection Agency (EPA) and USACE, joint guidance is provided that describes waters that are to be regulated under section 404 of the CWA (USACE, 2008). This memorandum was amended on February 2, 2012 where the EPA and USACE issued a final guidance letter on waters protected by the CWA.

The 2012 guidance describes the following waters where jurisdiction would be asserted: 1) traditional navigable waters, 2) interstate waters, 3) wetlands adjacent to traditional navigable waters, 4) non-navigable tributaries of traditional navigable waters that are relatively permanent meaning they contain water at least seasonally (e.g. typically three months and does not include ephemeral waters), and 5) wetlands that directly abut permanent waters. The regulated waters are those associated with naturally occurring waters and water courses and not artificial waters (i.e. stormwater pond outfalls).

The 2012 memorandum further goes on to describe waters where jurisdiction would likely require further analysis: 1) Tributaries to traditional navigable waters or interstate waters, 2) Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters, and 3) Waters that fall under the "other waters" category of the regulations.

In addition, the 2012 guidance identifies thirteen waters or areas where jurisdiction will not be asserted: 1) Wet areas that are not tributaries or open waters and do not meet the agencies regulatory definition of "wetlands", 2) Waters excluded from coverage under the CWA by existing regulations, 3) Waters that lack a "significant nexus: where one is required for a water to be jurisdictional, 4) Artificially irrigated areas that would revert to upland if the irrigation ceased, 5) Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, 6) Artificial reflecting pools or swimming pools excavated in uplands, 7) Small ornamental waters created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and puddles, 8) Water-filled depressions created incidental to construction activity, 9) Groundwater, including groundwater drained through subsurface drainage systems, 10) Erosional features (gullies and rills), 11) Non-wetland swales, 12) Ditches that are excavated wholly in uplands, drain only uplands or non-jurisdictional waters, and have no more than ephemeral flow, and 13) Ditches that do not contribute flow, either directly or through other waterbodies, to a traditional navigable water, interstate water, or territorial sea.

Wetlands A – B and Offsite Wetland E appear insolated in nature with no surface water connections and/or potential significant nexus to any jurisdictional waters. Wetland D flows both north and south into Wetlands A and C. Wetland C continues north through a culvert, flowing into a stormwater pond located north of the subject property. The pond does not provide surface water connections to any jurisdictional waters. As such, the identified wetlands are potentially not regulated by the USACE. However, all identified wetlands are considered natural waters and are regulated by the WSDOE through the Revised Code of Washington (RCW) 90.48.

CHAPTER 2. CONCEPTUAL MITIGATION PLAN

The proposed compensatory mitigation actions for the project attempt to strike a balance between achieving project goals as well as a positive result in terms of ecological lift. In general, joint USACE and EPA rules have been established that require more careful mitigation planning efforts utilizing a watershed approach in site selection, establishment of enforceable performance standards, and preference for use of mitigation banks or in-lieu fees (ILF's) whenever ecologically appropriate (USACE & EPA, 2008). The proposed wetland impacts and compensatory mitigation actions attempt to closely adhere to these rules while also utilizing the best available science (Granger et al., 2005; Hruby et al., 2009; Sheldon et al., 2005; WSDOE et al., 2006; and WSDOE et al., 2021) and adhering to the requirements of MMC Chapter 22E.010. This chapter presents the mitigation details for the proposed residential development project.

2.1 Purpose and Need

The purpose of the proposed project is to provide additional housing units within the City of Marysville and help alleviate the shortage of residences in the greater Seattle area.

2.2 Description of Impacts

The Applicant proposes residential redevelopment of the subject property to include 25 single-family residential lots, internal access roads, recreational areas open space, and associated utilities and infrastructure. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western portion of the site. However, in order to provide required site access and stormwater vault, direct wetland impacts are necessary and unavoidable. As such, the project requires the unavoidable fill of Wetlands A and B on the southeastern portion of the subject property. In addition, indirect impacts to Wetland D are necessary for the access road layout, which was designed to avoid direct impacts to the larger, higher functioning wetland. Buffer averaging per MMC 22E.010.100(5)(a) is also proposed for the buffers associated with Wetland D to avoid permanent wetland buffer impacts. The initial site design that was undesirable to the City offered an alternate access road alignment to the north which would have resulted in only partial fill of Wetlands C and D. Another option offered by the City would be to propose the road alignment directly adjacent to the northern property line to fill the lowest functioning wetland onsite; however, this option was not feasible for the overall site design. The current-proposed site design reduces impacts to the larger, higher functioning Wetland D. No other feasible option in design would result in less impacts to the identified critical areas while allowing a reasonable development of the subject property given the need for safe site access.

Please refer to the Existing Conditions and Proposed Exhibits provided in Appendix A. Table 1 below summarizes the proposed impacts.

Table 1. Summary of Wetland Impacts

Impacted Wetland	WSDOE Rating[1]	Cowardin Class[2]	HGM Class[3]	Impact Type	Impact Area (sq. ft.)
Wetland A	III	PSS/EMC	Depressional	Direct (total fill)	1,189
Wetland B	III	PFO/SSC	Depressional	Direct (total fill)	2,843
Wetland D	III	PFO/EMAH	Depressional	Indirect	3,569

Notes:

1. Cowardin et al. (1979); Federal Geographic Data Committee (2013); class based on vegetation: PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub, PEM = Palustrine Emergent; Modifiers for Water Regime: A = Temporarily Flooded; C = Seasonally Flooded; H = Permanently Flooded.
2. Brinson, M. M. (1993).
3. Current WSDOE wetland rating system for Western Washington (Hruby, 2014).

The proposed project will result in the total fill of Category III wetlands (Wetlands A and B) onsite. Indirect impacts are also required to Wetland D. A wetland function impact analysis is provided below for Wetlands A and B.

- **Water Quality:** Wetlands A and B is a depressional wetland that exhibits seasonal flooding. In general, the wetland provides a moderate water quality improvement potential as Wetland B lacks an outlet and Wetland A provides an intermittent outlet, which slows filtration and retains water for a period conducive to filtering pollutants. Additionally, the wetlands are located in proximity to land uses that generate pollutants, and water quality functions provided by the wetlands has increased value to society due to the presence of a 303(d) water in the sub-basin and a TMDL in the watershed. However, these functions are limited by a lack of persistent, ungrazed plants. The purchase of mitigation bank credits from the SBMB will result in a net increase in water quality functions within the Snohomish River Watershed when compared to the small, isolated wetland proposed to be filled.

- **Hydrologic:** The primary source of hydrology for Wetlands A and B are direct precipitation, surface sheet flow from adjacent uplands, and a seasonally high groundwater table. In general, Wetlands A and B provide moderate levels of hydrologic functions due to its moderate storage depth. Additionally, the wetlands are located in a landscape that generated excess runoff and hydrologic functions provided by the wetland have increased value to society due to the presence of flooding issues immediately down-gradient of the wetland. However, these functions are limited due to the units' low flood storage capacity within the watershed. The purchase of mitigation bank credits from the SBMB will result in a net increase in hydrologic functions within the Snohomish River Watershed when compared to the small, isolated wetland proposed to be filled.

- **Habitat:** Wetlands A and B provide minimal habitat functions due to the disturbed nature of the wetlands and a lack of priority habitats and special habitat features which decreases habitat complexity and suitability. Additionally, the wetlands are located within a highly developed landscape where accessibility to habitat and habitat interspersion are limited. Due to the low-functioning habitat conditions, the total wetland fill will result in limited habitat removal, and additional wetland habitat functions will be replaced and increased with the purchase of mitigation bank credits from the SBMB.

2.3 Mitigation Strategy

2.3.1 Onsite Buffer Restoration Plan

Compensation for the direct and indirect wetland impacts will be provided through the purchase of mitigation bank credits from the SBMB. However, given that the existing wetland buffer areas onsite are degraded by maintained field/lawn areas, an access driveway, and non-native invasive species, full buffer enhancement/restoration is required. The onsite buffer area will be restored by removing existing impervious surfaces, trash and debris, and non-native invasive species, adding suitable topsoil, and replanting with a suite of native trees, shrubs, and groundcover. Removing wetland buffer degradations such as impervious surfaces and non-native invasive vegetation and replacing with native plantings within the buffer will restore the habitat functions and critical area protection provided by the site and improve the hydrology and quality of water leaving the project site. A diverse herbaceous layer will be established to provide browse, cover, and nesting for small mammals, which in turn provide prey for raptors and other small mammals. In addition, the proposed buffer restoration/enhancement actions will provide additional screening from the proposed development and result in a net gain in buffer function.

The wetland buffer restoration/enhancement actions will include, but may not be limited to, the following recommendations:

- Remove any existing impervious surfaces, structures, fill material, trash and other debris within the onsite buffer restoration areas;
- Pre-treat invasive plants with a Washington Department of Agriculture approved herbicide for use near aquatic areas. After pre-treatment, grub to remove the invasive plants and replant all cleared areas with native trees, shrubs, and ground covers listed in site plans; pre-treatment of the invasive plants should occur a minimum of two weeks prior to removal;
- Add soil amendments to the onsite buffer restoration area to provide suitable planting substrate;
- Replant all restoration and enhancement areas with native trees, shrubs, and groundcovers listed in site plans, or substitutes approved by the responsible Project Scientist, to help retain soils, filter stormwater, and increase biodiversity;
- An approved native seed mix will be used to seed the disturbed areas after planting;
- Maintain and control invasive plants annually, at a minimum, or more frequently if necessary. Maintenance to reduce the growth and spread of invasive plants is not restricted to chemical applications but may include hand removal, if warranted;
- Provide dry-season irrigation as necessary to ensure native plant survival;
- Direct exterior lights away from the wetland wherever possible; and
- Place all activities that generate excessive noise (e.g., generators and air conditioning equipment) away from the wetlands where feasible.

2.3.2 Mitigation Bank Use Plan

Joint USACE and EPA rules (USACE & EPA, 2008) and interagency guidance (WSDOE et al., 2006; WSDOE et al., 2021); and Hruby et al., 2009) require more careful mitigation planning efforts utilizing

a watershed approach in site selection, establishment of enforceable performance standards, and preference for use of mitigation banks or ILFs wherever most ecologically practicable. The subject property is located in the SBMB service area (see Appendix B), thus allowing the project to utilize the approved mitigation banking program for compensatory mitigation within the same watershed as project impacts. Offsite and onsite permittee-responsible wetland mitigation has been carefully considered; however, permittee-responsible mitigation is not an ecologically beneficial or a practical option. The use of a mitigation bank will likely provide a higher level of ecological lift than small onsite or offsite, in-kind permittee responsible mitigation especially with the established resources for maintenance and monitoring over a longer term to ensure success of the mitigation actions. Creating and maintaining small areas of wetland are also more difficult due to a higher probability of the area becoming overtaken by non-native invasive plants. Further, many of the areas potentially available for onsite mitigation between the existing wetlands are currently forested and would provide greater function as upland connections between the existing aquatic areas. As such, the use of a mitigation bank is the most preferable option that will provide watershed-level benefits, more than what could be provided onsite in an isolated landscape.

The overarching mitigation goal of the SBMB is to protect and enhance salmonid populations using a watershed approach, which will in turn benefit other aquatic species. The purchase of mitigation banking credits will allow the project to achieve no net loss of aquatic resource functions. Wetland functions targeted for use in the SBMB include improving water quality, flood storage, flow reductions, and habitat for plant and animals on a 199-acre site focusing on wetland re-establishment, wetland rehabilitation, restoring floodplain, and associated upland/wetland buffer areas.

The SBMB, administered by Mitigation Banking Services, creates a "comprehensive, equitable, and consistent" program to ensure successful mitigation actions. Oversight of this mitigation banking program is provided by an Interagency Review Team (IRT) that includes representatives from the USACE, WSDOE, tribes, and other federal, state, and local regulatory agencies.

The wetland impacts will result in the purchase of credits outlined in Table 2 below. The credits outlined below will be available for purchase from the SBMB based on communication with the administrator.

Table 2. Replacement Ratios and Calculation of Bank Credits Required

Feature	Category/ Type[1]	Mitigation Ratio (Credits Needed per Acre of Impacted Wetland)[2]	Permanent Impact Area	Bank Credits Needed (acre-credits)
Wetland A	III	1:1	1,189 SF (0.03 AC)	0.03
Wetland B	III	1:1	2,843 SF (0.07 AC)	0.07
Wetland D (indirect)	III	0.5:1	3,569 SF (0.08 acre)	0.041
		Total	**7,601 (0.17 acre)**	**0.141**

Notes:
1. Current Washington State Department of Ecology (WSDOE) wetland rating system (Hruby, 2014) per MMC 22E.010.060(1).
2. Credit calculation methods are derived from the SBMB MBI document (Habitat Bank LLC, 2016). Per WSDOE et al. (2021), indirect impacts typically get compensated at half the standard ratio of direct impacts.

Negotiations of terms of the mitigation bank credit purchase will be made with IRT staff with preliminary approvals of the project by the City and the USACE, after formal approval of the

Mitigation Plan by all appropriate regulatory agencies. Proof of credit purchase and transfer will be provided via a Statement of Sale from the Applicant. Prior to any impacts to wetlands, the Statement of Sale will be provided to the City and the USACE.

2.4 Approach and Best Management Practices

The proposed wetland buffer restoration/restoration plan is intended to provide increased wetland protections by maintenance or improvement of wetland buffer functions. Restoration and enhancement of disturbed areas within the wetland buffers should occur immediately after grading is complete. TESC measures will be implemented that consists of high-visibility fencing (HVF) installed around native vegetation along the modified perimeter of the buffers, silt fencing between the graded areas and undisturbed buffers, plastic sheeting on stockpiled materials, and seeding of disturbed soils. These TESC measures should be installed prior to the start of development or enhancement actions and actively managed for the duration of the project.

All equipment staging and materials stockpiles should be kept out of the identified wetlands and buffers, and the area will need to be kept free of spills and/or hazardous materials. All material for road surfacing should be sourced from upland areas onsite or from approved suppliers and will need to be free of pollutants and hazardous materials. Construction materials along with all construction waste and debris should be effectively managed and stockpiled on paved surfaces and kept free of the wetland and buffer areas. Following completion of the development, the entire site should be cleaned and detail graded using hand tools wherever necessary, and TESC measures will need to be removed.

2.5 Goals, Objectives, and Performance Standards

The goals and objectives for the proposed wetland buffer restoration actions will be based on providing additional habitat and protection for the onsite wetlands and providing supplementary water quality and hydrological functions. Wetland buffer restoration actions are capable of improving habitat function for the wetlands over time by establishment of a dense vegetation barrier between the project and the critical areas. The goals and performance standards for the enhancement actions are outlined below.

Goal 1 – Improve and protect wetland buffer functions by restoring approximately 36,812 square feet of onsite wetland buffer area.

> *Objective 1* – Establish areas of native trees, shrubs, and emergent plants to create diverse horizontal and vertical vegetation structure and additional wildlife habitat.
>
> > **Performance Standard 1.1** – By the end of Year 5, the buffer restoration areas will have at least 3 species of native trees and 5 species of native shrubs; native volunteer species will be included in the count. To be considered, the native species must make up at least 5 percent of the vegetation class.
> >
> > **Performance Standard 1.2** – Minimum plant survivorship will be at 100 percent of installed plants at the end of Year 1 (replacement of lost plants allowed) and 80 percent in all remaining years in the monitoring period.

Performance Standard 1.3 – Minimum native woody species cover in the buffer restoration areas will be a minimum of 30 percent native species areal coverage by the end of Year 2, and 50 percent areal coverage by the end of Year 5.

Performance Standard 1.4 – State-listed, Class A noxious weeds must be completely eliminated from the buffer restoration areas in all monitoring years and invasive species that are not considered state-listed, Class-A noxious weeds shall not exceed 15 percent aerial cover in the buffer areas in all monitoring years.

2.6 Plant Materials and Installation

2.6.1 Plant Materials

All plant materials to be used for restoration/enhancement actions will be nursery grown stock from a reputable, local source. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

Container stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit rootbound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops. Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is specified in the plan set.

All plant material shall be inspected by the Project Scientist upon delivery. Plant material not conforming to the specifications below will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site.

Fertilizer will be in the form of Agroform plant tabs or an approved like form. Mulch will consist of sterile wheat straw for seeded areas (if necessary) and clean recycled wood chips approximately ½-inch to 1-inch in size and ½-inch thick for woody plants. The mulch material may be sourced from non-invasive woody materials sourced from the land clearing activities.

2.6.2 Plant Scheduling, Species, Size, and Spacing

Plant installation should occur as close to conclusion of the residential plat construction activities as possible to limit erosion and limit the temporal loss of function provided by the wetlands and buffers. All planting should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary.

2.6.3 Quality Control for Planting Plan

All plant material shall be inspected by the qualified Project Scientist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site. Under no circumstances shall container stock be handled by their trunks, stems, or tops.

The landscape contractor shall provide the responsible Project Scientist with documentation of plant material that includes the supplying nursery contact information, plant species, plant quantities, and plant sizes.

2.6.4 Product Handling, Delivery, and Storage

All seed and fertilizer should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable to the responsible Project Scientist. Plants, fertilizer, and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

2.6.5 Preparation and Installation of Plant Materials

The planting contractor shall verify the location of all elements of the restoration plan with the responsible Project Scientist prior to installation. The responsible Project Scientist reserves the right to adjust the locations of landscape elements during the installation period as appropriate. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Scientist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 1.5 times the width of the rootball, and the depth of the pit should accommodate the entire root system.

Broken roots should be pruned with a sharp instrument and rootballs should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agroform tablets. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water and install a 4- to 6-inch layer of mulch around the base of each container plant.

2.6.6 Temporary Irrigation Specifications

While the native species selected for enhancement actions are hardy and typically thrive in northwest conditions and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering may be provided as necessary for the duration of the first two growing seasons, two times per week while the native plantings become established. If used, irrigation will be discontinued after two growing seasons. Frequency and amount of irrigation will be dependent upon climatic conditions and may require more or less frequent watering than two times per week.

2.6.7 Invasive Plant Control and Removal

Invasive species onsite to be removed include Himalayan blackberry and any listed noxious weeds or other invasive species that are existing or may colonize the enhancement areas. These species are found nearby; therefore, to ensure these species do not expand following the restoration/enhancement actions, invasive species within the restoration/enhancement areas will be pretreated with a root-killing herbicide approved for use in aquatic sites (e.g., Rodeo) a minimum of two weeks prior to being removed from the wetland buffers. The pre-treatment with herbicide should occur prior to all planned restoration/enhancement actions, and spot treatment of any surviving other

invasive vegetation should be performed again each fall prior to leaf senescence for a minimum of five years.

2.7 Maintenance & Monitoring Plan

The conceptual maintenance and monitoring plan is described below in accordance with MMC 22E.010.160. The Applicant is committed to compliance with the wetland buffer restoration plan and overall success of the project. As such, the Applicant will continue to maintain the project, keeping the site free from of non-native invasive vegetation, trash, and yard waste.

The wetland buffer restoration plan will require continued monitoring and maintenance to ensure the actions are successful. Therefore, the project site will be monitored for a period of five years with formal inspections by a qualified Project Scientist. Monitoring events will be scheduled at the time of construction, 30 days after planting, early in the growing season and the end of the growing season for Year 1, twice during Year 2, and annually in Year 3, Year 4, and Year 5. Closeout assessment will also be conducted in Year 5 to ensure the adequate enhancement areas were established.

Monitoring will consist of percent cover and survival measurements at permanent monitoring stations, walk-through surveys to identify invasive species presence and dead or dying restoration plantings, photographs taken at fixed photo points, wildlife observations, and general qualitative habitat and stream function observations.

To determine percent cover, observed vegetation will be identified and recorded by species and an estimate of areal cover of dominant species within each sampling plots. Circular sample plots, approximately 30 feet in diameter (706 square feet), are centered at each monitoring station. The sample plots encompass the specified wetland buffer areas and terminate at the observed wetland boundary. Trees and shrubs within each 30-foot diameter monitoring plot are then recorded to species and areal cover. Herbaceous vegetation is sampled from a 10-foot diameter (78.5 square feet) within each monitoring plot, established at the same location as the center of each tree and shrub sample plot. Herbaceous vegetation within each monitoring plot is then recorded to species and includes an estimate of percent areal cover. A list of observed tree, shrub, and herbaceous species including percent areal cover of each species and wetland status is included within the monitoring report.

To determine percent survival of installed plants, individual native tree and shrub locations within the relevant circular sampling plots will be marked following plant installation. These installed native trees and shrubs will then be recorded as dead or alive during the years of monitoring.

2.8 Reporting

Following each monitoring event in Years 1-5, a brief monitoring report detailing the current ecological status of the buffer restoration actions, measurement of performance standards, and management recommendations will be prepared and submitted to the City of Marysville within 90 days of each monitoring event to ensure full compliance with the buffer restoration plan.

2.9 Contingency Plan

If monitoring results indicate that performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance is essential in ensuring

that problems do not arise. Should any portions of the buffer restoration area fail to meet the success criteria, a contingency plan will be developed and implemented with City of Marysville approval. Such plans are adaptive and should be prepared on a case-by-case basis to reflect the failed enhancement characteristics. Contingency plans can include additional plant installation, erosion control, and plant substitutions including type, size, and location. The Contingency measures outlined below can also be utilized in perpetuity to maintain the wetland associated with the proposed project site.

Contingency/maintenance activities may include, but are not limited to:

1. Using plugs instead of seed for emergent vegetation coverage where seeded material does not become well established;
2. Replacing plants lost to vandalism, drought, or disease, as necessary;
3. Replacing any plant species with a 15 percent or greater mortality rate after two growing seasons with the same species or native species of similar form and function;
4. Irrigating the buffer restoration areas only as necessary during dry weather if plants appear to be too dry, with a minimal quantity of water;
5. Reseeding and/or repair of wetland areas as necessary if erosion or sedimentation occurs;
6. Spot treat non-native invasive plant species with approved aquatic herbicide; and
7. Removing all trash or undesirable debris from the buffer areas as necessary.

2.10 Conservation Easement

Long-term protection of the restoration site shall be provided by placement in a separate tract in which development is prohibited or by execution of an easement dedicated to the City of Marysville, a conservation organization, land trust, or similarly preserved through a permanent protective mechanism acceptable to the city. The location and limitations associated with the restoration area shall be shown on the face of the deed or plat applicable to the property and shall be recorded with the Snohomish County recording department.

2.11 Financial Assurances

Under MMC 22E.010.140(2)(e), performance security is required to assure that all actions approved under this restoration plan are satisfactorily completed in accordance with the restoration plan, performance standards, and regulatory conditions of approval. A bond quantity worksheet will be provided under the Final Restoration plan.

CHAPTER 3. CLOSURE

The findings and conclusions documented in this assessment report have been prepared for specific application to this project. These findings and conclusions have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions and recommendations presented in this assessment report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this assessment may need to be revised wholly or in part in the future.

CHAPTER 4. REFERENCES

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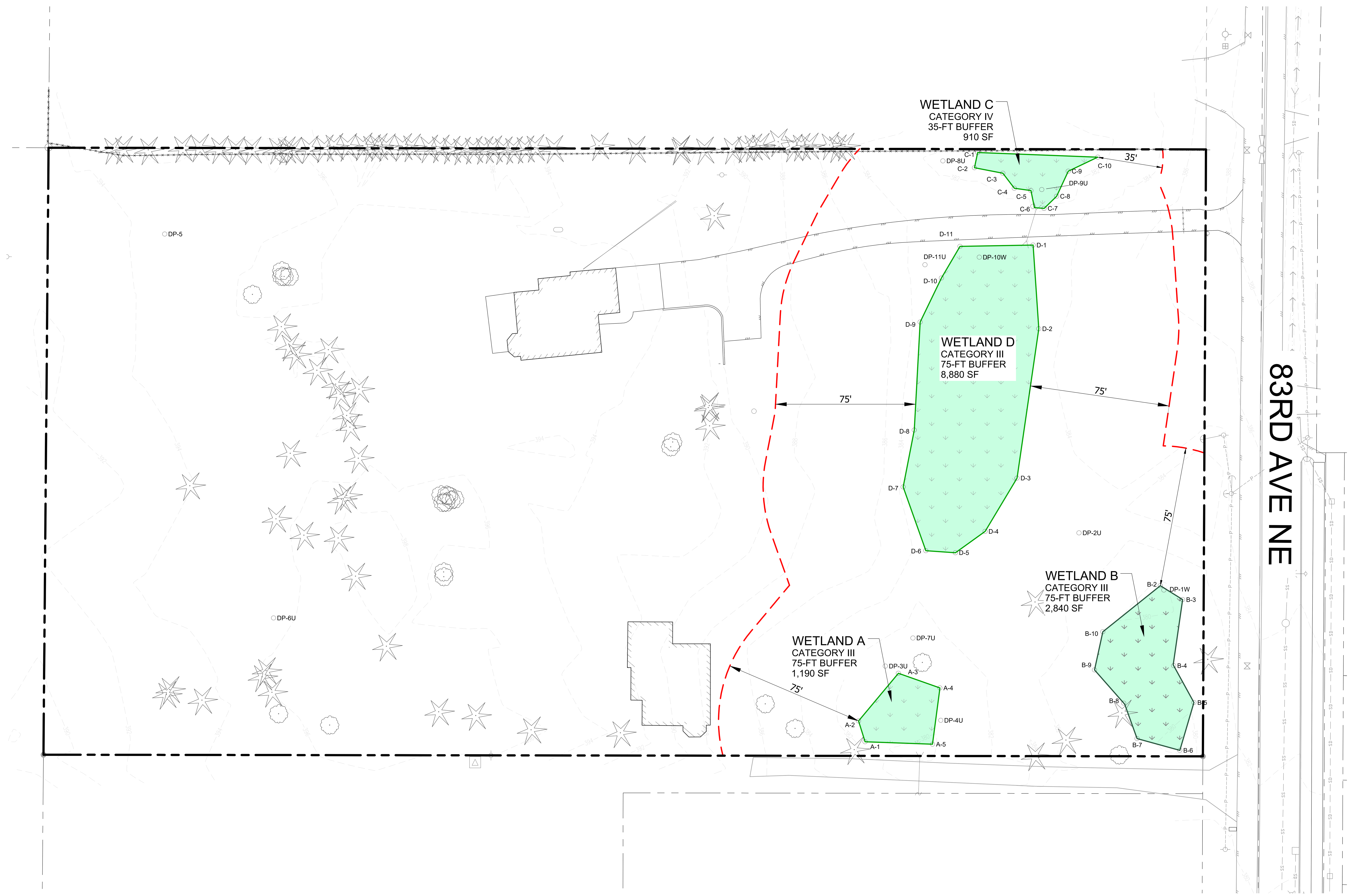
Appendix A — Existing Conditions and Site Plan Exhibits



GRAPHIC SCALE
0 30 60 120
1"= 30'

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- WETLAND BUFFER
- W-# WETLAND FLAG LOCATION
- DP-# DATA PLOT LOCATION
- EXISTING CONTOUR
- EXISTING TREES (CONIFEROUS - DECIDUOUS)

VICINITY MAP

SOURCE: ESRI (ACCESSED 03/18/2022)

LOCATION

THE SE ¼ OF SECTION 35,
TOWNSHIP 30N, RANGE 05E, WM

APPLICANT/OWNER

NAME: GROUNDHOG LAND DEVELOPMENT CO.
ADDRESS: 505 106TH AVE NE SUITE 110
BELLEVUE, WA 98004
CONTACT: JOEY FERRICK
PHONE: 425.502.2928
E-MAIL: FERRICKCG@KW.COM

ENVIRONMENTAL CONSULTANT

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WA 98335
(253) 514-8952

SHEET INDEX

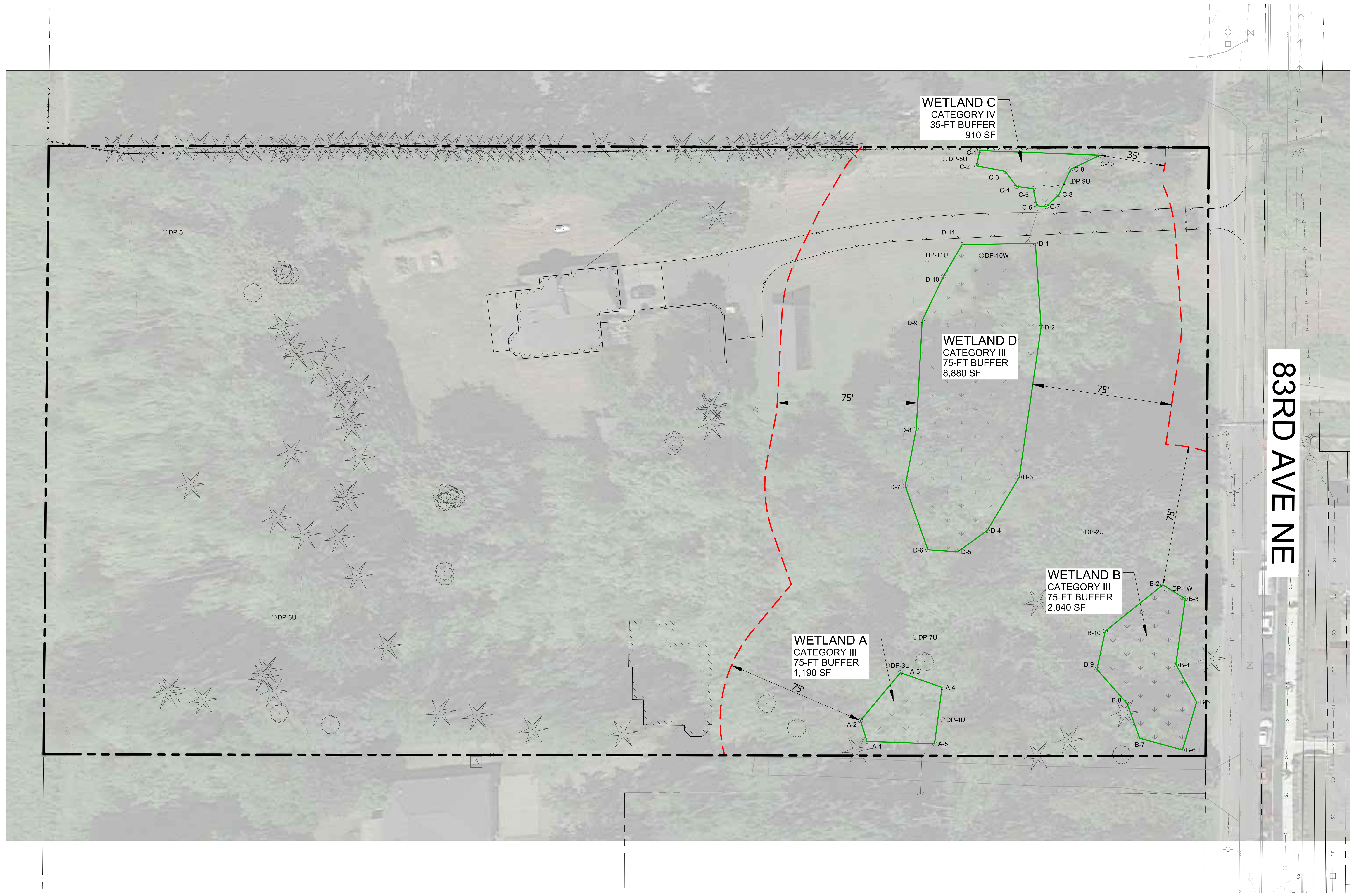
SHEET NUMBER	SHEET TITLE
1	EXISTING CONDITIONS
2	EXISTING CONDITIONS AERIAL
3	PROPOSED SITE PLAN, IMPACTS & MITIGATION
4	CONCEPTUAL PLANTING PLAN & DETAILS

SOURCES:
LATTA ENGINEERING PLLC
Consulting Civil Engineers

Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
P. 253.514.8952
F. 253.514.8954
WWW.SOUNDVIEWCONSULTANTS.COM

PROSPECTOR 6
5110 83RD AVE NE
MARYSVILLE, WA 98270
SNOHOMISH COUNTY
PARCEL NUMBERS:
00590700010500

DATE: 07/18/2022
JOB: 1908.0007
BY: DDS / MW
SCALE: AS SHOWN
SHEET: 1



0 30 60 120

GRAPHIC SCALE

1"= 30'

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- WETLAND BUFFER
- W-# WETLAND FLAG LOCATION
- DP-# DATA PLOT LOCATION
- EXISTING CONTOUR
- CONIFEROUS - DECIDUOUS EXISTING TREES

SOURCES:

LATTA ENGINEERING PLLC
Consulting Civil Engineers
5970 Birch Point Road, Blaine, WA 98230
Ph: 360 671 7002
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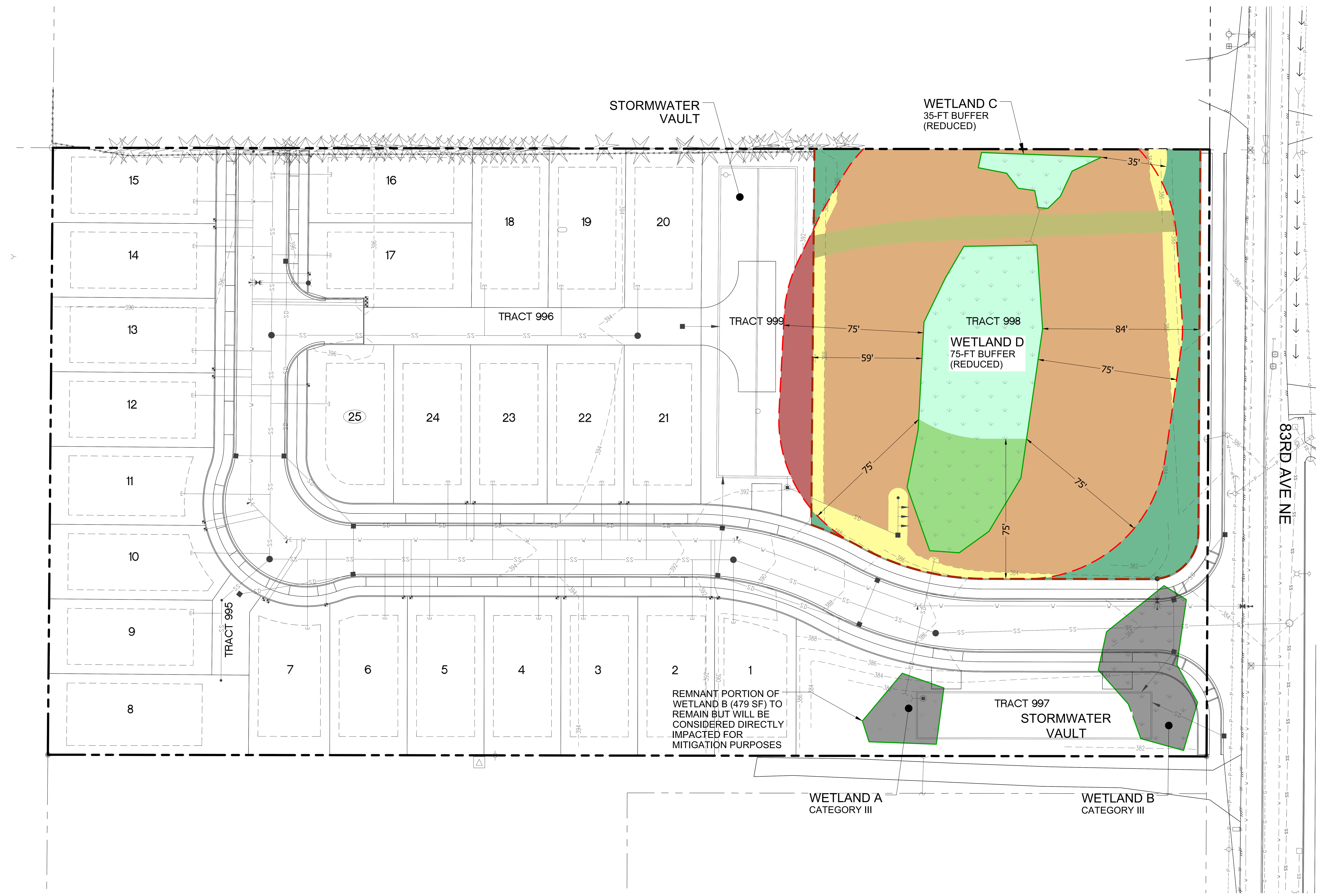
SCALE: AS SHOWN

SHEET: 2

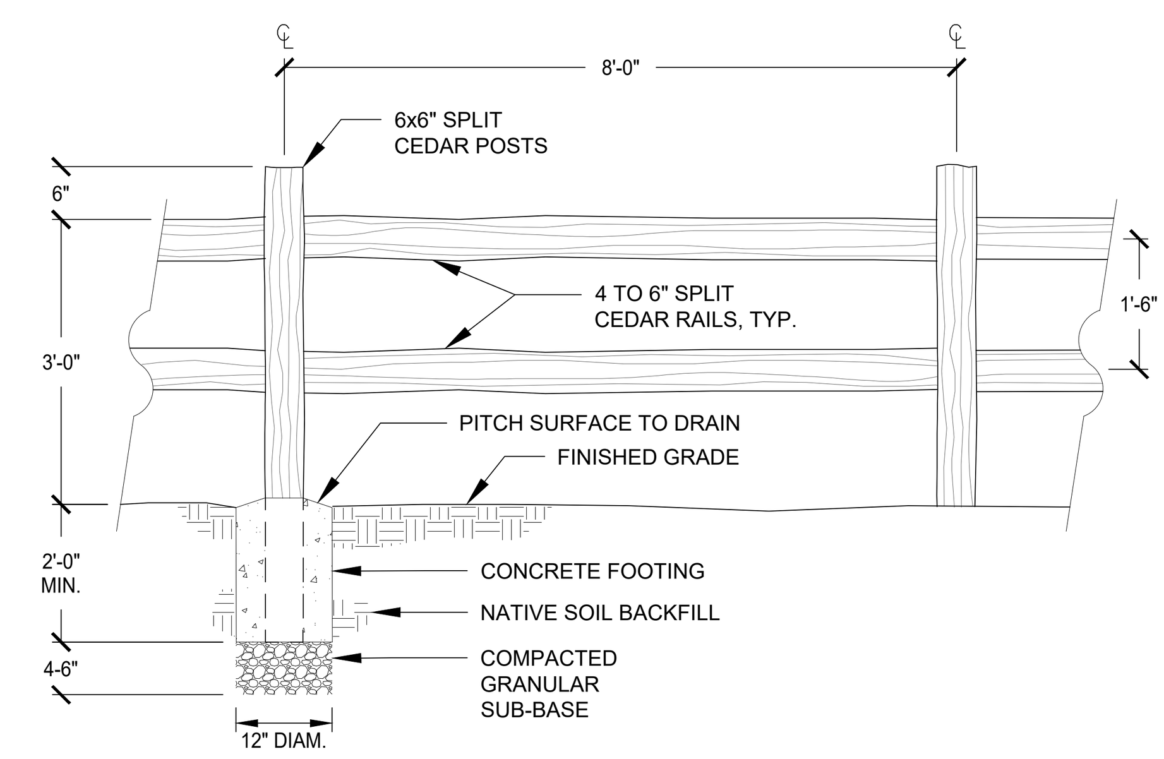
PROPOSED SITE PLAN, IMPACTS & MITIGATION



0 30 60 120
GRAPHIC SCALE
1"= 30'

SPLIT RAIL FENCE DETAIL

NOT TO SCALE

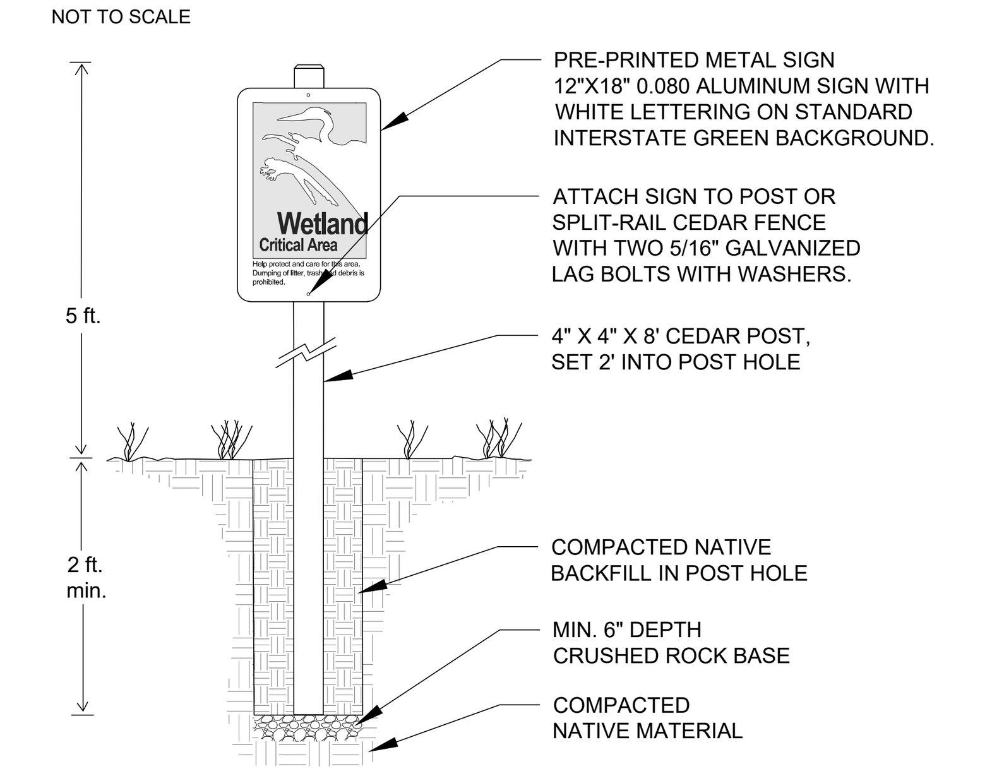


NOTES:

1. POSTS AND RAILINGS PRE-CUT FOR ASSEMBLY.
2. 3-RAIL DESIGNS ARE PERMITTED.
3. FENCE SHALL BE PLACED AT APPROVED BUFFER EDGE.

CRITICAL AREA SIGN DETAIL

NOT TO SCALE



CRITICAL AREA BOUNDARY SIGN NOTES:

1. TWO-RAIL FENCING SHALL BE CONSTRUCTED WITH PRESSURE TREATED POSTS AND RAILS AND CEMENTED INTO THE GROUND WITH EITHER CEDAR OR TREATED RAILS. ALTERNATIVE MATERIALS MAY BE USED SUBJECT TO APPROVAL BY THE CITY.
2. SIGNS DESIGNATING THE PRESENCE OF AN ENVIRONMENTALLY SENSITIVE AREA SHALL BE POSTED ALONG THE BUFFER BOUNDARY. THE SIGNS SHALL BE POSTED AT A MINIMUM RATE OF ONE EVERY 100 LINEAL FEET.
3. PRE-PRINTED METAL SIGN AVAILABLE THROUGH SIGN, AVAILABLE THROUGH:
   ZUMAR INDUSTRIES
   PHONE: 1-800-426-7967,
   WEBSITE: WWW.ZUMAR.COM

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- POST CONSTRUCTION BUFFER
- WETLAND BUFFER
- EXISTING TREES (CONIFEROUS - DECIDUOUS)

IMPACTS & MITIGATION LEGEND

IMPACTS	
INDIRECT WETLAND IMPACTS	3,569 SF
TEMPORARY CONSTRUCTION RELATED BUFFER IMPACTS	3,126 SF
WETLAND A FILL	1,189 SF
WETLAND B FILL	2,843 SF

MITIGATION	
WETLAND BUFFER ENHANCEMENT	26,416 LF
WETLAND BUFFER CREATION	2,299 SF
RESTORATION OF TEMPORARY CONSTRUCTION RELATED BUFFER IMPACTS	3,126 SF

BUFFER AVERAGING LEGEND

WETLAND D BUFFER DECREASE	1,962 SF
WETLAND D BUFFER INCREASE (TO BE ENHANCED)	4,971 SF (NET GAIN 3,009 SF)

SOURCES:

LATTA ENGINEERING PLLC
Consulting Civil Engineers
5970 Birch Point Road, Blaine, WA 98230
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BY: DDS / MW
SCALE: AS SHOWN
SHEET: 3

S:\CURRENT\1908 Ferrick\1908.0007 Prospector 6\Graphics & Maps\CAD\A - CURRENT SVC DRAWINGS\A - Current Base DWGs\1908.0007 (2022-7) base.dwg
Plotted July 21, 2022

0 20 40 80

GRAPHIC SCALE
1"= 20'

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- CRITICAL AREA SIGNAGE
- POST-CONSTRUCTION WETLAND BUFFER/ CRITICAL AREA FENCE
- EXISTING TREES

CONIFEROUS · DECIDUOUS

PLANTING AREA LEGEND

FORESTED BUFFER ENHANCEMENT	13,140 SF
FULL BUFFER ENHANCEMENT / RESTORATION (NON-CONFORMING RESIDENTIAL USES, EXISTING DRIVEWAY, TEMPORARY CONSTRUCTION RELATED IMPACTS)	21,653 SF
SHRUB ONLY BUFFER ENHANCEMENT / RESTORATION	2,019 SF
TOTAL PLANTED AREAS:	36,812 SF

PLANT SCHEDULE

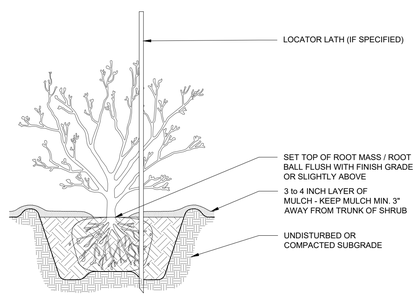
			Area (sf):	13,140	21,653	2,019	36,812				
			Cov'g (%):	50	100	100					
			Trees (%):	50	50	0					
			Shrubs (%):	50	50	100					
Scientific Name	Common Name	WL Status	Forested Buffer Enhancement	Full Buffer Enhancement/ Restoration	Shrub Only Buffer Enhancement / Restoration	TOTAL	Spacing (min.)	Height (min.)	Size (min.)	Planting Area
TREES										
Acer macrophyllum	bigleaf maple	FACU	-	17	-	17	10 ft	3 ft	2 gal	Dry
Frangula purshiana (Rhamnus p.)	cascara	FAC	4	12	-	16	10 ft	3 ft	1 gal	Dry
Prunus emarginata	bitter cherry	FACU	-	21	-	21	10 ft	3 ft	2 gal	Dry
Pseudotsuga menziesii	Douglas fir	FACU	14	46	-	60	10 ft	3 ft	2 gal	Dry
Thuja plicata	western redcedar	FAC	12	29	-	41	10 ft	3 ft	2 gal	Moist - on hummock
Tsuga heterophylla	western hemlock	FACU	8	-	-	8	10 ft	3 ft	2 gal	Moist - on hummock
		Total:	38	125	0	163				
SHRUBS										
Acer circinatum	vine maple	FAC	20	70	-	90	10 ft	4 ft	2 gal	Dry/Moist
Cornus stolonifera	red-osier dogwood	FACW	-	-	23	23	4 ft	3 ft	1 gal	Moist/Wet
Corylus cornuta var. californica	western hazlenut	FACU	16	40	-	56	10 ft	2 ft	2 gal	Moist
Gaultheria shallon	salal	FACU	30	100	-	130	4 - 5 ft	1 ft	1 gal	Dry
Mahonia nervosa	low Oregon grape	FACU	20	-	-	20	4 - 5 ft	1 ft	1 gal	Dry/Moist
Oemleria cerasiformis	Indian plum	FACU	18	70	-	88	5 ft	2 ft	2 gal	Dry
Polystichum munitum	western swordfern	FACU	32	100	-	132	4 - 5 ft	1 ft	1 gal	Dry/Moist
Ribes lacustre	swamp gooseberry	FAC	-	-	15	15	4 ft	2 ft	1 gal	Moist/Wet
Rosa gymnocarpa	bald hip rose	FACU	8	25	-	33	4 ft	2 ft	1 gal	Dry/Moist
Rosa pisocarpa	clustered wild rose	FAC	-	-	20	20	4 ft	2 ft	1 gal	Wet
Rubus parviflorus	thimbleberry	FACU	-	-	15	15	4 ft	2 ft	1 gal	Moist
Rubus spectabilis var. spectabilis	salmonberry	FAC	-	70	20	90	4 ft	2 ft	1 gal	Moist
Sambucus racemosa var. racemosa	red elderberry	FACU	8	25	-	33	5 ft	2 ft	2 gal	Dry
		Total:	152	500	93	745				

SEED MIXES (www.riverrefugeseed.com)		WL Status	Forested Buffer Enhancement	Full Buffer Enhancement/ Restoration	Shrub Only Buffer Enhancement / Restoration	TOTAL
Native Upland Grass Mix #9	**20 lbs/acre**					
Elymus glaucus	Blue wildrye	30%				
Bromus carinatus	California brome	25%				
Hordeum brachyantherum	Meadow barley	10%				
Festuca roemeri	Roemer's fescue	10%				
Deschampsia elongata	Slender hairgrass	10%				
Agrostis exarata	Spike bentgrass	5%				
Deschampsia cespitosa	Tufted hairgrass	5%				
Festuca rubra var. rubra	Red fescue	5%				
		Total (lbs):	0	10	1	11

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest, 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018).*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Tree calculations based upon 10-ft average spacing.
6 - Shrub calculations based upon 5-ft average spacing.
7 - No tree species to be planted within 10 feet of the proposed storm water infrastructure.

TREE AND SHRUB PLANTING DETAIL (TYPICAL)

NOT TO SCALE



NOTES:
1. PLANT SHRUBS OF THE SAME SPECIES IN GROUPS OF 3 to 9 AS APPROPRIATE, OR AS SHOWN ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES TO ACHIEVE A NATURAL-LOOKING LAYOUT.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

SOURCES:

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5970 Birch Point Road, Blaine, WA 98230
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PROSPECTOR 6
5110 83RD AVE NE
MARYSVILLE, WA 98270

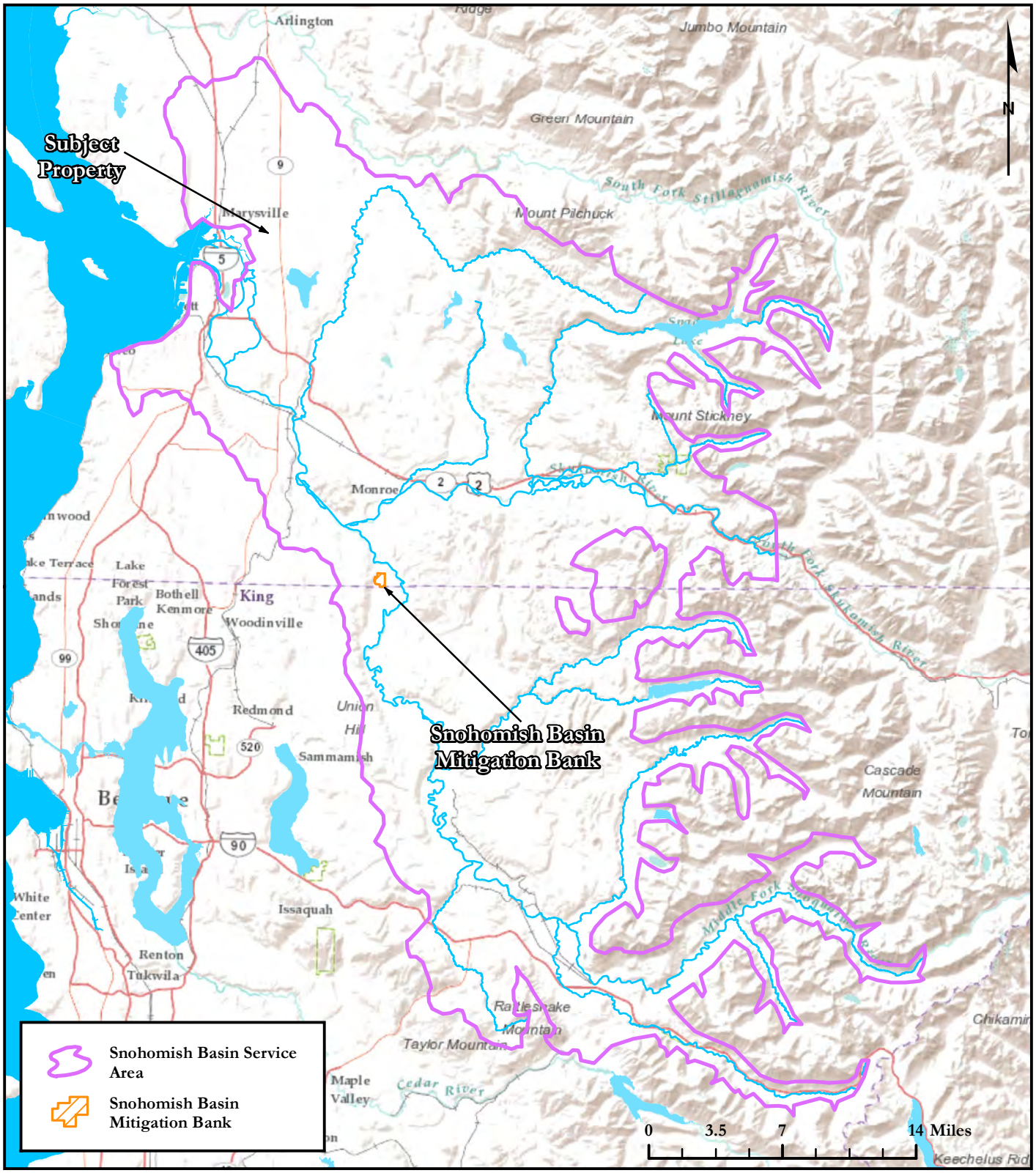
SNOHOMISH COUNTY
PARCEL NUMBERS:
00590700010500

DATE: 07/18/2022
JOB: 1908.0007
BY: DDS / MW
SCALE: AS SHOWN
SHEET: 4

S:\CURRENT\1908 Perrich\1908.0007 Prospector 6\Graphics & Maps\CADD\A - CURRENT SVC DRAWINGS\A - Current Base DWGs\1908.0007 (2022-7) base.dwg
Plotted July 21, 2022

Appendix B — Mitigation Bank Service Area Exhibit

MITIGATION BANK SERVICE AREA EXHIBIT



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PROSPECTOR 6

5110 83RD AVE NE
MARYSVILLE, WA 98270

SNOHOMISH COUNTY PARCEL NUMBER:
00590700010500

DATE:	3/9/2022
JOB:	1908.0007
BY:	DDS
SCALE:	1 " = 7 mi
FIGURE NO.	1

Appendix C — Qualifications

All assessments and supporting documentation, including this ***Conceptual Mitigation Plan*** prepared for the ***Prospector 6*** site were prepared by, or under the direction of, Jon Picket of SVC. In addition, report preparation was completed by Lauren Templeton and additional project oversight and final quality assurance / quality control was completed by Kyla Caddey.

Jon Pickett

Associate Principal
Professional Experience: 10+ years

Jon Pickett is an Associate Principal and Senior Scientist with a diverse background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. Jon oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. Jon performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

Jon earned a Bachelor of Science degree in Natural Resource Sciences from Washington State University and Bachelor of Science and Minor in Forestry from Washington State University. Jon has received 40-hour wetland delineation training (Western Mountains, Valleys, & Coast and Arid West Regional Supplements) and regularly performs wetland, stream, and shoreline delineations. Jon is a Whatcom County Qualified Wetland Specialist and Wildlife Biologist and is a Pierce County Qualified Wetland Specialist. He has been formally trained by WSDOE in the use of the Washington State Wetland Rating System 2014, How to Determine the Ordinary High-Water Mark (Freshwater and Marine), Using Field Indicators for Hydric Soils, and the Using the Credit-Debit Method for Estimating Mitigation Needs.

Kyla Caddey, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 7 years

Kyla Caddey is a Senior Environmental Scientist with a diverse background in stream and wetland ecology, wildlife ecology and conservation, wildlife and natural resource assessments and monitoring, and riparian habitat restoration at various public and private entities. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems which included various environmental science research and statistical analysis. Kyla has advanced expertise in federal- and state-listed endangered, threatened, and sensitive species surveys and assessment of aquatic and terrestrial systems throughout the Puget Sound region. She has completed hundreds of wetland delineations and has extensive knowledge and interest in hydric soil identification. As the senior writer, she provides informed project oversight and performs final quality assurance / quality control on various types of scientific reports for agency submittal, including: Biological Assessments/Evaluations; Wetland, Shoreline, and Fish and Wildlife Habitat Assessments; Mitigation Plans, and Mitigation Monitoring Reports. She currently performs wetland, stream, and shoreline

delineations and fish and wildlife habitat assessments; prepares scientific reports; and provides environmental permitting and regulatory compliance assistance to support a wide range of commercial, industrial, and multi-family residential land use projects.

Kyla earned a Bachelor of Science degree in Environmental Science and Resource Management from the University of Washington, Seattle with a focus in Wildlife Conservation and a minor in Quantitative Science. She has also completed additional coursework in Comprehensive Bird Biology from Cornell University. Ms. Caddey is a Certified Professional Wetland Scientist (PWS #3479) through the Society of Wetland Scientists and Certified Ecologist through the Ecological Society of America. She has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), is a Pierce County Qualified Wetland Specialist and Wildlife Biologist, and is a USFWS-approved Mazama pocket gopher survey biologist. Kyla has been formally trained through the Washington State Department of Ecology, Coastal Training Program, and the Washington Native Plant Society in winter twig and grass, sedge, and rush identification for Western WA; Using the Credit-Debit Method in Estimating Wetland Mitigation Needs; How to Determine the Ordinary High Water Mark; Using Field Indicators for Hydric Soils; How to Administer Development Permits in Washington Shorelines; Puget Sound Coastal Processes; and Forage Fish Survey Techniques. Additionally, she has received formal training in preparing WSDOT Biological Assessments.

Lauren Templeton

Environmental Scientist
Professional Experience: 4 years

Lauren Templeton is an Environmental Scientist with a professional background in environmental planning, wetland science, stream ecology, water quality, natural resource assessments and monitoring, and NEPA compliance. Lauren has a background in wetland and biological assessments in various states, most notably Washington, Montana, Oregon, and New Mexico. Her project experience includes residential land use and developments, transportation, and water resources projects, working for federal, state, tribal, and private agencies. Lauren has experience developing various environmental documentation including environmental assessments, biological evaluations, mitigation reports, and permit applications at the federal, state and tribal levels. Additionally, Lauren has experience utilizing desktop and remote GIS software and equipment to collect and process data, perform data analysis, and develop delineation exhibits. Lauren currently performs wetland delineations, conducts environmental code analysis, and prepares various environmental compliance documentation including fish and wildlife habitat assessments, biological evaluations, and permit applications.

Lauren graduated from Western Washington University with a Bachelor of Arts in Environmental Science and Policy where she gained hands-on experience associated with water quality, statistical analysis, CERCLA projects, and ecological biomonitoring. Lauren has completed Basic Wetland Delineator Training with the Wetland Training Institute and received 40-hour USACE wetland delineation training. Lauren has been formally trained through the Washington State Department of Ecology, Coastal Training Program, How to Determine the Ordinary High Water Mark, Using the Washington State Wetland Rating System, and Using the Credit-Debit Method for Estimating Mitigation Needs. Additionally, Lauren has been trained through the Shipley Group on the National Environmental Policy Act, Endangered Species Act, National Historic Preservation Act, and Administrative Record.