

01/28/2021



CRITICAL AREAS STUDY & BUFFER MITIGATION PLAN FOR

BEC Investments – 12900 Beverly Park Road

Tax Parcel No. 00568700200402

Acre Project #18018

Prepared by:

Acre Environmental Consulting, LLC.
17715 28th Ave. NE
Lake Forest Park, WA 98155
(206) 450-7746

For:

BEC Investments
Attn. Brian Cole
9326 Evergreen Way
Everett, WA 98204

April 15, 2019

TABLE OF CONTENTS

SITE DESCRIPTION	2
PROJECT DESCRIPTION	2
METHODOLOGIES OF CRITICAL AREAS DETERMINATION	4
BOUNDARY DETERMINATION FINDINGS	6
EXISTING FUNCTIONS AND VALUES	8
BUFFER RESTORATION	8
GRASS SEEDING	9
PLANTING NOTES	10
PROJECT SUCCESS AND COMPLIANCE	10
PROJECT MONITORING PROGRAM	12
MAINTENANCE	12
CONTINGENCY PLAN (ADAPTIVE MANAGEMENT)	13
FINANCIAL ASSURANCE	13
POST PROJECT FUNCTIONS AND VALUES	13
TERMS & CONDITIONS	14
REFERENCES	15

ATTACHMENTS:

1. WETLAND DETERMINATION DATA FORMS (5 DATA POINTS)
2. WETLAND RATING FORM FOR WESTERN WASHINGTON: 2014 UPDATE (1 RATING FORM)
3. CRITICAL AREAS STUDY MAP SHEET CA1.00

SITE DESCRIPTION

On March 20, 2018 *Acre Environmental Consulting, LLC* visited the approximate 0.89-acre site located at 12900 Beverly Park Road in the City of Mukilteo, Washington. The site is further located as a portion of Section 27, Township 28N, Range 4E, W.M. The parcel number for this property is 00568700200402. The purpose of this site visit was to locate regulated critical areas on and adjacent to the subject site. Surrounding land use is comprised of commercial buildings.

Access to this site is gained from the south via Beverly Park Road. This site has a west aspect and currently contains a run down single-family residence (mobile home) and associated infrastructure in the southern portion. The northern portion of the property is undeveloped, represented by a canopy of big leaf maple (*Acer macrophyllum*, FacU) and red alder (*Alnus rubra*, Fac), with vine maple (*Acer circinatum*, Fac), English laurel (*Prunus laurocerasus*, Upl), and sword fern (*Polystichum munitum*, FacU), common in the understory. A Category III wetland and an associated Type 5 stream are located in the northern portion of the property and extend off-site to the north and west. In the City of Mukilteo, Category III wetlands with habitat scores of 5 points receive 105-foot protective buffers measured from their delineated edge, while Type 5 streams with assumed low mass wasting receive 50-foot standard buffers.

PROJECT DESCRIPTION

The applicant is proposing to construct a commercial development on the southern portion of this property. To bring sewer to the site, the applicant is proposing to extend the existing sewer from its current terminus west of the site, across the adjacent property to the west and to the subject property. This sewer will be placed in a 15-foot wide easement and dedicated to the Alderwood Water & Wastewater District. Due to the location of the off-site sewer, the sewer line and easement will necessarily be located in the outer portion of the wetland buffer. Construction of this sewer line is expected to result in temporary impacts to 1,328 square feet of buffer on the subject site. West of the site installation of this sewer will result in temporary impacts to buffer that is currently comprised of maintained lawn. On the subject site, the area occupied by the proposed sewer line is currently dominated by vine maple (*Acer circinatum*). There is no possible alternate location for this sewer that would result in less impact to the wetland buffer.

Following installation of the sewer, the temporary buffer impacts that result from this work will be restored. Off-site, the buffer comprised of maintained lawn will be restored to its pre-disturbance condition using the grass seed mixture recommended in this plan. The disturbed buffer on the site will be restored to its approximate pre-disturbance condition using native shrubs as described in the Buffer Restoration section of this report.



Looking west through the proposed on-site sewer easement.

To create a reasonable design for the site and to accommodate this development and the sewer easement, the applicant is proposing to reduce the buffer of Wetland A though buffer averaging as allowed by MMC 17.52B.100(G)(2) as follows (the code requirements are in italics while the applicant's responses are in plain text):

Averaging to allow reasonable use of a parcel may be permitted when all of the following are met:

There are no feasible alternatives to the site design that could be accomplished without buffer averaging.

Because the sewer easement is determined by the off-site alignment, the location of this feature is unavoidable. Given the location of the sewer easement in relation to the buffer, a small (155 square feet) area of buffer will be functionally isolated from the main body of the buffer. To maintain the functionality of this buffer area the applicant is proposing averaging to straighten the buffer to match the sewer easement.

The averaged buffer will not result in degradation of the wetland's functions and values as demonstrated by a report from a qualified wetland professional.

The proposed buffer averaging is expected to help maintain the existing level of functions provided by the subject wetland.

The total buffer area after being averaged is equal to the area required without the averaging.

The applicant is proposing to reduce a total of 155 square feet of buffer located south of the sewer line easement though averaging. As mitigation for this buffer averaging, the applicant is

proposing to designate a total of 281 square feet of additional, equivalent quality area as buffer.

The buffer at its narrowest point is never less than fifty percent of the required buffer width.

After averaging, the buffer will be 99 feet at its narrowest point. This is 94 percent of the required buffer width and far less than the allowed fifty percent reduction.

Mitigation sufficient to compensate for the impacts as determined by a qualified specialist is provided for all buffer averaging proposals.

Designating additional, equivalent quality buffer at a better than 1:1 ratio is expected to off-set any impacts that may result from the proposed buffer averaging.

Stormwater from this development is proposed to be collected, treated, and routed to a detention vault before being released in to the wetland buffer via a point discharge onto a rip-rap pad. Because this outfall is located in the outer twenty-five percent of the Category III wetland buffer, it appears to be in compliance with MMC 17.52B.100(I).

As required by MMC 17.52B.100(D)(4) Table 1A, proposed measures to reduce development related impacts to the subject wetland and buffer include directing lights away from wetland, collecting and treating runoff from the site, LID measures for stormwater, and providing a wall to demarcate the edge of the buffer and discourage intrusion. The proposed design of this project will also maintain a connected corridor between the on-site wetland and stream and off-site critical areas.

METHODOLOGIES OF CRITICAL AREAS DETERMINATION

On March 20, 2018, *Acre Environmental Consulting, LLC* conducted a site visit to locate wetlands and streams on and adjacent to the subject site. The methods used for delineating, classifying, and rating the critical areas in the project area are consistent with current Federal, State, and City of Mukilteo requirements. At the time of our March 20, 2018 site investigation, the weather was cloudy with a temperature of 44 degrees Fahrenheit.

Wetlands were identified using the routine methodologies described in the U.S. Army Corps of Engineers Wetland Delineation Manual produced in 1987 and the U.S. Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region produced in May 2010 (hereinafter referred to as "the Corps Regional Supplement"). The Corps Regional Supplement is designed for concurrent use with the 1987 Corps Wetland Delineation Manual and all subsequent versions. The 2010

Regional Supplement provides technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act. Where differences in the two documents occur, the Corps Regional Supplement takes precedence over the Corps Manual for applications in the Western Mountains, Valleys, and Coast Region.

According to the federal methodologies described above, identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soils, and the presence or evidence of persistent hydrology. Except where noted in the manuals, the three-factor approach discussed above requires positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology, to make a determination that an area is a regulated wetland. Using the aforementioned manuals, the procedure for making a wetland determination include the following:

- 1.) Examination of the site for hydrophytic vegetation (species present/percent cover);
- 2.) Examination for the presence of hydric soils in areas where hydrophytic vegetation is present; and
- 3.) The final step is determining if wetland hydrology exists in the area examined under the first two steps.

Per industry standards, *Acre Environmental Consulting, LLC* examined the entire project site. Per current City of Mukilteo requirements, *Acre Environmental Consulting, LLC* also assessed adjacent properties within 225 feet of the proposed project limits, to the maximum extent possible without entering adjacent properties. While a detailed assessment of Critical Areas on adjacent properties was not possible due to the lack of legal access, *Acre Environmental Consulting, LLC* conducted a review of all available information to assess the presence of off-site Critical Areas within 225 feet of the subject site. This review is required by the City of Mukilteo to determine if any regulated Critical Areas exist off-site which would cause associated protective buffers to extend onto the property and affect the development proposal.

In addition to on-site field reviews, *Acre Environmental Consulting, LLC* examined aerial photographs and topographical data (elevation contours) on Snohomish County's SCOPI and SnoScape map systems. Web soil survey maps produced by the Natural Resources Conservation Service (NRCS), National Wetlands Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service (USFWS), SalmonScape fish distribution maps produced by the Washington Department of Fish and Wildlife (WDFW), and StreamNet fish distribution maps produced by Pacific States Marine Fisheries Commission.

BOUNDARY DETERMINATION FINDINGS

Wetlands were classified according to the U.S. Fish and Wildlife Service (USFWS) Cowardin system Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979) and rated, by categories, according to the Washington State Department of Ecology Wetland Rating Form for Western Washington: 2014 Update, as required by the City of Mukilteo Municipal Code, Chapter 17.52 (Critical Areas Regulations). Buffers are also determined by this chapter.

Wetland A

HGM Class: Slope

Cowardin: Palustrine, Forested wetland, Broad-leaved Deciduous, Seasonally Flooded /Saturated (PFO1E)

Ecology Rating: Category III

City of Mukilteo Rating: Category III, 105' Buffer

Wetland A is a Category III wetland located in the northern portion of the subject site and extending off-site to the north and west. Hydrology from this wetland drains to Stream A. This hydrogeomorphic (HGM) class slope wetland received a total score for functions of 16 points (6 points for Water Quality Functions, 5 points for Hydrologic Functions, and 5 points for Habitat Functions) on the DOE Wetland Rating Form for Western Washington: 2014 Update. Wetlands with scores between 16 and 19 points for all functions are classified as Category III wetlands per per MMC 17.52B.090. In the City of Mukilteo, Category III wetlands with habitat scores of 5 points receive 105-foot protective buffers from their delineated edge.

Typical vegetation in this wetland is represented by a canopy of red alder (*Alnus rubra*, Fac) with salmonberry (*Rubus spectabilis*, Fac), Himalayan blackberry (*Rubus armeniacus*, Fac), and lady fern (*Athyrium filix-femina*, Fac), prevalent in the understory. Typical soils in this wetland have a Munsell color of black (10YR 2/1) with redoximorphic features of brown (10YR 4/3), and a texture of silt loam from 0 to 18 inches below the surface. Soils in this wetland were saturated to the surface during our March 20, 2018 site visit.

Stream A - Type 5

Cowardin: Riverine, Intermittent, Streambed, Mud (R4SB)

City of Mukilteo Rating: Type 5 stream, 50' Buffer

An intermittent upper tributary to Picnic Point Creek drains from Wetland A and off-site to the west. Based on MMC 17.52C.080, this reach of stream is designated as a Type 5 stream. This designation is supported by Snohomish County which depicts this feature as a seasonal non-fish habitat stream on their PDS Map Portal map system. The Forest Practices Application Review

System maps (Water Type Reference maps) produced by the Washington Department of Natural Resources and the Salmonscape maps produced by the Washington Department of Fish and Wildlife depict this stream as beginning approximately 800 feet west and north of the subject site. The on-site portion of this stream is not depicted on these maps. In the City of Mukilteo, Type 5 streams with assumed low mass wasting receive a 50-foot standard buffer.

Non - Wetland

Typical vegetation in the non-wetland portions of the site is forested, represented by a canopy of red alder (*Alnus rubra*, Fac) and big leaf maple (*Acer macrophyllum*, FacU), with vine maple (*Acer circinatum*, Fac), English laurel (*Prunus laurocerasus*, Upl), and sword fern (*Polystichum munitum*, FacU), common in the understory. Typical soils in the non-wetland portions of the site have a Munsell color of dark yellowish brown (10YR 4/4), with a texture of sandy loam from 0 to 18 inches below the surface. Soils in the non-wetland areas were moist throughout the profile during our March 20, 2018 site investigation.

NATURAL RESOURCE CONSERVATION SERVICE SOILS DESCRIPTION:

The Natural Resources Conservation Service (NRCS) mapped the subject site as being underlain by Alderwood-Urban land complex, 2 to 8 percent slopes.

The NRCS describes Alderwood- Urban land complex, 2-8 percent slopes as about 60 percent Alderwood gravelly sandy loam and about 25 percent urban land. Included in this unit are small areas of McKenna and Norma soils and Terric Medisaprists in depressional areas and drainageways on plains. Also included are small areas of soils that are very shallow over a hardpan; small areas of Everett, Indianola, and Ragnar soils on terraces and outwash plains; and soils that have a stony and bouldery surface layer. Included areas make up about 15 percent of the total acreage. The Alderwood soil is moderately deep over a hardpan and is moderately well drained. It formed in glacial till. Typically, the surface layer is very dark grayish brown gravelly sandy loam about 7 inches thick. The upper part of the subsoil is dark yellowish brown and dark brown very gravelly sandy loam about 23 inches thick. A weakly cemented hardpan is at a depth of about 35 inches. Permeability of this soil is moderately rapid above the hardpan and very slow through it. Available water capacity is low.

EXISTING FUNCTIONS AND VALUES

The methodologies for this functions and values assessment are based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the subject wetland, stream, and associated buffer but is typical for assessments of similar systems common to western Washington. The three main functions provided by wetlands include water quality, stormwater / hydrologic control, and wildlife habitat. Buffers serve to protect and support the functions of wetlands and streams as well as provide their own wildlife habitat, water quality, and erosion control functions.

Wetland A is a hydrogeomorphic class slope wetland and as such, has a limited ability to retain stormwater. Due to the sloped nature of this system, rather than being stored in this wetland, water is released relatively quickly to downstream systems. Therefore, this wetland provides limited stormwater storage functions.

Wetlands in western Washington often contain necessary wildlife habitat resources such as food, water, thermal cover, and hiding cover in close proximity. The subject wetland and associated buffer provides protected habitat, which becomes increasingly important as areas become further populated with humans and habitat areas become fragmented. The subject wetland provides moderate levels of habitat for wildlife as evidenced by a Habitat Function score on the Wetland Rating Form for Western Washington: 2014 Update of 5. During our site visit an American Crow (*Corvus brachyrhynchos*), black-capped chickadee (*Poecile atricapillus*), and winter Wren (*Troglodytes hiemalis*), were noted in the subject wetlands and buffers.

The vegetated wetlands and associated buffers on this site serve to intercept rain fall before it strikes the soil, thereby reducing erosion and improving water quality. The presence of adsorbent soils and the biological action of the wetland vegetation, serve to remove sediment and pollutants from the water. These materials are bound in the soil and plant material providing increased water quality to downstream systems.

BUFFER RESTORATION

As mitigation for the 1,328 square feet of temporary buffer impacts that are expected to occur from the installation of the sewer on the subject site, the applicant is proposing to restore this area to its approximate pre-disturbance condition using native shrubs. No trees are proposed in this buffer restoration due to the potential for the roots of these species to damage the sewer line. All proposed species are native to the Puget Sound region and have been selected for their benefits to wildlife and their proven success on past mitigation projects. The following native shrubs are proposed to be installed within the buffer restoration area.

Buffer Restoration – 1,328 square feet

Common Name	Latin Name	Size	Spacing	Quantity
Vine maple	<i>Acer circinatum</i>	1 gallon	5'	13
Hazelnut	<i>Corylus cornuta</i>	1 gallon	5'	10
Osoberry	<i>Oemleria cerasiformis</i>	1 gallon	5'	10
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	10
Baldhip rose	<i>Rosa gymnocarpa</i>	1 gallon	5'	10

Stormwater from this development is proposed to be collected, treated, and routed to a detention vault before being released in to the wetland buffer via a point discharge onto a 12 square foot rip-rap pad. This is in compliance with MMC 17.52B.100(l). To off-set any impacts resultant from this outfall, the applicant is proposing to plant the area immediately downslope of this feature with willow whips. Willow whips will be installed on the downhill side of the rip-rap pad on 2-foot centers. Whips shall be approximately 4 feet long and one half-inch in diameter, and placed at least 1-foot deep in the soil. Whips should be installed during the late fall (after leaf drop) to early spring (before leaf emergence).

Energy Dissipater Plantings - 12 square feet

Common Name	Latin Name	Size	Spacing	Quantity
Pacific willow	<i>Salix lasiandra</i>	Whips	2'	3

GRASS SEEDING

Any disturbed soil in critical areas or buffers shall be seeded to the recommended grass seed mixtures below, or similar approved mixtures.

Common Name	Latin Name	lbs/1,000 sf
Tall fescue	<i>Festuca arundinacea</i>	0.4
Colonial bentgrass	<i>Agrostis tenuis</i>	0.4
Annual ryegrass	<i>Lolium multiflorum</i>	0.5
Red clover	<i>Trifolium pratense</i>	0.2

PLANTING NOTES

Mitigation projects of this sort are typically more complex to install than can be described in plans. The City of Mukilteo requires that the applicant's qualified wetland specialist and the City to monitor installation of any construction to ensure mitigation is constructed or otherwise installed according to the approved mitigation plan requirements (MMC 17.52B.140(4)(B)).

Plant in the early spring or late fall. Order plants from a reputable nursery. Care and handling of plant materials is extremely important to the overall success of the project. All plant materials recommended in this plan should be available from local and regional sources, depending on seasonal demand. Some limited species substitution may be allowed, only with the agreement of the consulting wetland professional.

The plants shall be arranged with the appropriate numbers, sizes, species, and distribution to achieve the required vegetation coverage. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area.

Colored surveyors ribbon, or other approved marking device shall be placed next to each planted tree and shrub to assist in locating the plants while removing the competing non-native vegetation and to assist in monitoring the plantings.

Wood chips or other suitable material shall be used for mulching in the planting areas. Any existing vegetation is to be removed from a two-foot diameter area at each planting site. Mulch is to be placed in this two-foot diameter area at a depth of three to four inches. A four-inch diameter ring around the base of each plant shall be kept free of mulch.

Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to insure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1 inch of water twice per week for year one and 1 inch per week during year two.

PROJECT SUCCESS AND COMPLIANCE

Goals and Objectives of the Proposed Mitigation: The primary goals of the proposed mitigation are as follow:

- Restore the water quality and habitat functions within the disturbed buffer;
- Restore vegetative structure within the disturbed buffer;
- Restore the quantity and diversity of native vegetation within the disturbed buffer; and

- Allow for responsible development and associated infrastructure, while maintaining the ecological functions provided by the subject site.

Definition of Success: The planting areas shall meet the following performance standards:

- a) Year 1: 100 percent survival of newly planted species,
- b) Year 3: at least 80 percent survival of installed plant species,
- c) Year 5: at least 80 percent survival of installed plant species,

This mitigation plan shall support at least 80% of the native plants set forth in the approved mitigation plan by the end of five years. The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success.

Performance Standards:

Performance Standard 1: There shall be 100 percent survival of all the plantings after Year 1 or the installation contractor shall replace the material. At least 80 percent of the plant material installed shall survive in Year 5 after installation.

Performance Standard 2: There shall be a minimum of 30 percent cover of woody species (shrub and tree canopy layers considered together) in the buffer after the first year post-installation; and a minimum of 50 percent cover by woody material after the third year post-installation; and a minimum of 80 percent cover by woody material after the fifth year post-installation. Naturally occurring, native plants shall be included in the calculation of vegetation coverage.

Performance Standard 3: There shall be no more than 10 percent cover of weedy/invasive species in the mitigation areas at any time throughout the monitoring period.

If the project meets all of the criteria for success at the end of the five-year monitoring period, no further action will be required and the financial guarantee will be returned to the applicant in full. To insure that the performance standards of the approved mitigation plan have been met, the mitigation and/or buffer enhancement site(s) shall be monitored for a minimum of five years. The monitoring period required by the city may be extended an additional two years if the wetland or buffer is not performing as expected by the mitigation or enhancement plan. The monitoring reports shall be submitted on August 1st of each year during the monitoring period. Monitoring reports shall follow the recommendations contained in the Department of Ecology's publication Guidance on Wetland Mitigation in Washington State, Part Two. This mitigation plan and the accompanying maintenance and monitoring will not be considered fully complete until written confirmation is received from the City of Mukilteo.

PROJECT MONITORING PROGRAM

Requirements for monitoring project:

1. Initial compliance report
2. Semi-annual site inspection (twice yearly, in the spring and fall) for five years
3. Annual reports (One report submitted in the fall of each monitored year)

Purpose of Monitoring:

The purpose of monitoring this mitigation project is to evaluate the success of the mitigation plantings. Success will be determined if monitoring shows that at the end of five years the stated performance standards are being met. The property owner shall grant access to the site for inspection and maintenance to the contracted wetland specialist and to the City of Mukilteo during the period of the bond or until the project is evaluated as successful.

Inspection Schedule:

Upon completion of the mitigation project, an inspection by a qualified wetland biologist will be made to determine plan compliance. An "As Built" report will be supplied to the City of Mukilteo regarding the completeness of the project. Condition monitoring of the plantings will be done by a qualified wetland biologist in the fall annually for the five-year monitoring period. A written report describing the monitoring results will be submitted to the City of Mukilteo shortly after the inspection of each monitored year. Final inspection will occur five years after completion of planting. The contracted wetland professional will prepare a final report as to the success of the project.

MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace plant mortality. The planting areas should be maintained in spring and fall of each year for the five-year monitoring period. Maintenance may include, but will not be limited to, removal of competing grasses and invasive species (by hand if necessary), irrigation, replacement of plant mortality, and the replacement of mulch for each maintenance period. Following each monitoring visit, the project biologist will make recommendations for maintenance.

CONTINGENCY PLAN (ADAPTIVE MANAGEMENT)

If it is determined at any time during the monitoring period that the goals of the mitigation plan are not being met, a contingency plan will be devised to improve or alter those elements that are deficient. If measures beyond standard maintenance are required, a plan containing these measures will be approved by the City of Mukilteo prior to implementation.

FINANCIAL ASSURANCE

A performance bond (assurance device) shall be provided to the City of Mukilteo in the amount of 15 percent of the estimated cost for plant material and labor, monitoring, and maintenance. This bond shall be released upon a successful determination by the City of Mukilteo for all portions of this mitigation project. This project shall be considered successful if it meets the performance standards listed in this plan.

TOTAL QUANTITY OF 1-GALLON PLANTS @ \$10.50 EACH	53
TOTAL QUANTITY OF WHIPS @ \$3.00 EACH	3
ESTIMATED COST OF PLANT MATERIAL AND LABOR	\$565.50
ESTIMATED COST OF MONITORING (5 YEARS @ \$600/yr.)	\$3,000.00
ESTIMATED COST OF MAINTENANCE (5 YRS. @ \$600/yr.)	\$3,000.00
TOTAL ESTIMATED COSTS	\$6,565.50
TOTAL ESTIMATED COST OF BONDING	\$984.83
(15% OF COST OF MATERIAL AND LABOR, MONITORING, & MAINTENANCE)	

POST-PROJECT FUNCTIONS AND VALUES

The applicant is proposing to install a sewer line and alter 155 square feet of buffer through buffer averaging. The proposed work will result in temporary impacts to 1,328 square feet of the buffer Wetland A on the subject site. The areas proposed to be impacted are currently dominated by scrub-shrub vegetation and provide a moderate level of functions and values. As mitigation for the proposed temporary buffer impacts, the applicant is offering to restore these areas to their approximate pre-disturbance condition using native shrubs on the subject site and grass seed in the existing disturbed lawn. The proposed buffer averaging will create a more manageable protected area and will increase the overall buffer area on the site by 126 square feet. As a result, no significant adverse environmental impacts and no net loss of ecological functions are expected to occur due to this project.

TERMS & CONDITIONS

The environmental consulting work conducted, including this Critical Areas Study and Buffer Mitigation Plan (collectively the "Services") is supplied to BEC Investments (the "Client") as a means of determining whether any wetlands, streams, and/or fish and wildlife habitats regulated by the City of Mukilteo Critical Areas Regulations exist on, or adjacent to the site. The Services are provided in accordance with the following General Terms and Conditions (the "Terms"). In accepting the Services provided by *Acre Environmental Consulting, LLC* ("Acre"), the Client voluntarily enters into and agrees to the binding effect of the following Terms.

This report is intended to provide information deemed relevant in the Client's attempt to comply with the regulations currently in effect. The work for this report has conformed to the standard of care employed by professional ecologists in the Pacific Northwest. All other representations or warranties, whether express or implied, are hereby disclaimed concerning the work or this report. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. If such conditions exist or arise, the information contained in this report may be rendered inaccurate or incomplete based upon those conditions. Acre acts solely as an independent contractor in providing the Services to the Client, and nothing in the provision of such Services shall be construed as creating an agency, partnership, joint venture or other similar legal relationship between Acre and the Client.

Please note that Acre did not provide detailed analyses of other permitting requirements not discussed in this report (i.e., structural, drainage, geotechnical, or engineering requirements).

The laws applicable to Critical Areas are subject to varying interpretations. While Acre observed professional industry standards when completing this review, the information included in this report does not guarantee approval by any federal, state, and/or local permitting agencies. Therefore, all work on this property should not commence until permits have been obtained from all applicable agencies. If there are any questions regarding this report, please contact me at 206.450.7746.

Acre Environmental Consulting, LLC.



Louis Emenhiser
Principal Wetland Ecologist
Professional Wetland Scientist #1680

REFERENCES

Cowardin, et al, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S.D.I. Fish and Wildlife Service. FWS/OBS-79/31. December 1979.

Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Hruby, T. 2014. Washington State wetland rating system for western Washington – 2014 Update. Publication #14-06-029. Olympia, WA: Washington Department of Ecology

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Mukilteo Municipal Code. Chapter 17.52 (Critical Areas Regulations) Mukilteo, Washington.

SalmonScape. Interactive Mapping website administered by the Washington Department of Fish and Wildlife. <http://wdfw.wa.gov/mapping/salmonscape/index.html>. Website last visited on April 12, 2019.

Snohomish County Planning and Development Services PDS Map Portal. <http://gismaps.snoco.org/Html5Viewer/Index.html?viewer=pdsmapportal>. Website last visited on April 12, 2019.

StreamNet. Fish Data for the Northwest. Administered by the Pacific States Marine Fisheries Commission. <http://www.streamnet.org/>. Website last visited on April 12, 2019.

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)," ERDC/EL TR-10-3, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Fish and Wildlife Service. National Wetlands Inventory Wetlands Mapper. <http://107.20.228.18/Wetlands/WetlandsMapper.html#>. Last modified October 15, 2018. Website last visited on April 12, 2019.

Web Soil Survey. United States Department of Agriculture. Natural Resources Conservation Service. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. Website last visited on April 12, 2019.

RATING SUMMARY – Western Washington

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

1. Category of wetland based on FUNCTIONS

FUNCTION	Improving Water Quality	hydrologic	Habitat
	Circle the appropriate rating		
Slm Potential	H M <u>C</u>	H M <u>C</u>	H M <u>C</u>
Land-use Potential	H <u>M</u> L	H <u>M</u> L	H M <u>C</u>
Value	H M L	H <u>M</u> L	H M L
Score Based on Stamp	6	5	5
			16

- 9 = H,H,H
- 8 = H,H,M
- 7 = H,H,L
- 7 = H,M,M
- 6 = H,M,L
- 6 = M,M,M
- 5 = H,L,L
- 5 = M,M,L
- 4 = M,L,L
- 3 = L,L,L

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I II
Coastal Lagoon	I II
Intertidal	I II III IV
None of the above	X

1

Maps and figures required to answer questions correctly for Western Washington

Mean of	To answer questions:	Figure
Concordance in diet choice	D1.3, H1.1, L2.4	
Hydroperiod	B1.4, H1.2	
Location of insect (from the middle of the margin)	D1.1, D4.1	
Boundary of water within 150 ft from the well-head (from the middle of the margin)	D2.2, D5.2	
Map of the contributing basin	D4.3, D5.3	
1 km Polygons: Area that extends 1 km from active wetland edge - including (a) Forest for accessible habitat and (b) wetland habitat	H2.1, H2.2, H2.3	
Scoring scheme of time of flood/dry states waters in basin (from ecology wetland)	D3.1, D3.2	
Score: Capture all list of Threats for Wetland in which unit is forced (from web)	D3.3	

Map of	To answer questions:	Figure #
Groundwater basin (dore)	M1.1 M1.2	
Hydroperiods	M1.1	
Printed depressions	R1.1	
Boundary of area within 150 ft. of the wetland (can be added to another figure)	R1.2	
Print cover of trees, shrubs, and herbaceous plants	R1.2, R1.4	
Width of unit vs. width of stream (can be added to another figure)	R1.1	
Map of the contributing basin	R1.2, R1.3, R1.5	
1 km polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undrained habitat	M1.1 M1.2, M1.3	
Stream capture of 1 pair of <i>Aedes</i> (listed waters in basin from Ecology website)	R1.1	
Stream capture of flu. of <i>W. blairi</i> for WMA in which wet. found (from web)	R1.2, R1.3	

Map of	To answer questions:	Figure #
Coexisting plant classes	1.1, 1.2, 1.11, 1.4	
Plant cover of trees, shrubs, and herbaceous plants	1.2	
Boundary of area within 150 ft of rim wall (red on the map) to another figure	1.2	
Area that extends 1 km from active meander edge (including polygons for accessible habitat and unsaturated habitat)	1.1, 1.2, 1.23	
Screen capture of map of 330-ft wide walk in back flow Ecology walkway	1.1, 1.2	
Screen capture of map of 170-ft wide walk in which part 2 found from walk	1.3	

Map of:	To answer question:	Figure #
Canadian plant classes	H1, H14	1
hydrophytes	H12	1
Plant cover of dense forest, shrubs, and herbaceous plants	S13	1
Plant cover of dense, rigid forest, shrubs, and herbaceous plants (see the added to figure 14)	S41	1
Boundary of 150 ft buffer (see the added to street figure)	S21, S51	1
1 km polygon: Area that extends 1 km from street walkway edge (including polygons for accessible habitat and undisturbed habitat)	H11, H2, H13	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S31, S32	2
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S33	2
Wetland Rating System for Western WA 2014 (Triple		2
Rating Form - Effective January 1 2015		2

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO - go to 2

YES - The wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of normal low flow below 0.5 ppt (parts per thousand)?

NO - **Saltwater Tidal Fringe (Estuarine)**

YES - **Freshwater Tidal Fringe**

If your wetland can be classified as a **Freshwater Tidal Fringe** use the forms for **Riverine** wetlands. If it is **Saltwater Tidal Fringe** it is on **Estuarine** wetland and is not scored. This method cannot be used to score functions for **estuarine** wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3

YES - The wetland class is **Flats**

If your wetland can be classified as a **Flats** wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit meet all of the following criteria?

X The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac. (8 ha) in size.

X At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO - go to 4

YES - The wetland class is **Lake Fringe (Lacustrine Fringe)**

4. Does the entire wetland unit meet all of the following criteria?

X The wetland is on a slope (slope can be very gradual).

X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps (it may flow subsurface, as sheetflow, or in a scale without distinct banks).

X The water leaves the wetland without being impounded.

NO - go to 5

YES - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?

X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

X The overbank flooding occurs at least once every 2 years.

Wetland name or number A

YES - The wetland class is **Riverine**

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

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

NO - go to 7

YES - The wetland class is **Depressional**

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

NO - go to B

YES - The wetland class is **Depressional**

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

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

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

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

Wetland name or number A

SLOPE WETLANDS

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

5.1.0. Does the site have the potential to improve water quality?	
5.1.1. Characteristics of the average slope of the wetland: for 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance. Slope is 1% or less Slope is 1% to 2% Slope is 2% to 5% Slope is greater than 5%	points = 3 points = 2 points = 1 points = 0
5.1.2. The soil in the top 1 m of the surface (top soil layer) is typically more organic (use NRCS definitions). Yes = 1, No = 0	1
5.1.3. Characteristics of the plants in the wetland that root sediments and hold them in place. Cross the points, interpret for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover) and wetland needs not be covered or covered and plants are higher than 6 ft. Dense, unroot, herbaceous plants > 50% of the wetland area Dense, unroot, herbaceous plants > 25% of area Dense, unroot, plants > 1% of area Dense, unroot, herbaceous plants > 1% of area Does not meet any of the criteria above for plants	points = 6 points = 3 points = 2 points = 1 points = 0
Total for 5.1	3
Rating of Site Potential If score is: <u>12</u> = H <u>6-11</u> = M <u>0-5</u> = L	Record the rating on the first page

5.2.0. Does the landscape have the potential to support the water quality function of the site?

5.2.1. Is > 10% of the area within 150 ft on the up-slope side of the wetland in land used for agriculture (crops, pasture, etc.)?	Yes = 1, No = 0
5.2.2. Are there other sources of pollutants coming into the wetland that are not listed in question 5.2.1?	Yes = 1, No = 0
Total for 5.2	1
Rating of Landscape Potential If score is: <u>2</u> = M <u>1</u> = M <u>0</u> = L	Record the rating on the first page

5.3.0. Is the water quality improvement provided by the site valuable to society?

5.3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1, No = 0
5.3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	Yes = 1, No = 0
5.3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a WQIA for the basin in which the site is found.	Yes = 2, No = 0
Total for 5.3	2
Rating of Value If score is: <u>3</u> = H <u>2</u> = M <u>1</u> = M <u>0</u> = L	Record the rating on the first page

Slope is approx. 4%

Wetland name or number A

SLOPE WETLANDS

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

5.4.0. Does the site have the potential to reduce flooding and stream erosion?	
5.4.1. Characteristics of plants that reduce the velocity of surface flow using stems: Choose the best description for the description that best fits conditions in the wetland. Items of plants should be present enough (usually > 1/4 in, or more) to reduce the velocity of surface flow. Dense, unroot, flood plants cover > 50% of the area of the wetland All other conditions	points = 1 points = 0
Rating of Site Potential If score is: <u>1</u> = M <u>0</u> = L	Record the rating on the first page
5.5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
5.5.1. Is more than 25% of the area within 150 ft up-slope of wetland in land used or owned that generates excess surface runoff?	Yes = 1, No = 0
Rating of Landscape Potential If score is: <u>1</u> = M <u>0</u> = L	Record the rating on the first page
5.6.0. Are the hydrologic functions provided by the site valuable to society?	
5.6.1. Evidence to the nearest acre downstream that has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redd). Surface flooding problems are in a sub-basin further down gradient. No flooding problems anywhere downstream	points = 2 points = 1 points = 0
5.6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2, No = 0
Total for 5.6	1
Rating of Value If score is: <u>2</u> = H <u>1</u> = M <u>0</u> = L	Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

HABITAT FUNCTIONS Indicators that site functions to provide important habitat

<p>H 1.0. Does the site have the potential to provide habitat?</p> <p>H 1.1. Structure of plant community: indicators are Canadian down and stem within the forested area. Check the number of plant species in the wetland. Up to 10 species may be combined for each class to meet the threshold of 4 or more than 10% of the wet area. Add the number of structures checked.</p> <p>_____ Aquatic bed _____ Emergent _____ Semi-shrub (areas where shrubs have > 30% cover) _____ Forested (areas where trees have > 30% cover) _____ If the unit has a forested area, check if: _____ The forested area has 3 out of 5 species (Pine, Spruce, Fir, Deciduous, Conifer, Moss/ground cover) _____ that each cover 20% within the forested polygon</p>	<p>4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 type present: points = 0</p>	<p>1</p>
<p>H 1.2. Hydroperiod:</p> <p>Check the type of water regime (hydroperiod) present within the wetland. The water regime has to occur more than 10% of the wetland or it is to count (see list for descriptions of hydroperiods).</p> <p>_____ Permanently flooded or inundated _____ Seasonally flooded or inundated _____ Occasionally flooded or inundated _____ Saturated only _____ Permanently flowing stream or river in, or adjacent to, the wetland _____ Seasonally flowing stream in, or adjacent to, the wetland _____ Lake fringe wetland _____ Freshwater tidal wetland</p>	<p>2 points 2 points</p>	<p>1</p>
<p>H 1.3. Richness of native species:</p> <p>Count the number of plant species in the wetland that cover at least 10%.</p> <p>Different portions of the score quickly can be combined to meet the size threshold and you do not have to name the species. Do not include <i>Fragaria virginiana</i>, <i>red clover</i>, <i>purple loosestrife</i>, <i>Canadian thistle</i>.</p> <p>If you counted: > 19 species 5 - 19 species < 5 species</p>	<p>points = 2 points = 1 points = 0</p>	<p>1</p>
<p>H 1.4. Interposition of sediments:</p> <p>Decide from the diagrams below whether interposition among Canadian plant classes (described in H 1.1), or the absence of interposition (can include open water or mudflats) is high, moderate, low, or none. If you have four or more plant classes or three classes and open water, the rating is always high.</p> <p>None = 0 points Low = 1 point Moderate = 2 points</p>	<p>0</p>	

Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. The number of checks is the number of points.</p> <p>_____ Large, deep, woody debris within the wetland (> 4 in diameter and 5 ft long). _____ Standing water (don't > 4 in) within the wetland. _____ Underwater plants are present for at least 6 ft (2 m) and/or overhanging plants extend at least 33 ft (10 m) over a stream (in elevation) or confluents with the wetland (for at least 33 ft (10 m)). _____ Substrate banks of fine material that might be used by beaver or muskrat for damming. (If 30% degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where mud is exposed). _____ At least 5% of the wetland is composed of persistent plants or woody shrubs are present in areas that are permanently or seasonally inundated (determined for each type by amphibious). _____ Invasive plant cover less than 25% of the wetland area in every stratum of plants (see H 2.1 for details).</p>	<p>points = 3 points = 2 points = 1 points = 0</p>	<p>3</p>
<p>Total for H 1</p>	<p>6</p>	
<p>Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L</p>	<p>Record the rating on the first page</p>	
<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p> <p>H 2.1. Assess the landscape (includes only habitat that directly abuts wetland unit).</p> <p>_____ If total landscape habitat is: _____ % undisturbed habitat > 10% moderate and low intensity land uses (see H 2.1 for details) _____ > 1/3 (33.3%) of 1 km polygon _____ 20-33% of 1 km polygon _____ 10-19% of 1 km polygon _____ < 10% of 1 km polygon</p>	<p>points = 3 points = 2 points = 1 points = 0</p>	<p>0</p>
<p>H 2.2. Undisturbed habitat in 1 km polygon around the wetland.</p> <p>Calculate: % undisturbed habitat = $\frac{\text{undisturbed habitat}}{\text{total polygon area}} \times 100$</p> <p>Undisturbed habitat > 50% of polygon Undisturbed habitat 30-50% and in 13 patches Undisturbed habitat 10-30% and > 5 patches Undisturbed habitat < 10% of 1 km polygon</p>	<p>points = 3 points = 2 points = 1 points = 0</p>	<p>1</p>
<p>H 2.3. Land use intensity in 1 km Polygon:</p> <p>> 50% of 1 km Polygon is high intensity land use < 50% of 1 km Polygon is high intensity</p>	<p>points = 2 points = 0</p>	<p>2</p>
<p>Total for H 2</p>	<p>3</p>	
<p>Rating of Landscape Potential If score is: 4-6 = H 1-3 = M 0-1 = L</p>	<p>Add the points in the boxes above</p>	<p>3</p>
<p>H 3.0. Is the habitat provided by the site valuable to society?</p> <p>Check the site for the following criteria:</p> <p>_____ Site meets ANY of the following criteria: _____ It has 5 or more priority habitats within 100 m (see next page) _____ It provides habitat for threatened or endangered species (any plant or animal on the state or federal list) _____ It is mapped as a location for an individual WSPV priority species _____ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources _____ It has been categorized as an important habitat site in a local or regional conservation plan, or a Shoreline Master Plan, or a watershed plan _____ Site has 1 or 2 priority habitats (listed on next page) within 100 m</p>	<p>points = 2 points = 1 points = 0</p>	<p>2</p>
<p>Rating of Value If score is: 3 = H 2 = M 1 = L</p>	<p>Record the rating on the first page</p>	

Wetland name or number A

WDFW Priority Habitats

Priority Habitats listed by WDFW (see complete description of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife, 2008, "Priority Habitats and Species Use: Olympia, Washington, 177 pp. <http://dnr.wa.gov/publications/pubs.cfm?id=3333>) and across the list from here: <http://dnr.wa.gov/publications/pubs.cfm?id=3333>

Count how many of the following priority habitats are within 300 ft (100 m) of the wetland unit. **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas within forest that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).
- **Herbaceous Banks:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/ Mature forests:** Dikgalski, et al. (2002): Stands of at least 2 tree species forming a multi-layered canopy with occasional small openings with at least 8 trees/acre (20 trees/ha) > 3.3 in (8.1 cm) dbh or > 200 years of age. Herbaceous forests: Stands with average diameter exceeding 2.1 in (5.3 cm) dbh, crown cover may be less than 100%; density, decadence, number of single and quantity of large downed material is generally less than that found in old-growth, 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/ponderosa associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 138 - see web link above).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Wettable Prairies:** Herbaceous, non-corned plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 - see web link above).
- **Wetlands:** The combination of physical, biological, and chemical processes and conditions that allowed to provide landscape life history requirements for salmonids and wildlife resources.
- **Neotoma:** Relatively undisturbed coastal Neotoma. These include Coastal Neotoma, Open Coast Neotoma, and Puget Sound Neotoma. (full descriptions of habitats and the influence of relatively undisturbed are in WDFW report - see web link on previous page)
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soil, rock, ice, or other geological formation and is large enough to contain a human.
- **Culms:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Tidal:** Estuarine areas of red-tide-bearing in average size 0.5 - 0.5 ft (0.15 - 0.20 m), composed of fresh, saltwater, and/or brackish water, including riparian slates and other settings. May be associated with dunes.
- **Scrub and Large:** Trees are considered scrub if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation by wildlife. Priority vegetation has a diameter at breast height of > 20 in (51 cm) in western Washington and are > 15 ft (4.6 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end and > 20 ft (6 m) long.

Note: All vespertine wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<p>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</p> <p>SC 1.0. Estuarine wetlands: Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal. — Vegetated and — With a salinity greater than 0.5 ppt</p> <p>Yes - Go to SC 1.1. <u>No - Not an estuarine wetland</u></p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Ecological Reserve, National Area, Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332.30-151? <u>Yes - Category I</u> No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 acre and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no ditching, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are dominant see page 25). — At least 1/2 of the bankward edge of the wetland has a 100 ft buffer of shrub, forest, or improved or unmoved grassland. — The wetland has at least one of the following features: dead snags, depressions with open water, or contiguous freshwater wetlands.</p> <p>Yes - <u>Category I</u> No - <u>Category II</u></p>	Cat. I
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? SC 2.2. Is the wetland listed on the WHCV database as a Wetland of High Conservation Value? Yes - <u>Category I</u> No - <u>Category II</u></p>	Cat. I
<p>SC 2.3. Is the wetland in a Section 2(a) or 2(b) that contains a Natural Heritage wetland? <u>Yes - Category I</u> No - <u>Category II</u></p>	Cat. I
<p>SC 2.4. Has WDFW identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <u>Yes - Category I</u> No - <u>Category II</u></p>	Cat. I
<p>SC 3.0. Deep: Does the wetland for any part of the unit meet both the criteria for soils and vegetation in Deep? Use the key below. If you answer YES you will still need to rate the wetland based on its function.</p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 15% or more of the first 35 in of the soil profile? Yes - Go to SC 3.3. No - Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 15% of the soil profile, or an impermeable horizon such as clay or volcanic ash, or that are floating (unsinkable or poor)? Yes - Go to SC 3.3. No - Go to SC 3.4</p> <p>SC 3.3. Does an area with peats or mucks have more than 10% cover of mosses or mosses that compose 15% or more of the first 35 in of the soil profile? Yes - Go to SC 3.3. No - Go to SC 3.4</p> <p>SC 3.4. Is an area with peats or mucks (or peats or mucks that are less than 15% of the soil profile) in a wetland unit? <u>Yes - Category I</u> No - <u>Category II</u></p>	Cat. I

Wetland name or number A

SC 5.0. Forested Wetlands

Does the wetland have at least 10m tall canopy of forest trees, meet one of these criteria for the WA Department of Fish and Wildlife's Forests as priority habitats? If you answer YES you will still need to rate the wetland based on its function.

- Old-growth forests (forest of Cascade crests). Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ha (20 trees/ha) that are at least 200 years old OR have a diameter at breast height (DBH) of 32 to 181 cm or more
- Mature forest (stand of the Cascade Crest). Stands where the largest trees are 30-200 years old OR the species that make up the canopy have an average diameter (DBH) exceeding 21 to 35 cm.

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

SC 5.0. Wetlands in Coastal Lagoons

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

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbars, gravel banks, spiggle or less frequently, rocks.
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (2.0-3.5 ppt) during most of the year in at least a portion of the lagoon (does not exclude a coastal lagoon).
- Yes = Go to SC 5.1 / No = Not a wetland in a coastal lagoon

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

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- At least 5% of the landward edge of the wetland has a 100 ft buffer of shrubs, forest or ungrazed or improved grassland.
- The wetland is larger than 1/2 ac (4350 ft²).

Yes = Category I / No = Category II

SC 6.0. Interstitial Wetlands

Is the wetland west of the 1239 line (also called the Western Boundary of Upland Community or WBUC)? If you answer yes you will still need to rate the wetland based on its habitat function.

In practical terms that means the following geographic areas:

- Long Beach Peninsula: Lands west of SR 301
- Graveland Wetlands: Lands west of SR 305
- Coastal Short-Cropper Lands west of SR 315 and SR 319

Yes = Go to SC 6.1 / No = not an interstitial wetland for rating

SC 6.1. Is the wetland 1 ac or larger and scores on B or D for the habitat function on the form (add H, M or H, M, M for the three aspects of function)?

Yes = Category I / No = Go to SC 6.2

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

Yes = Category II / No = Go to SC 6.3

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

Yes = Category III / No = Category IV

Category of wetland based on Special Characteristics

If you answered No for all items, enter "Not Applicable" on Summary Form

Wetland name or number A

This page left blank intentionally

Map measurements used to determine answers for H2.0.

1km area

Moderate & low intensity land use (LU)

Accessible moderate & low intensity LU

Relatively undisturbed LU

Accessible relatively undisturbed LU

High intensity LU

26,080, 245 SF

4,011, 517 SF 11%

10,874 SF 0.02%

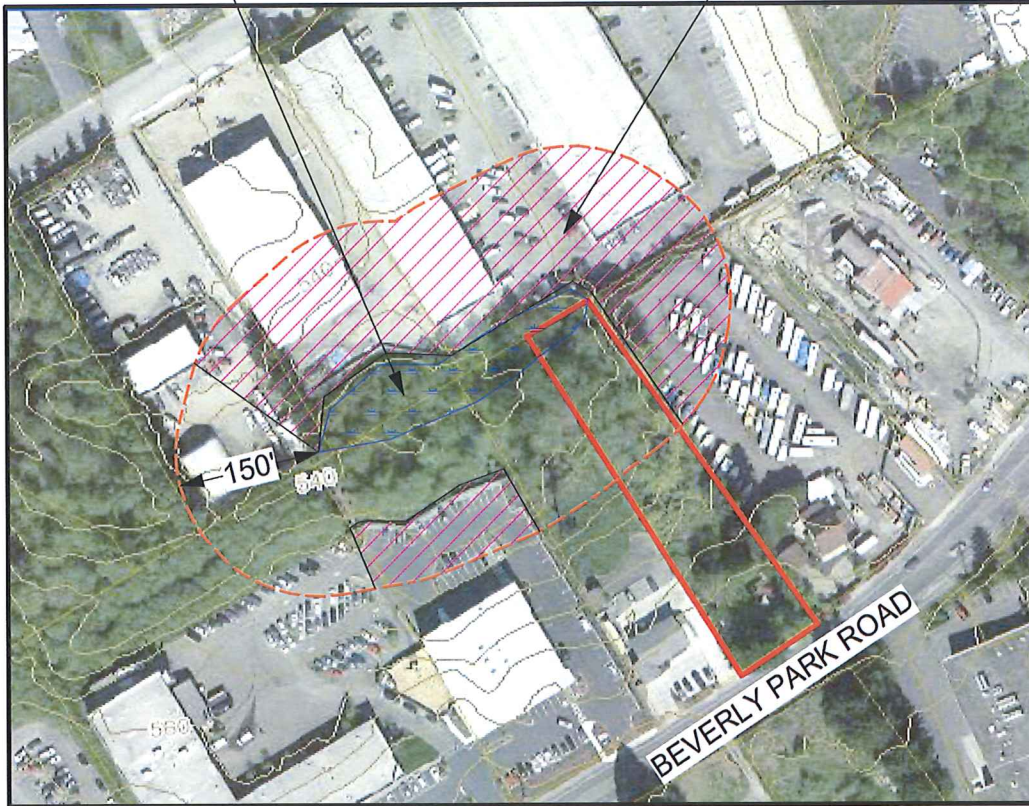
4,195, 701 SF 12%

2,694, 447 SF 7%

27,843, 027 SF 77%

Wetland A Rating Unit

Pollution generating areas (typ.)



RATING ANSWERS FOR WETLAND A

S1.3 Dense, woody, plants > 1/2 of area.

S4.1 Dense, uncut, rigid plants cover < 90% of the area of the wetland.

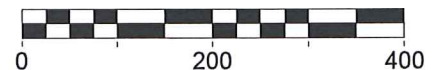
S2.1 & S5.1 Approximately 71% of the area within 150' of the uphill side of Wetland A is in land use that generates pollutants and excess runoff.

H1.1 & H1.4 The wetland contains forested vegetation with 3 out of 5 strata that each cover 20% within the forested polygon; and no interspersions.

H1.2 The wetland contains seasonally flooded or inundated and seasonally flowing stream hydroperiods.



SCALE 1" = 200'



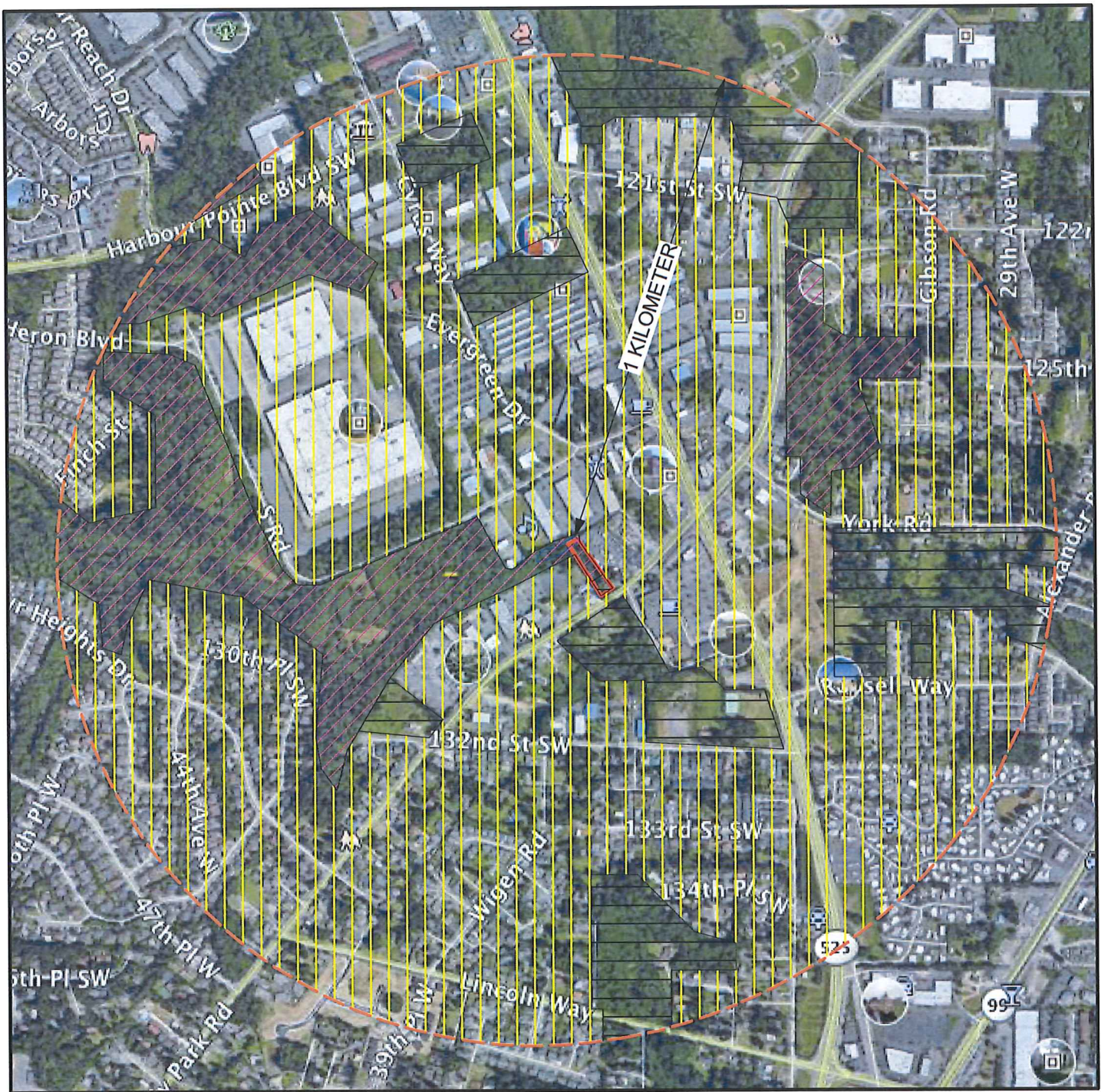
Acre Job: 18018
Drawn By:
L. Emehiser
Figure 1 of 3
Date: 03.27.2018
Rev #:

PREPARED FOR:
Brian Cole
9326 Evergreen Way
Everett, WA 98204






WETLAND RATING MAP
COLE - 12900 BEVERLY PARK ROAD
MUKILTEO, WA
TAX PARCEL NO. 00568700200402.

PREPARED BY:
Acre Environmental Consulting, LLC
17715 28th Avenue NE
Lake Forest Park, WA 98155
Phone: (206) 450-7746
Email: louis@acreenvironmental.com





LEGEND

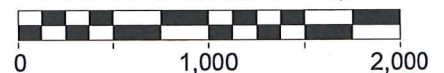
-  SUBJECT WETLANDS
-  HIGH INTENSITY LAND USE
-  MODERATE, AND LOW INTENSITY LAND USE
-  RELATIVELY UNDISTURBED LAND
-  ONE KILOMETER POLYGON LINE

Note: Land use definitions are derived from H2.0 Table 3 of the Wetland Rating System for Western WA: 2014 Update

This map was used to derive answers for questions H2.1, H2.2, and H2.3.



APPROX. SCALE 1" = 1,000'



Acre Job: 18018
 Drawn By:
 L. Emehiser
 Figure 2 of 3
 Date: 03.27.2018
 Rev #:

PREPARED FOR:
 Brian Cole
 9326 Evergreen Way
 Everett, WA 98204

1KM POLYGON MAP (UNDISTURBED & ACCESIBLE HABITAT)
 COLE - 12900 BEVERLY PARK ROAD
 MUKILTEO, WA
 TAX PARCEL NO. 00568700200402.

PREPARED BY:
 Acre Environmental Consulting, LLC
 17715 28th Avenue NE
 Lake Forest Park, WA 98155
 Phone: (206) 450-7746
 Email: louis@acreenvironmental.com



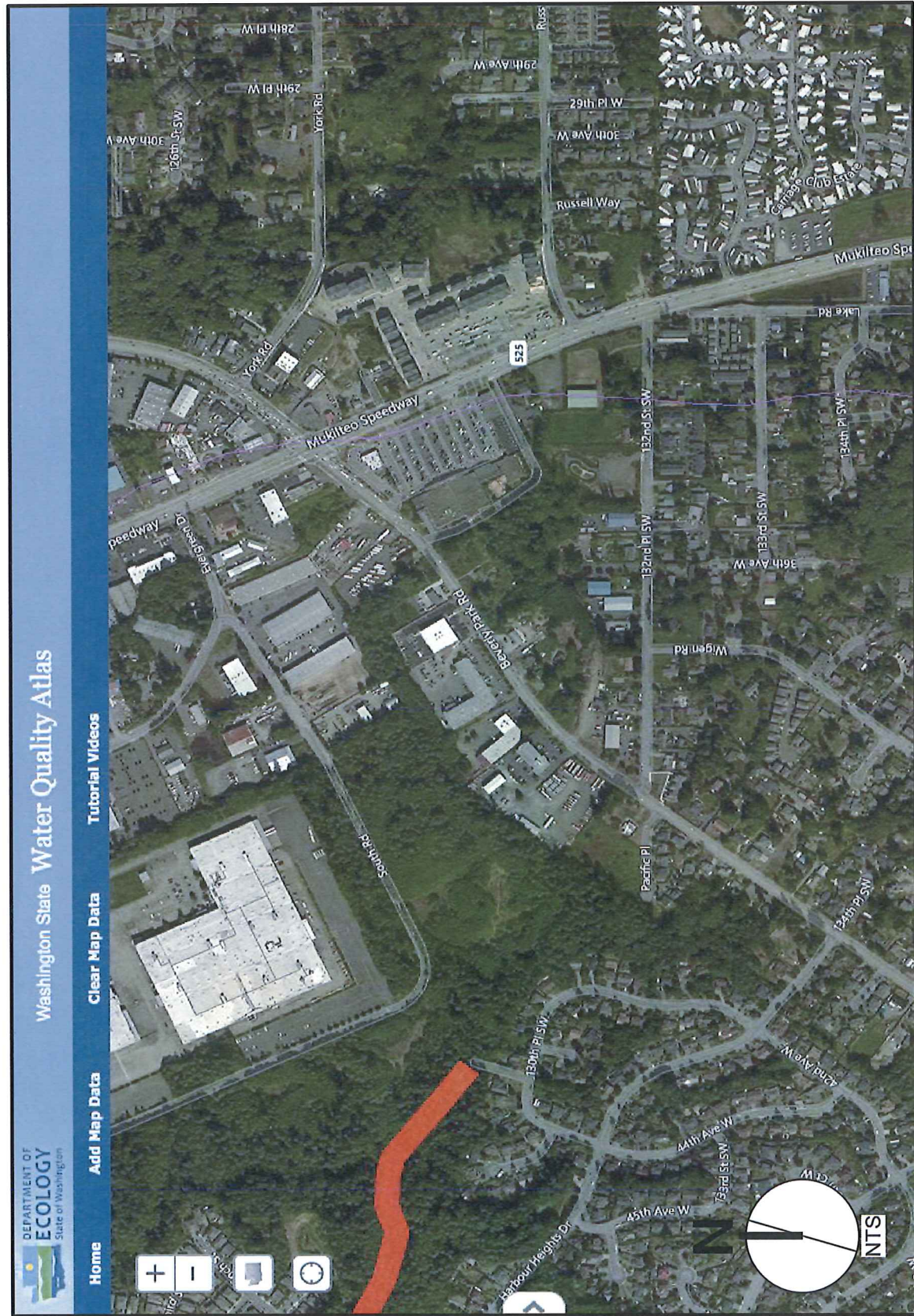


PREPARED BY:
Acre Environmental Consulting, LLC
17715 28th Avenue NE
Lake Forest Park, WA 98155
Phone: (206) 450-7746
Email: louis@acreenvironmental.com

DOE 303(d) Waters in Basin (Screen Capture)
COLE - 12900 BEVERLY PARK ROAD
MUKILTEO, WA
TAX PARCEL NO. 00568700200402.

PREPARED FOR:
Brian Cole
9326 Evergreen Way
Everett, WA 98204

Rev #:
Date: 03.27.2018
Figure 3 of 3
L. Emehiser
Drawn By:
Acre Job: 18018



- S3.1 The subject wetland discharges directly (within one mile) Picnic Creek listed on the 303(d) list.
- S3.2 The subject wetlands are in a basin with an aquatic resource on the 303(d) list.
- S3.3 Based on the Department of Ecology's Water Quality Improvements Projects webpage, no TMDL's have been identified for the Picnic Creek Basin in which the wetland rating units are found.