

REVISED MITIGATION PLAN FOR THE PLAT OF BARKLEY HEIGHTS

Parcel No. 380316 372176
Bellingham, Washington

for
Barkley Meadows, LLC

December 23, 2020

Project No. 180034



REVISED MITIGATION PLAN FOR
THE PLAT OF BARKLEY HEIGHTS
BELLINGHAM, WASHINGTON

December 23, 2020

Prepared for:

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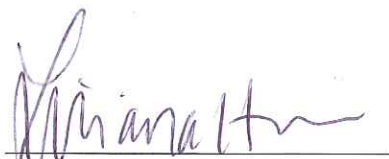
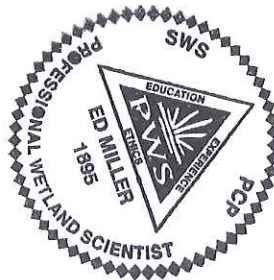
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Author Qualifications

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Disclaimer

This report and wetland and/or stream delineation, is based on protocols that are described and defined in manuals and publications utilized by Federal, State, and Local agencies. The wetland delineation methodology used is consistent with the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997), the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps, 2010), and subsequent Corps guidance. Completed work is based on conditions at the time of the site visit. No guarantees are given that a delineation determination or assessment will concur exactly with those performed by regulatory agencies or by other qualified professionals.

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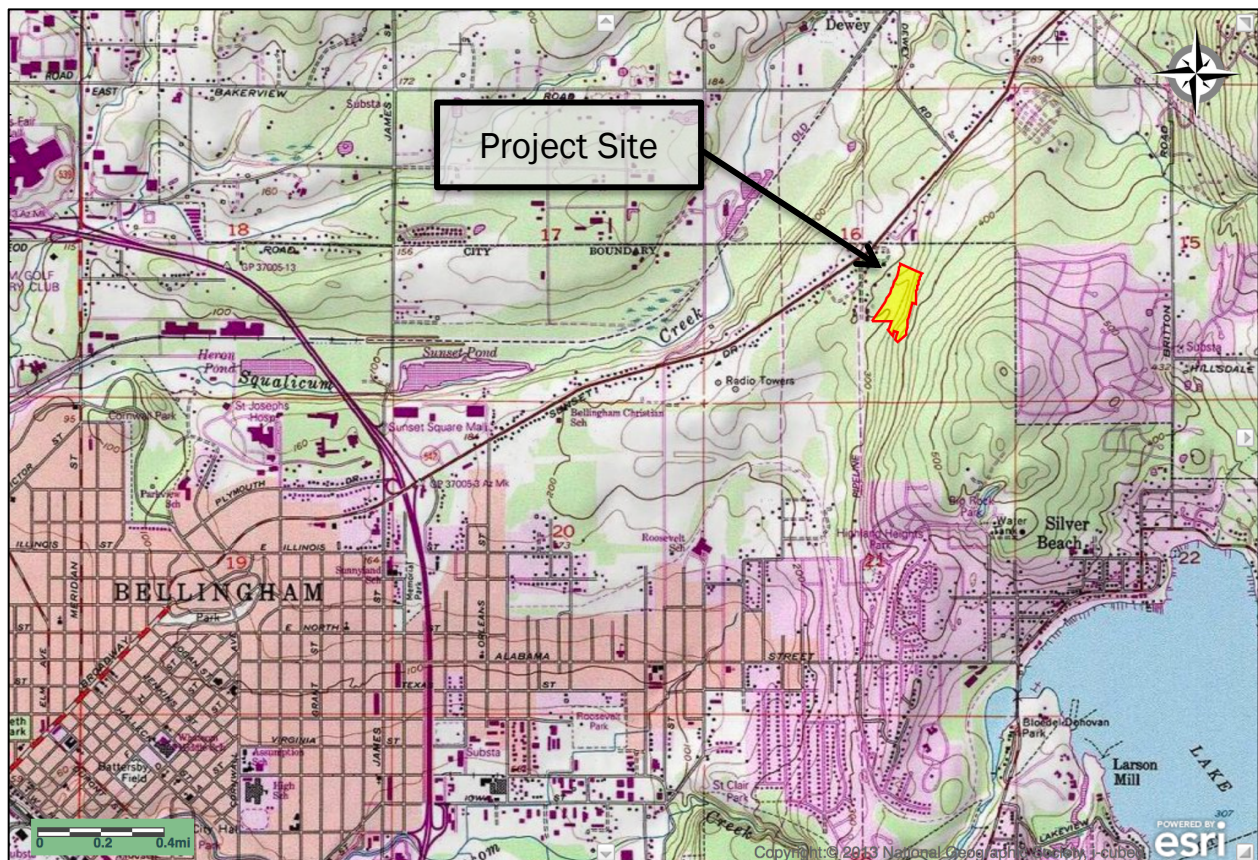
1.0 INTRODUCTION

At the request of the property owner, Barkley Meadows, LLC, Miller Environmental Services, LLC (MES) completed this wetland mitigation plan for the Barkley Heights Project. The project site is on an 11.22-acre property located west of Chandler Parkway and south of Bristol Way (tax parcel 380316 372176), Bellingham, Washington; Section 16, Township 38 N, Range 03 E, W.M. The project location is shown below on Figure 1. A map of the project area and critical areas is included as **Appendix A**. This revised mitigation plan reflects updates to the project site plan including a City required stairway from the proposed development to the existing trail on the north portion of the property.

MES prepared a separate *Critical Areas Report: Wetlands and Fish and Wildlife Habitat Conservation Areas for Barkley Meadows Condominiums*, which includes detailed descriptions of the wetlands, fish and wildlife habitat conservation areas, wetland data forms, and wetland rating forms (MES, 2018).

The proposed project is a residential development that includes 24 single-family residential units and 40 townhouses. The project also includes the extension of Sussex Drive to Bristol Way. A map of the lots, proposed construction, critical areas and mitigation are included as **Appendix A**.

Figure 1: Vicinity Map



1.1 PURPOSE

This Mitigation Plan was completed as required within the City of Bellingham 2016 Critical Areas Chapter (Chapter 16.55 Critical Areas). This report includes proposed buffer mitigation plan for proposed impacts to onsite wetland buffers and is shown on the site maps in **Appendix A**. A wetland delineation of the property was conducted and documented by MES in the *Critical Areas Report: Wetland and Fish and Wildlife Habitat Conservation Areas for Barkley Meadows Condominiums* (MES, 2018).

2.0 METHODS

2.1 FIELD INVESTIGATION

An investigation of the project site was conducted on June 13, 2018 to document site conditions. This included a wetland determination (documented in a separate report), documentation of existing habitat, and potential mitigation opportunities. Flagged wetland boundaries were surveyed and mapped by professional land use surveyors. Site photographs taken during the site visit are included within **Appendix B**.

3.0 PROJECT AREA SETTING

3.1 PROJECT VICINITY

The project site is located within an urban area of the City of Bellingham. Adjacent areas to the north, east, west, and south are developed with single-family homes. An undeveloped parcel (a mix of forest/shrub and herbaceous vegetation) is located to the southwest.

3.2 SUBJECT PROPERTY

The review area consists of the entire tax parcel 380316 372176. While the entire parcel was reviewed, MES did not flag the western edges of Wetlands A and B because they are more than 200 feet from the proposed project and the entire eastern boundaries of the wetlands (closer to the development) were flagged. Estimated western wetland boundaries are shown on the site plan in **Appendix A**.

The property consists of undeveloped forest dominated by Douglas fir (*Pseudotsuga menziesii*), big-leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and western red-cedar (*Thuja plicata*). Three wetlands are located on the west side of the property and a steeply sloped hillside is located on the east half of the property. A gravel trail is located through the center of the property (north-south) with a biofiltration swale located on the west side of the trail. The biofiltration swale carries stormwater offsite to the south and into a larger stormwater facility. A site map is included in **Appendix A**. Site photographs are included in **Appendix B**.

4.0 RESULTS

4.1 FIELD INVESTIGATION

Wetlands

Three wetlands, Wetlands A, B, and D, were identified in the review area, all located in the western half of the property. The eastern half of the property is a steep forested slope. The wetlands are summarized below in **Table 1**. Additional details on these wetlands can be found in the *Critical Areas Report: Wetland and Fish and Wildlife Habitat Conservation Areas for Barkley Meadows Condominiums*, dated July 30, 2018.

Table 1: Project Wetlands Summary

Wetland	Cowardin Classification	Ecology Category	HGM Class	Ecology Habitat Score	City of Bellingham Buffer Width (Feet) ¹
A	PFO/PSS	III	Depressional	Moderate (5)	150
B	PFO	III	Depressional/Slope	Low (4)	80
D	PFO	IV	Slope	Low (4)	50

¹Assumes high intensity land use proposal – more than one unit per acre.

Fish and Wildlife Habitat Conservation Areas

MES observed or WDFW has mapped the following fish and wildlife habitat conservation areas (FWHCA) on the property: pileated woodpecker habitat, priority snags and logs, and big brown bat habitat. Additionally, the City of Bellingham lists “land useful or essential for preserving connections between habitat blocks and open spaces” as a FWHCA.

The subject property is a mixed a coniferous and deciduous forest (western red-cedar and Douglas fir). Several snags and decaying live trees were observed onsite, including several priority snags and logs. Additionally, the onsite forest is connected to younger forested wetland/upland and shrub habitat that extends to Barkley Boulevard, providing a connection between habitat blocks on several properties. Other adjoining properties to the north, east, and southeast are developed with single-family residences and are not connected to other habitat blocks.

Bat roosting could occur onsite and WDFW maps a bat roost within the township that includes the property (WDFW, 2020), although MES did not directly observe any roosting during a site visit in June.

5.0 REGULATORY REQUIREMENTS

The wetlands identified on the review area are subject to federal regulations under the Clean Water Act (CWA) Section 404, as well as state regulations under the Growth Management Act administered by Whatcom County under the CAO (Chapter 16.16 WCC).

5.1 CWA SECTION 404- ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act (CWA), the Corps regulates the discharge of dredged and/or fill material into waters of the United States, including wetlands and streams.

5.2 CWA SECTION 401- DEPARTMENT OF ECOLOGY

The Department of Ecology is the state agency responsible for administering the CWA Section 401 Water Quality Certification program. Wetland impacts requiring a Corps permit under Section 404 of the CWA are also subject to the provisions of Section 401. Corps regulations require that a 401 Certification or waiver thereof be issued by the responsible state agency before the 404 permit becomes valid.

5.3 CRITICAL AREAS ORDINANCE – CITY OF BELLINGHAM

The City of Bellingham regulates critical areas, including wetlands and their associated buffers, and fish and wildlife habitat conservation areas under Title 16, Chapter 55 of the Bellingham Municipal Code (BMC). Impacts to wetlands and buffers require a Critical Area Permit and compensatory mitigation. Buffer widths are determined based on the proposed land use intensity, wetland category, and habitat score. Wetland buffers are listed in **Table 1**, above (based on a proposed high-intensity land use). Project compliance with the City of Bellingham Critical Areas Ordinance is included in Section 6.3.

6.0 PROJECT DESCRIPTION AND IMPACT ASSESSMENT

The proposed project is a residential development that includes 24 single-family residences and 40 townhomes. Sussex Drive will be constructed off of Bristol Way, connecting into the existing northern extent of Sussex Drive. Stormwater runoff from the project will be collected in a vault under the alley on the west side of the development. Stormwater will then tie into an existing stormwater outfall (which drains stormwater from the development to the east) that connects to the stormwater swale on the west side of the trail, at the southern end of the property. Given the sloping nature of the property, a wall will be constructed on the western edge of the proposed development. Additional grading/fill is proposed west of the wall to increase the slope and decrease wall height. Without the fill, a 30-foot high wall would be needed. With the proposed fill, a 15-foot high wall will be needed. Additionally, a stairway connector will connect the south side of the development to the existing trail on the northern portion of the property. The stairway will be within wetland buffer.

6.1 WETLANDS AND BUFFERS

No direct wetland impacts are proposed for this project. However, the project will require 18,245 square feet of buffer impacts – with the build-out of a required alley on the west side of the townhome lots along the west side of the project and the stairway connector to the trail.

No indirect wetland impacts are anticipated from the proposed project. As water draining through the buffers on the east side of Wetlands A and B is intercepted by the existing biofiltration swale located within the inner portion of the buffer along the west side of the trail – the outer portion of the buffer does not act to improve water quality before it enters the wetland. The outer area of buffer primarily provides habitat functions for the wetland. A majority of the reduced buffer will be 75 percent of the standard buffer. This will be reduced

slightly under 75 percent, to 66 percent of the standard buffer at one location for Wetland B and 69 percent of the standard buffer for one location on Wetland A. Given the small area of buffer that will be below the 75 percent standard buffer and its function to provide habitat value, no significant or measurable indirect wetland impacts are anticipated.

To construct a reasonably sized wall (15-foot high wall), fill will be added to the buffer area to the west of the wall to increase the slope. This includes an additional five-foot wide work corridor at the edge of the fill line. The proposed temporary buffer impacts from this work are 39,490 square feet. The area will be restored with topsoil and native vegetation.

City of Bellingham Municipal Code Section 16.55.340.G requires a 15-foot setback from a buffer edge to the edge of proposed development – to avoid conflicts with tree branches and/or critical root zones of trees. However, while the area is forested, there will be temporary disturbance to construct the retaining wall. The area will then be restored with native trees and shrubs to restore lost functions. The area will function as buffer to the base of the wall, as native plants can grow there and there is no need or easily accessible way for people to access the area along the base of the wall. Given that vegetation will be cleared around the wall in order to increase the grade, no critical root zones will be located adjacent to the wall. Thus, no 15-foot building setback is proposed adjacent to the wall.

6.2 FISH AND WILDLIFE HABITAT CONSERVATION AREAS

In the City of Bellingham, designated fish and wildlife habitat conservation areas (16.55.470.A) includes:

1. Areas with which State or Federally designated endangered, threatened, and sensitive species have a primary association. This includes state priority habitats and areas associated with state priority species;
2. Commercial and recreational shellfish areas;
3. Naturally occurring ponds under 20 acres;
4. Waters of the State, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses;
5. State natural area preserves and natural resource conservation areas;
6. Areas of rare plant species and high-quality ecosystems; and
7. Land useful or essential for preserving connections between habitat blocks and open spaces.

Fish and wildlife habitat conservation areas that were observed and/or may be located on the property include pileated woodpecker habitat, priority snags and logs, bat habitat, and land useful or essential for preserving connections. Additional information on fish and wildlife habitat conservation areas on the property is described in the *Critical Areas Report: Wetlands and Habitat Conservation Areas for Barkley Meadows Condominiums* (MES, 2018). No other

fish and wildlife habitat conservation areas were observed on the property or within 300 feet of the property.

Pileated Woodpecker

The subject property contains coniferous/deciduous forest habitat. Several snags and decaying live trees were observed onsite and extending onto adjacent properties to the west. The property contains opportunity for pileated woodpecker foraging. The eastern portion of the property will be developed and will no longer provide foraging habitat for pileated woodpecker. However, the western half of the property will remain undisturbed and enhanced within designated areas, continuing to provide pileated woodpecker habitat.

Priority Snags and Logs

Priority snags and logs were observed on the property. Priority snags and logs in the eastern half of the property will be removed with the development project. However, priority snags and logs located in the western half of the property will remain.

Big Brown Bats

Although no bat roosts were observed onsite, the property contains suitable habitat for big brown bat. Big brown bat habitat in the eastern portion of the property will be removed with development, however, the western half of the property will continue to provide bat habitat, including foraging habitat over seasonally inundated wetlands.

Land useful or essential for preserving connections between habitat blocks and open spaces

The property contains coniferous/deciduous forested wetland and upland habitat. The property to the southwest also contains younger forested wetland/upland and shrub habitat that extends to Barkley Boulevard. Other adjoining properties to the north, east, and southeast are developed with single-family residences and are not connected to other habitat blocks.

The western half of the property will remain undisturbed and will continue to provide a connection between habitat blocks and open spaces to the southwest.

6.3 MITIGATION SEQUENCING AND COMPLIANCE WITH BMC 16.55

The project design followed a series of steps in accordance with the State Environmental Policy Act (Chapter 197-11-768) and BMC 16.55.250 as follows:

1. **Avoid.** The project avoids impacting onsite wetlands with the placement of development on the eastern side of the property. Several design layouts were considered and ultimately, the project was concentrated in the eastern half of the property to avoid wetlands, limit buffer reduction, and maintain a connected habitat corridor that extends from the west side of the property to habitat located offsite to the southwest.
2. **Minimize.** Impacts to the Wetland A and B buffers will be minimized by concentrating development away from these buffers and limiting buffer impacts. A retaining wall with

fencing and protected critical area signs will be constructed along the western final buffer line to minimize intrusion into the buffer.

3. **Rectify.** A temporary buffer impact area will be located along the western edge of the proposed retaining wall. Any temporary impacts in this zone will be restored with native vegetation.
4. **Minimize or eliminate the hazard.** No hazards are located on the property.
5. **Reduce or eliminate the impact or hazard over time.** The remaining buffer and wetland portions of the property will be preserved and placed under a conservation easement.
6. **Compensation.** Mitigation will include enhancing buffer onsite (11,801 square feet). Additional mitigation in the form of buffer averaging (increasing buffer areas adjacent to standard buffer areas) will occur at the north and southern extents of the project, totaling 6,649 square feet. With buffer impacts totaling 18,245, the combination of buffer averaging and buffer enhancement will provide more than a 1:1 mitigation to impact ratio.
7. **Monitor.** The mitigation area will be monitored for five years.

No direct wetland impacts are proposed for this project. However, the project will require a total of 18,245 square feet of buffer impact to the Wetland A and B buffers. Additionally, up to 39,490 square feet of temporary buffer impact may occur to allow for the construction of a retaining wall along the west side of the development.

Per, BMC 16.55.490.B, mitigation for FWHCAs must be “located to preserve or achieve contiguous wildlife habitat corridors to minimize the isolating effects of development on habitat areas”. Given that the western half of the property will remain undisturbed and protected in perpetuity, it will continue to provide a contiguous wildlife habitat corridor to habitat the southwest.

Critical Areas Alterations

Per BMC 16.55.200.A, proposed alterations to critical areas may be allowed if they comply with all of the following criteria:

1. *The proposal minimizes the impact on critical areas in accordance with mitigation sequencing (BMC 16.55.250).*

Mitigation sequencing is included in Section 6.3 above. The proposed project minimizes impacts on critical areas as much as possible by proposing wetland buffer reduction to the extent allowed in BMC 16.55.340(C)(2) for the proposed residences and required alley. Additional buffer reduction will be necessary to extend Sussex Drive off of Bristol Way. Impacts will also be minimized by protecting the western half of the property, which includes wetlands, buffers, and FWHCAs. This protected block of habitat will provide a connected corridor to habitat blocks to the southwest.

2. *The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site.*

The proposed project is a residential development that does not pose a threat to public safety or welfare.

3. *The proposal is consistent with the general purposes of this chapter and the public interest.*

The project is consistent with the general purposes of the BMC and public interest. Bellingham has a need for more housing.

4. *Any alterations permitted to the critical area are mitigated in accordance with mitigation requirement in BMC 16.55.240 and 16.55.260 and additional requirements as outlined in specific critical area sections.*

Mitigation is proposed for all buffer impacts in the form of buffer averaging and onsite buffer enhancement. Areas temporarily disturbed will be restored.

5. *The proposal protects the critical area functions and values consistent with the best available science and results in no net loss of critical areas functions and values.*

The project proposes mitigation consistent with best available science and in accordance with BMC 16.55 to ensure no net loss of critical areas functions and values.

6. *The proposal is consistent with other applicable regulations and standards.*

The project is consistent with other City of Bellingham regulations and standards.

Buffer Reduction

Per City of Bellingham Code (16.55.340.C.2) buffers may be reduced provided the following applies:

- a. *The buffer of a Category I wetland shall not be reduced.*

Not applicable. No Category I wetlands are located onsite.

- b. *The buffer reduction shall not adversely affect the functions and values of the adjacent wetlands.*

The proposed Wetland A and B buffer reductions are not anticipated to adversely affect the functions and values of the wetlands. The area of reduced buffer is in the outer portion of the buffer. The buffers on the east side of Wetlands A and B drain westward and are intercepted by the biofiltration swale that flows southwest through the center of the property. As a result, the functions provided by the outer portion of the buffer consist primarily of habitat function.

- c. *The buffer of a Category II or III wetland shall not be reduced to less than 75 percent of the required buffer or 50 feet, whichever is greater.*

A majority of the Wetland A and B buffers have not been reduced to less than 75 percent of the required buffer (112 for Wetland A and 60 feet for Wetland B). At one location, the Wetland A buffer is reduced to 104 feet and at two locations the Wetland B buffer is reduced below 60 feet (to 53 and 55 feet). These areas where the buffer is below 75 percent are very small and not expected to result in a significant loss of function.

- d. *The buffer of a Category IV wetland shall not be reduced to less than 50 percent of the required buffer, or 25 feet, whichever is greater, provided the buffer reduction does not result in reducing the functions and values of the wetland.*

No Category IV wetland buffers will be reduced.

- e. *The applicant implements all reasonable measures to reduce the adverse effects of adjacent land uses and ensure no new loss of buffer functions and values. The specific measures that shall be implemented include, but are not limited to, the following:*

- i. *Direct lights away from the wetland and buffer.*

Lights will be directed away from the wetlands and buffers on the west side of the property.

- ii. *Locate facilities that generate substantial noise (such as some manufacturing, industrial and recreational facilities) away from the wetland and buffer.*

No noise generating facilities are proposed.

- iii. *Implement integrated pest management programs.*

An integrated pest management program will be outlined for the mitigation area and will include regular maintenance with mowing/hand tools recommended over chemical suppression of invasive species within the mitigation area (primarily Himalayan blackberry).

- iv. *Infiltrate or treat, detain and disperse runoff into buffer.*

Stormwater will be designed to meet City of Bellingham stormwater regulations. Stormwater will be collected in a vault under the alley at the west end of the property and discharged to an existing stormwater pipe at the southern end of the property, which ties into the stormwater swale located on the west side of the trail.

- v. *Construct a wildlife permeable fence around buffer and post signs at the outer edge of the critical area or buffer to clearly indicate the location of the critical area according to the direction of the City.*

Fencing and critical area signs will be installed along the reduced buffer boundary (along the wall), as shown on the site plan in **Appendix A**.

- vi. *Plant buffer with “impenetrable” native vegetation appropriate for the location.*

An area within the reduced buffer at the west side of the property will be temporarily disturbed in order to construct a retaining wall on the west side of the development. This disturbed corridor will be densely replanted with “impenetrable” shrubs along the retaining wall. Access to the buffer will be restricted by the fencing along the top of the wall as well and the 15-foot drop on the wall.

- vii. *Use low impact development techniques to the greatest extent possible.*

LID techniques will be incorporated into design where feasible.

- viii. *Establish and record a permanent conservation easement to protect the wetland and the associated buffer and restrict the use of pesticides and herbicides in the easement.*

A conservation easement will be created to protect the wetland and buffer and will discourage the use of herbicides unless absolutely necessary to remove invasive plants. Pesticides will be restricted in the conservation easement.

6.4 IMPACTED WETLAND AND BUFFER FUNCTIONS

No direct or indirect wetland impacts are anticipated to onsite wetlands. However, the proposed project will result in 18,245 square feet of buffer impacts to Wetlands A and B buffers. The portion of buffer that will be impacted is located on a steep, forested slope that drains west, toward Wetlands A and B. However, hydrology from the buffers is intercepted by a stormwater bioswale and directed offsite to the southwest. Therefore, the project will have very little impact on buffer hydrologic functions as runoff from the eastern portion of buffer (within the reduction area) will be directed to a stormwater vault for treatment and discharged to an existing outfall that drains to the stormwater bioswale at the southern end of the property. Runoff from the property currently flows into this existing stormwater bioswale; therefore, the proposed stormwater treatment and release is not anticipated to negatively impact wetland hydrology.

With buffer reduction, the water quality functions provided by the outer part of Wetland A and B buffers will be lost. However, water quality functions provided by the area of lost buffer will

also be offset with stormwater treatment, per City of Bellingham/Department of Ecology guidelines.

The outer portion of buffer habitat function, including screening, will be lost with the construction of the project. This includes a mix of coniferous and deciduous forest on a steep slope. Remaining undisturbed buffer areas are generally well-vegetated with trees and shrubs. The project includes construction of a retaining wall where necessary to achieve adequate slopes for development along the western development extent.

A large area of buffer and upland (added buffer) will be preserved west of the development. Buffer enhancement on the east side of Wetland A and Wetland B will increase habitat value and screening between the development and the wetlands.

6.5 CUMULATIVE IMPACTS

A large portion of the sub-watershed that includes the subject property (Whatcom Creek) is developed with single-family homes or industrial facilities. A majority of the few undeveloped properties in the watershed include City parks (Northridge Park and Fever Creek Nature Area) and City-owned properties which are not anticipated to be developed and result in cumulative impacts within this watershed.

Several undeveloped properties located to the southwest are privately owned and zoned for residential development and could potentially be developed. If fully developed, the wildlife corridor/connection that extends from Wetlands A and B to Barkley Boulevard could be disrupted. However, given the likelihood of wetlands extending onto these properties (based on CityIQ wetlands inventory), full development of the properties would be unlikely. Any potential project would need to meet mitigation sequencing and “no net loss of function” requirements and would likely result in preservation of blocks of habitat.

The City of Bellingham’s Habitat Restoration Assessment (COB, 2015) does not specify any specific actions (preservation, restoration, etc.) for the subject property or adjacent undeveloped parcels. However, restoration actions are identified on properties on the north side of Mount Baker Highway, within the Lower Squalicum Creek sub-watershed, which is a different sub-watershed than the subject property (Whatcom Creek).

7.0 MITIGATION

In order to provide needed new housing in Bellingham and maximize development of the subject property, while preserving as much wetland and buffer as possible, a portion of the Wetland A and B buffers will be reduced and temporarily impacted. Proposed impacts and mitigation are outlined in **Table 2** below.

Table 2: Project Impacts and Mitigation

Wetland/ Buffer	Type of Impact	Impact Area (SF)	Type of Mitigation	Mitigation Area (SF)
Wetland A & B Buffer	Permanent	18,245	Buffer Averaging (Added Buffer)	6,649
			Buffer Enhancement	11,801
Wetland A & B Buffer	Temporary	39,490	Buffer Restoration	44,105 ¹

¹Buffer restoration area includes 4,615 square feet of added buffer.

The Department of Ecology Wetland Mitigation in Washington State includes guidance for selecting mitigation sites. An important element to consider when selecting a mitigation site is habitat connectivity (Ecology, 2006). The proposed mitigation site was designed with habitat connectivity as a priority. The mitigation area will include preserved wetlands, buffers, and enhanced buffer areas within the western half of the property and will provide a connected habitat corridor to undeveloped areas to the southwest.

Mitigation was also designed to meet Goal 1 of the Barkley Neighborhood Plan: “*An integrated open space and trail system should continue to be implemented as defined in the Parks, Recreation and Open Space chapter of the Bellingham Comprehensive Plan and the north Bellingham Trail Plan.*” The mitigation site will include both protected wetland and buffer habitat/open space as well as an existing north-south trail corridor through the property.

Mitigation for 39,940 square feet of temporary buffer impacts associated with construction of a retaining wall will include restoring the disturbed area with native trees and shrubs.

Mitigation for permanent buffer impacts associated with the project will include a combination of buffer averaging (protecting additional upland habitat adjacent to buffer) and buffer enhancement. The buffer enhancement is proposed onsite in buffer areas that are currently dominated by invasive species (Himalayan and cut-leaf blackberry), which includes the area west of the trail between Wetlands A and B, totaling 11,801 square feet in size. This enhancement area also contains scattered red alder trees and occasional native shrubs.

Due to limited onsite buffer enhancement potential, with the presence of an undisturbed mixed coniferous/deciduous forested buffer over a majority of the property, buffer averaging is also proposed in order to achieve a minimum of 1:1 mitigation to impact ratio. Upland (non-buffer) will be preserved, adjacent to Wetland A and B buffer, near the north and south sides of the property, totaling 6,649 square feet. These added buffer areas will increase the width of buffer and provide a wider wildlife corridor and protected habitat that includes the western half of the subject property. Portions of the added buffer areas will be disturbed during the construction of the retaining wall. These temporary disturbance areas will be restored with native trees and shrubs, as described above. Preserved wetland, buffer, and added buffer areas will be protected within a conservation easement. The location of buffer mitigation is shown on a map in **Appendix A**.

7.1 MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

This mitigation plan has been designed to replace lost buffer function due to proposed project-related impacts. During monitoring activities, performance standards will be measured to ensure the site is meeting the Goals and Objectives of the mitigation project. These standards are the primary factors that will be used to judge the success of the mitigation project. While specific performance criteria provide important benchmarks and will help to direct maintenance and contingency efforts, the mitigation goals must also be considered when evaluating mitigation success.

Goal 1: Enhance and protect wetland buffer to provide a wildlife corridor on the west half of the property.

Objective A: Enhance 11,801 square feet of wetland buffer between Wetlands A and B by removing invasive species and installing native trees and shrubs (selected from Table 4).

Performance Standard A1: 90-percent survival of installed plants at the Year 1 monitoring, following installation. Additional native plants (**selected from Table 4**) shall be installed to bring survival to 90-percent at Year 1 if necessary.

Performance Standard A2: Aerial coverage of native plants shall be as follows for each monitoring year (excluding existing native tree canopy but including new native tree and shrub recruits):

Year 2 = at least 15-percent
Year 3 = at least 25-percent
Year 4 = at least 40-percent
Year 5 = at least 60-percent

Performance Standard A3: At least three tree species and six shrub species shall be represented within the enhancement area.

Performance Standard A4: Less than 15 percent aerial cover of non-native invasive species (**Table 3**) within the proposed enhancement area.

Table 3: Non-native, Invasive Species that Must Be Removed

Scientific Name	Common Name
<i>Hedera helix</i>	English Ivy
<i>Phalaris arundinacea</i>	Reed canarygrass
<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Rubus laciniatus</i>	Cutleaf blackberry
<i>Rubus armeniacus</i>	Himalayan blackberry

Objective B: Add 6,649 square feet of upland area adjacent to Wetland A and B buffer to the protected portion of the property.

Performance Standard B1: Include the two added buffer areas located at the north and south ends of the property, as shown on the map in **Appendix A**, within the conservation easement boundaries for protection in perpetuity.

Goal 2: Restore temporary impact buffer areas (including added buffer areas) to pre-disturbance conditions.

Objective C: Restore up to 44,105 square feet of temporarily impacted buffer and new added buffer along the western edge of the development by installing native trees and shrubs (selected from **Table 5**).

Performance Standard C1: 90-percent survival of installed plants at Year 1 monitoring, following installation. Additional plants shall be installed (selected from **Table 5**) to bring survival to 90-percent at Year 1 if necessary.

Performance Standard C2: Aerial coverage of native plants shall be as follows for each monitoring year (including native tree and shrub recruits):

Year 2 = at least 15-percent

Year 3 = at least 25-percent

Year 4 = at least 40-percent

Year 5 = at least 60-percent

Performance Standard C3: Less than 15 percent aerial cover of non-native invasive species (**Table 3**) within the proposed mitigation area.

Performance Standard C4: At least three tree species and six shrub species shall be represented within the restoration area.

7.1.1 Planting Methods

The buffer enhancement area (11,801 square feet) located between Wetlands A and B on the west side of the trail shall be cleared of all invasive Himalayan and cut-leaf blackberry prior to planting. Existing native vegetation (primarily red alder trees) shall be preserved as much as possible. At least three native trees and six native shrubs shall be selected and installed at spacing outlined in **Table 4**. No mulch is needed within the buffer enhancement area as the plants will be installed within an existing forest.

Temporary buffer impact area (39,490 square feet) and temporarily disturbed new added buffer (4,615 square feet) on the west side of the development are shown on the map in **Appendix A**. These areas shall be restored with at least three native trees and six native shrubs and installed at spacing outlined in **Table 5**. Areas of proposed fill in the temporary buffer impact area will include the placement of at least 24 inches of topsoil, preferably retained topsoil from onsite which will include a native seed bank to increase native recruitment. The

entire restoration area will be mulched with three to four inches of wood chip mulch – which may consist of mulched vegetation from the development area (trees, branches, leaves, roots). Up to 30 felled trees from the development site may be placed as downed logs within the restoration area as habitat features if desired.

Installed plants in both the restoration area and buffer enhancement area shall be marked with bright colored flagging for identification purposes during annual monitoring and maintenance activities. All plant materials used at the mitigation site shall be grown in the Puget Sound lowlands.

Table 4: Planting List for Buffer Enhancement – 11,801 square feet

Scientific Name	Common Name	Size/Condition ¹	Spacing
<i>Tsuga heterophylla</i>	Western hemlock	1-2 Gal or bareroot	15 feet
<i>Acer macrophyllum</i>	Big-leaf maple	1-2 Gal or bareroot	15 feet
<i>Picea sitchensis</i>	Sitka spruce	1-2 Gal or bareroot	15 feet
<i>Pseudotsuga menziesii</i>	Douglas fir	1-2 Gal or bareroot	15 feet
<i>Abies grandis</i>	Grand fir	1-2 Gal or bareroot	15 feet
<i>Thuja plicata</i>	Western red-cedar	1-2 Gal or bareroot	15 feet
Total Trees = 51 (at least three species)			
<i>Rosa nutkana</i>	Nootka rose	1-2 Gal or bareroot	6 feet
<i>Symphoricarpos albus</i>	Snowberry	1-2 Gal or bareroot	6 feet
<i>Rubus spectabilis</i>	Salmonberry	1-2 Gal or bareroot	6 feet
<i>Sambucus racemosa</i>	Red elderberry	1-2 Gal or bareroot	6 feet
<i>Crataegus douglassii</i>	Black hawthorn	1-2 Gal or bareroot	6 feet
<i>Holodiscus discolor</i>	Oceanspray	1-2 Gal or bareroot	6 feet
<i>Sorbus sitchensis</i>	Sitka mountain ash	1-2 Gal or bareroot	6 feet
<i>Corylus cornuta</i>	Beaked hazelnut	1-2 Gal or bareroot	6 feet
<i>Rubus parviflorus</i>	Thimbleberry	1-2 Gal or bareroot	6 feet
<i>Acer circinatum</i>	Vine maple	1-2 Gal or bareroot	6 feet
<i>Oemleria cerasiformis</i>	Indian plum	1-2 Gal or bareroot	6 feet
Total Shrubs = 277 (at least six species)			

¹Bare root plantings if used should be planted December to March – the dormant period.

Table 5: Planting List for Buffer Restoration– 44,105 square feet

Scientific Name	Common Name	Size/Condition ¹	Spacing
<i>Tsuga heterophylla</i>	Western hemlock	1-2 Gal or bareroot	15 feet
<i>Acer macrophyllum</i>	Big-leaf maple	1-2 Gal or bareroot	15 feet
<i>Picea sitchensis</i>	Sitka spruce	1-2 Gal or bareroot	15 feet
<i>Pseudotsuga menziesii</i>	Douglas fir	1-2 Gal or bareroot	15 feet
<i>Abies grandis</i>	Grand fir	1-2 Gal or bareroot	15 feet
<i>Thuja plicata</i>	Western red-cedar	1-2 Gal or bareroot	15 feet
Total Trees = 196 (at least three species)			
<i>Rosa nutkana</i>	Nootka rose	1-2 Gal or bareroot	5 feet
<i>Symphoricarpos albus</i>	Snowberry	1-2 Gal or bareroot	5 feet
<i>Ribes sanguineum</i>	Red-flowering currant	1-2 Gal or bareroot	5 feet
<i>Rubus spectabilis</i>	Salmonberry	1-2 Gal or bareroot	5 feet
<i>Sambucus racemosa</i>	Red elderberry	1-2 Gal or bareroot	5 feet
<i>Crataegus douglassii</i>	Black hawthorn	1-2 Gal or bareroot	5 feet
<i>Holodiscus discolor</i>	Oceanspray	1-2 Gal or bareroot	5 feet
<i>Sorbus sitchensis</i>	Sitka mountain ash	1-2 Gal or bareroot	5 feet
<i>Corylus cornuta</i>	Beaked hazelnut	1-2 Gal or bareroot	5 feet
<i>Rubus parviflorus</i>	Thimbleberry	1-2 Gal or bareroot	5 feet
<i>Acer circinatum</i>	Vine maple	1-2 Gal or bareroot	5 feet
<i>Oemleria cerasiformis</i>	Indian plum	1-2 Gal or bareroot	5 feet
Total Shrubs = 1,568 (at least six species)			

¹Bare root plantings should be planted December to March – the dormant period.

7.1.2 Mitigation Implementation Schedule

A general outline and schedule for the implementation of the mitigation is as follows:

- Install mitigation work area boundaries around the buffer enhancement area with temporary fencing or markers and install construction fencing or silt fencing at the western edge of the work area boundary.
- Clear Himalayan blackberry and other invasive plant species, minimizing disturbance to existing native trees and shrubs as feasible within the buffer enhancement area.
- After work is completed within the temporary buffer disturbance area (including the replacement of 24 inches of topsoil), cover the area with three to four inches of wood chip mulch (which may include mulched tree/vegetation material from onsite). No mulch is needed within the buffer enhancement area as this area is located within/adjacent to forested vegetation.
- Install native trees and shrubs in the buffer enhancement and buffer restoration areas. Plant installation should occur in the winter (if bare root plants are used) or spring/fall

(if container plants are used). The other mitigation implementation tasks listed can occur in any month of the year.

- Remove temporary work fencing and/or markers.
- Install critical areas protection signs adjacent to the development footprint, as shown on the site plan in **Appendix A**.

7.1.3 Reporting

An as-built letter documenting installation of the vegetation shall be submitted to the City of Bellingham within 60 days of installation. Any changes to the approved installation should be noted and described. ***Monitoring letters shall be submitted annually for five consecutive years beginning the growing season after the mitigation plants are installed.*** Reports shall be due by December 31 of the monitoring year. The reports will document the condition of the enhancement area and the status of the area with respect to the approved performance criteria. The reports shall include photographs of the mitigation area.

Annual reports shall be submitted via mail or email or to:

Kim Weil
City of Bellingham
210 Lottie Street
Bellingham, Washington 98225
kweil@cob.org

7.1.4 Contingency Plan

If a performance standard is not met for all or any portion of the mitigation project in any year, or if the approved success criteria are not met, the wetland biologist will prepare an analysis of the cause(s) of failure and, if determined necessary by the City of Bellingham, propose remedial actions for approval. If the compensatory mitigation site has not met one or more of the success criteria or performance standards, the applicants' maintenance and monitoring obligations shall continue until the agencies give final approval the mitigation obligations have been satisfied.

The contingency plan will provide for the remediation of aspects of the mitigation that have prevented the achievement of mitigation goals. If the desired mitigation goals, as measured by the monitoring program and compared against the performance standards, have not been met and cannot be achieved through routine maintenance, then the agencies and the applicant will make a joint determination on a suitable contingency plan. If the contingency plan is substantial, the agencies could extend the monitoring period. The City of Bellingham will approve contingency measures prior to implementing changes to the plan.

7.1.5 Hazard Tree Contingency

The proposed project, residential homes, will be located adjacent to existing forest habitat. Potential future hazard trees may require removal. If a potential hazard tree presents a potential problem for the proposed development, future owners or homeowners association will follow City of Bellingham Code Section 16.55.080.C.6. This applies to the removal and/or pruning of hazard trees within critical areas or their buffers. Per the code section, any potential hazard tree will be reviewed by an ISA (International Society of Arboriculture)-certified arborist. The arborist will prepare a report including a risk assessment, a site plan showing the location of the trees, and a replacement plan. This report will be reviewed the City Director. The applicant shall replace any cut tree with three native replacement trees (3 to 1 replacement ratio), unless determined otherwise by the Director, within six months of cutting. The applicant shall provide documentation to the City demonstrating that the replacement plantings were installed within six months of the tree removal. Cut trees and other vegetation may be left within the critical area or buffer where it does not pose a public threat or nuisance or damage significantly the surrounding vegetation.

7.1.6 Site Protection

In order to increase protection and screening of the mitigation area from human and pet disturbance, ten permanent signs shall be installed along the retaining wall, as indicated on the site plan in **Appendix A**. Split rail fencing is not required as the final buffer will be bounded by the retaining wall with fencing. The signs shall be worded per BMC 16.55.230:

Protected Critical Area
Do Not Disturb
Contact City of Bellingham
Regarding Uses and Restrictions

7.1.7 Mitigation Surety

A mitigation surety must be submitted to City of Bellingham Planning and Community Development for 150-percent of the estimated cost of mitigation installation, maintenance, and monitoring.

Table 6: Mitigation Surety Estimate

Item	Quantity	Cost/Quantity	Total
Plants	2,092	Bid*	\$26,640*
Wood chip mulch	447 cubic yards	Bid*	
NGPA sign	10	Bid*	
Maintenance	5 Years	Bid*	
Monitoring	5 Years	\$2,000/year x 5 years	\$10,000.00
As-built	1	\$1,000	\$1,000.00
Total =			\$37,640
Surety Amount (includes additional 50% contingency) =			\$56,460

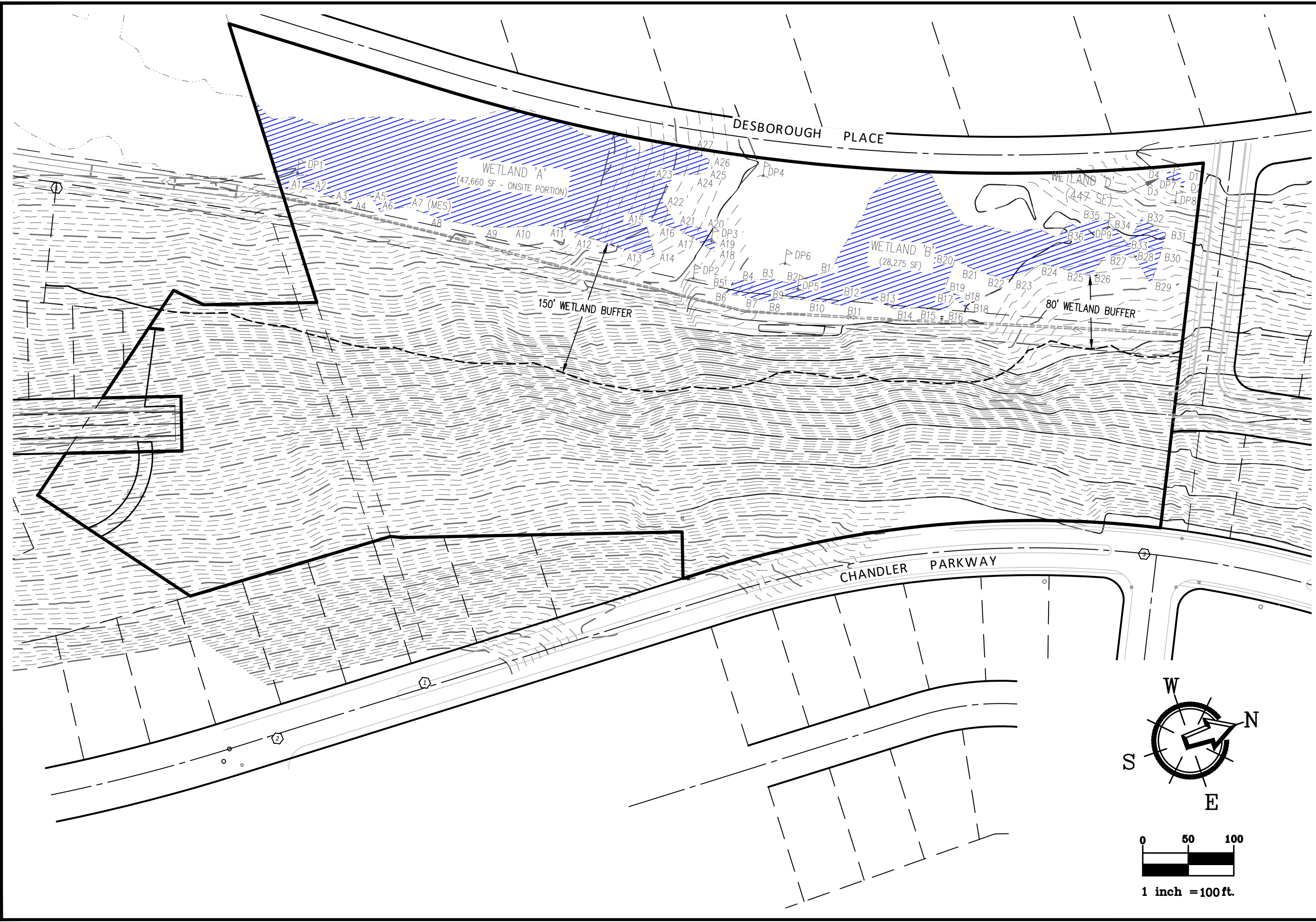
* Bid for line items tasks provided as one sum to the applicant by Genetic Electric – July 8, 2020

8.0 REFERENCES

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Hruby, T. 2014. Washington State Wetland Rating System for Western Washington. Washington State Department of Ecology Publication #14-16-029. Olympia, Washington.
- Miller Environmental Services, LLC. 2018. *Critical Areas Report: Wetland and Fish and Wildlife Habitat Conservation Areas for Barkley Meadows Condominiums*. July 30, 2018. Bellingham, Washington.
- Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale. 2005. *Wetlands in Washington State – Volume 1: A Synthesis of the Science*. Washington State Department of Ecology. Publication #05-06-006. Olympia, Washington.
- U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Corps of Engineers Research and Development Center Environmental Laboratory. ERDC/EL TR-10-3. Vicksburg, Mississippi.
- Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. *Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1)*. Washington State Department of Ecology Publication #06-06-011b. Olympia, Washington.
- Whatcom County. 2005. Critical Areas Ordinance. Title 16. Chapter 16.16. September, 2005. Whatcom County, Washington.

APPENDICES

Appendix A
Project Site Maps



220 W. Champion Street, Suite 200
Bellingham, WA 98225



F R E E L A N D

& A S S O C I A T E S

18107SP37.DWG

18107

12-22-2020

W1

18107SP37.DWG

18107

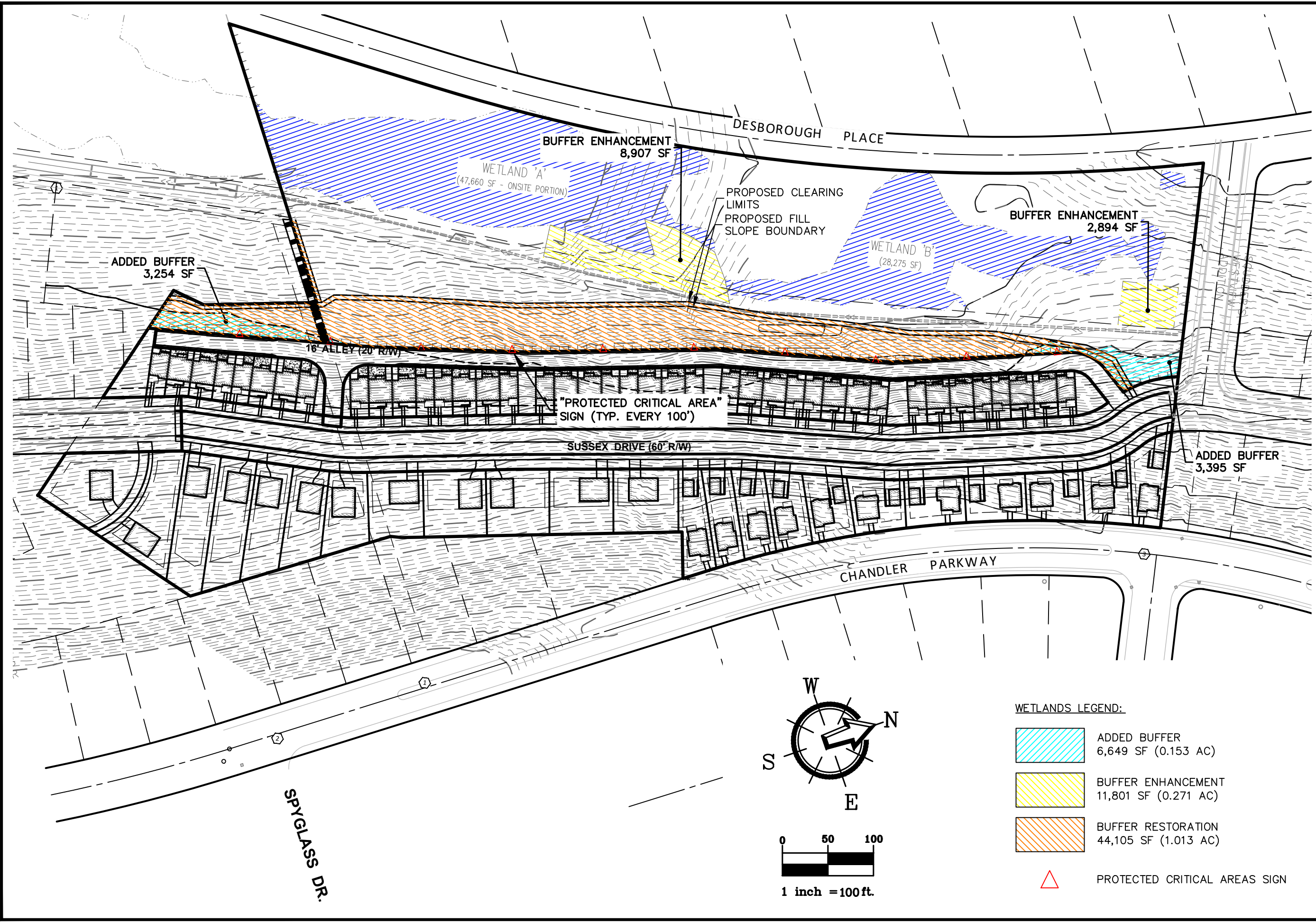
12-22-2020

WETLAND EXHIBIT - EXISTING
CONDITIONS

WETLAND EXHIBIT - EXISTING
CONDITIONS

18107

12-22-2020



WETLANDS LEGEND:

	ADDED BUFFER 6,649 SF (0.153 AC)
	BUFFER ENHANCEMENT 11,801 SF (0.271 AC)
	BUFFER RESTORATION 44,105 SF (1.013 AC)
	PROTECTED CRITICAL AREAS SIGN

WETLAND EXHIBIT - PROPOSED MITIGATION

FREE LAND & ASSOCIATES

220 W. Champion Street, Suite 200
Bellingham, WA 98225
t: 360.650.1408
f: 360.650.1401

SHEET CONTENTS

DATE	12-22-2020
JOB #	18107
DRAWING #	18107SP37.DWG
SHEET NAME	W3

Appendix B
Project Site Photos

Site Photographs



Photo 1. View north along the northern portion of the biofiltration swale on the property (6/13/18).



Photo 2. View north along the biofiltration swale at the south end of the property (6/13/18).

Site Photographs



Photo 3. View west into Wetland A from the biofiltration swale near the south end of the property (6/13/18).



Photo 4. View southwest into Wetland A from near the northwest side of the wetland (6/13/18).

Site Photographs



Photo 5. View west into upland area between Wetlands A and B (6/13/18).



Photo 6. View west across the south end of Wetland B from the east side of the wetland (6/13/18).

Site Photographs



Photo 7. View south into Wetland B from the north edge of the wetland (6/13/18).



Photo 8. View northwest into Wetland D from the southeast side of the wetland (6/13/18).

Site Photographs



Photo 9. View north along the upland slope on the northeast side of the property (6/13/18).



Photo 10. View south along the upland slope in the southeast portion of the property (6/13/18).