



CRITICAL AREA STUDY

FOR

8452 NORTH MERCER WAY ***MERCER ISLAND, WA***

Wetland Resources, Inc. Project #19201

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1.0 INTRODUCTION

Wetland Resources, Inc (WRI) conducted a site investigation at the subject property located at 8452 North Mercer Way on July 23, 2019, to determine the classification of a watercourse on the property. During the permit application review process, the City identified a Type 2 watercourse depicted on the City's GIS (Geographical Information Systems) map on the subject property. WRI determined that this feature is a piped watercourse located in the western portion of the property. Pursuant to Mercer Island City Code (MICC 19.07.070(B)(1)), piped watercourses receive standard 25-foot protective buffers.

The purpose of this report is to document watercourses, wetlands, and wildlife habitat conservation areas on and near the subject property and to assess potential impacts associated with the proposed development plan.

1.1 PROJECT LOCATION

Basin: Puget Sound

Sub-Basin: Water Resource Inventory Area (WRIA) 8 – Cedar/Sammamish River

Watershed: Lake Washington

Sub-Watershed: Mercer Island

The subject property is located at 8452 North Mercer Way, within the city limits of Mercer Island, Washington (Section 7, Township 24N, Range 5E, W.M.).

The property is currently developed with a single-family residence and associated appurtenances including a driveway, parking pad, walkways, and a patio.



Figure 1 - Aerial view of subject property. (Not to scale)

1.2 PROJECT DESCRIPTION

The applicant proposes to construct an addition to the southeastern corner of the single-family residence within the same footprint as an existing shed (which will be removed), replace and reconfigure the existing stairs at the northwest corner of the home, change the existing overhang on the home, and replace the existing concrete driveway. Landscape vegetation throughout much of the property has recently been removed, and the applicant is developing a new landscape plan. A buffer restoration plan has been included in this report (see Section 6.0) to restore portions of the on-site piped watercourse buffer that have been cleared by planting native vegetation.

2.0 CRITICAL AREAS COMPLIANCE

The proposed project occurs in the vicinity of a regulated watercourse and the associated buffer. This report meets the minimum requirements for a critical area study, as defined in MICC 19.07.050.

3.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the on-site investigation, public resources information was reviewed to gather background information on the project study area and surrounding areas in regards to wetlands, watercourses, and other critical areas.

- *USDA Natural Resources Conservation Service (NRCS) Web Soil Survey*: The Web Soil Survey identifies on-site soils as Kitsap silt loam (2 to 8 percent slopes). This soil map unit is described as moderately well drained and contains inclusions of Alderwood (10 percent), which is also described as moderately well drained, as well as Bellingham (3 percent), Seattle (1 percent), and Tukwila (1 percent), which are hydric soil types typically found in depressions.
- *US Fish and Wildlife Service National Wetlands Inventory (NWI)*: This resource depicts a riverine feature approximately 120 feet east of the subject property.
- *WDNR Wetlands of High Conservation Value*. This resource does not depict any features on Mercer Island.
- *WDFW Priority Habitats and Species Maps*: The nearest feature depicted on the PHS online interactive map is a freshwater forested/scrub-shrub wetland approximately 270 feet northeast of the property, adjacent to Lake Washington.
- *WDNR Forest Practices Application Mapping Tool*. The nearest feature shown on this resource is a Type F stream located approximately 120 feet east of the site.
- *SalmonScape*: The nearest mapped feature depicted on SalmonScape is Lake Washington.

- *StreamNet Online Mapping Application*: This resource depicts salmonid presence in Lake Washington.
- *City of Mercer Island GIS Portal*: This resource depicts a Type 2 watercourse flowing through the subject property. Also depicted in roughly the same location is a piped stormwater drainage feature. A Type 3 watercourse is shown approximately 120 feet east of the property. A stormwater drainage pipe is also shown in roughly the same location as this watercourse.

4.0 CRITICAL AREAS DETERMINATION

4.1 LIMIT OF STUDY

The proposed project occurs within one 0.39-acre parcel (8452 North Mercer Way). Lack of legal access to additional parcels in the vicinity of the subject property prevents Wetland Resources, Inc. (WRI) staff from performing routine wetland/OHWM determinations in off-site areas. One piped watercourse appears to occur on the subject property. No other wetlands, watercourses, or wildlife habitat conservation areas are known to occur in the near vicinity of the subject property.

4.2 CRITICAL AREAS CLASSIFICATION

The on-site watercourse is classified in accordance with the standards set forth in MICC 19.07.070 for watercourses. Other critical areas are classified according to sections 19.07.080 for wetlands, 19.07.090 for wildlife habitat conservation areas, and 19.07.110 for shoreline areas. Identification of geologic hazard areas is beyond the scope of this report. Buffers are measured horizontally in a landward direction from the critical area boundary.

4.3 WATERCOURSE DETERMINATION

The City of Mercer Island Development Services Group relies on data compiled in the City of Mercer Island GIS Portal to approximate critical areas presence and locate stormwater features (among many other things). This resource was referenced by WRI staff prior to the site investigation to determine potential critical areas on and in the vicinity of the property. This resource depicts a Type 2 watercourse within the boundaries of the subject property. Also depicted is a stormwater drainage pipe in roughly the same location as the Type 2 watercourse. A 15' drainage easement (No. 6646113) is documented on the property in roughly the same location as the mapped Type 2 watercourse and stormwater drainage pipe. Figure 2 below shows the location of City-mapped watercourses and stormwater drainage pipes in the vicinity of the subject property.

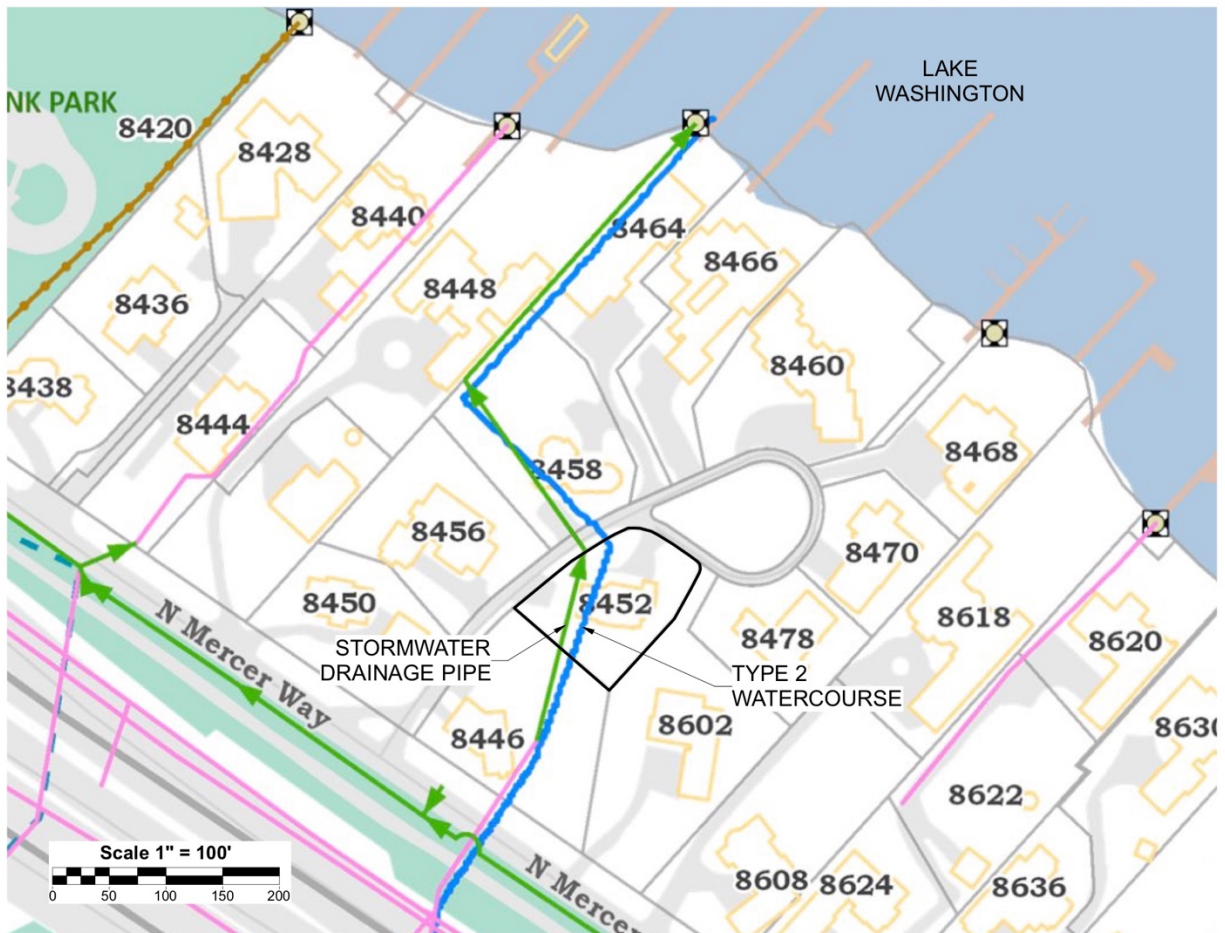


Figure 2 - Mercer Island GIS Portal mapped watercourses and stormwater utilities.

Best available science suggests that directly observed hydrology or evidence of recent surface flow support a stream presence determination. Evidence of flow includes defined bed and banks, scour marks, fine and coarse sediments deposited on existing vegetation, sorted gravel, flattened vegetation in the direction of flow, and the presence of wet-tolerant vegetation. Type 2 (perennial) streams would typically be expected to contain hydrology throughout the year, and even during a drier than normal period, evidence of regular flows would be expected to be present. During the July 23, 2019, site investigation, no hydrology or evidence indicative of stream conditions was observed on the property. Figure 3 shows an aerial photograph of the subject property with the location of the City-mapped Type 2 stream, stormwater drainage pipe, and recorded drainage easement. Figures 4 through 6 depict conditions observed on site during the July 23, 2019 site investigation.



Figure 3 - Aerial photo of subject property with Mercer Island GIS Portal mapped Type 2 watercourse and stormwater drainage pipe, and recorded drainage easement.



Figure 4 - Location of Mercer Island GIS Portal mapped Type 2 watercourse on the south side of the home.



Figure 5 - Location of Mercer Island GIS Portal mapped Type 2 watercourse on the south side of the home.



Figure 6 - Location of Mercer Island GIS Portal mapped Type 2 watercourse on the north side of the home.

Given the absence of any evidence of a stream channel or of previous surface water flow on the site, WRI has determined that no surface watercourse exists on the subject property. Based on the on-site conditions observed, the mapped stormwater drainage pipe, and the existing drainage easement, WRI has determined that a piped watercourse occurs on the subject property.

4.4 WETLAND DETERMINATION

4.4.1 Wetland Determination Methodology

Wetland boundaries are determined using the routine determination approach described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010), as required by MICC 19.07.080(A). Under the routine methodology, the process for making a wetland determination is based on three steps:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils;
- 3.) Determining the presence of wetland hydrology

The following criteria must be met in order to make a positive wetland determination.

Vegetation Criteria

The Corps Manual and 2010 Regional Supplement define hydrophytic vegetation as “*the assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of*

sufficient frequency and duration to influence plant occurrence.” Field indicators are used to determine whether the hydrophytic vegetation criteria have been met. Examples of these indicators include, but are not limited to, the rapid test for hydrophytic vegetation, a dominance test result of greater than 50%, and/or a prevalence index score less than or equal to 3.0.

Soils Criteria

The 2010 Regional Supplement (per the National Technical Committee for Hydric Soils) defines hydric soils as soils “that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” Field indicators are used to determine whether a given soil meets the definition for hydric soils. Indicators are numerous and include, but are not limited to, presence of a histosol or histic epipedon, a sandy gleyed matrix, depleted matrix, and redoximorphic depressions.

Hydrology Criteria

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively. The strongest indicators include the presence of surface water, a high water table, and/or soil saturation within at least 12 inches of the soil surface.

4.4.2 Wetland Determination Results

The majority of the landscape vegetation that has been cleared from the site consisted of lawn, ornamental landscape plants, including cherry laurel (*Prunus laurocerasus*), ornamental rhododendron, ornamental grasses, and other manicured shrubs, and Himalayan blackberry (*Rubus armeniacus*; FAC). Native trees, which include Western red cedar (*Thuja plicata*; FAC) and Douglas fir (*Pseudotsuga menziesii*; FACU), remain on the site. Remaining vegetation and recent re-growth observed during our site investigation also includes remaining cherry laurel (*Prunus laurocerasus*, N/I), periwinkle (*Vinca* sp.), mint (*Mentha* sp.), and coral bells (*Heuchera* sp.), along with small recent sprouts of Himalayan blackberry (*Rubus armeniacus*; FAC), English ivy (*Hedera helix*, FACU), wall lettuce (*Lactuca muralis*; N/I), sow thistle (*Sonchus arvensis*; FACU), fireweed (*Chamaenerion angustifolium*; FACU), woodland ragwort (*Senecio sylvaticus*; FACU), giant horsetail (*Equisetum telmateia*; FACW), and seedlings of Douglas fir (*Pseudotsuga menziesii*; FACU) and big leaf maple (*Acer macrophyllum*; FACU). The herbaceous vegetation and Himalayan blackberry observed consist of small plants and seedlings. The majority of the species observed and previously occurring on the site are indicative of non-wetland conditions.

Soils on the site are typically very dark brown (10YR 2/2) to very dark grayish brown (10YR 3/2) throughout the upper portion of the soil profile. The texture is primarily silt loam. These conditions are consistent with the NRCS soil map unit Kitsap silt loam, 2 to 8 percent slopes, as mapped on the site. No hydric soil indicators were observed on the site. Soils were very dry to moist at the time of our site investigation and no wetland hydrology indicators were observed.

Given the lack of hydrophytic vegetation, hydric soils, and wetland hydrology indicators, it does not appear that any portion of the property meets the criteria for a wetland. Off-site areas in the

vicinity of the subject property were evaluated from on-site and within the public right-of-way. No indicators of wetland conditions were observed in the near vicinity of the property.

Based on observed conditions, WRI has determined that no wetlands occur on or near the subject property.

4.5 WILDLIFE HABITAT CONSERVATION AREAS

Areas used by bald eagles for nesting, breeding, feeding and survival are designated by the City as wildlife habitat conservation areas. No known bald eagle nests are located in the vicinity of the subject property, based on the City of Mercer Island GIS Portal and WDFW Priority Habitats and Species online interactive maps.

5.0 BUFFER REDUCTION

A portion of the existing house, walkways, and parking pad occur within the 25-foot piped watercourse buffer. A total of 41 square feet of new impervious surface is proposed within the standard 25-foot buffer for the reconfiguration of the stairs and building overhang on the west side of the house. To accommodate the proposed development, the applicant proposes a buffer reduction, as allowed under MICC 19.07.070(B)(2). To compensate for the buffer reduction necessary to accommodate the 41 square feet of new impervious surfaces, the applicant proposes to remove an existing brick walkway (69 square feet) and replace it with native vegetation. This mitigation measure is allowable for buffer reductions pursuant to 19.07.070(B)(2)(b)(i). The proposed mitigation will result in a net increase of 28 square feet in the total area of vegetated buffer on the site, thereby providing a net improvement in buffer functions. No mitigation is proposed for existing impervious surfaces that occur within the standard 25-foot buffer.

6.0 BUFFER RESTORATION

The landscape plants that have been removed from a portion of the piped watercourse buffer (approximately 1,397 square feet) included ornamental rhododendron, cherry laurel, and other manicured ornamental landscape shrubs. Figures 7 and 8 are photographs from the Google maps “Street View” feature showing buffer conditions prior to the removal of landscaping. Gravel has been placed temporarily (approximately 145 square feet) within the on-site buffer adjacent to the parking pad on the western side of the home (see Figure 9). The gravel will be removed and this area, along with the remaining portions of the buffer where landscaping has been removed, will be planted with native species.



Figure 7 - Landscape plants within the piped watercourse buffer that have been removed. (Image source: Google maps)

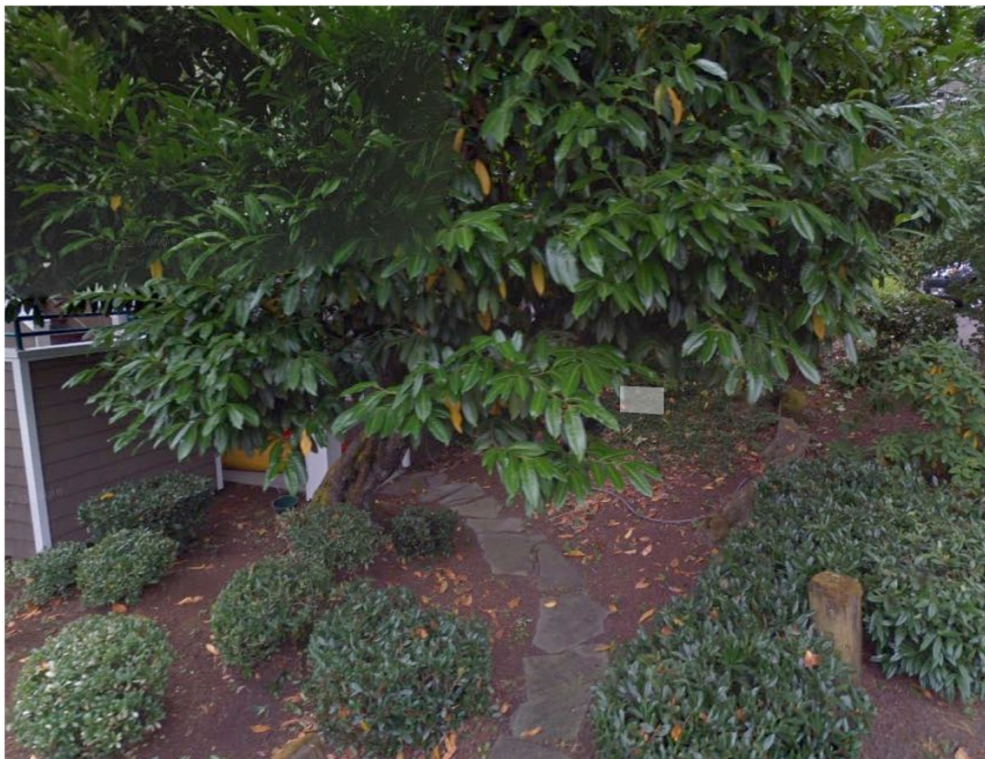


Figure 8 - Landscape plants within the piped watercourse buffer that have been removed. (Image source: Google maps)



Figure 9 - Temporary gravel has been placed within the piped watercourse buffer. The gravel will be removed and the currently unvegetated portions of the on-site buffer will be planted with native species.

6.1 BUFFER RESTORATION PLANTING PLAN

All gravel will be removed from the on-site buffer and the soil will be decompacted, if necessary, prior to planting to ensure successful establishment of installed native plants. The applicant proposes to restore the disturbed portions of the on-site buffer with the following native plants.

Buffer Restoration Planting Area A (964 SF)

Common Name	Latin Name	Size	Spacing	Quantity
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	3
Lewis' mock orange	<i>Philadelphus lewisii</i>	1 gallon	5'	7
Red flowering currant	<i>Ribes sanguineum</i>	1 gallon	5'	10
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	10
Nootka rose	<i>Rosa nutkana</i>	1 gallon	5'	10

Buffer Restoration Planting Area B (433 SF)

Common Name	Latin Name	Size	Spacing	Quantity
Pacific rhododendron	<i>Rhododendron macrophyllum</i>	1 gallon	5'	3
Lewis' mock orange	<i>Philadelphus lewisii</i>	1 gallon	5'	5
Vine maple	<i>Acer circinatum</i>	1 gallon	5'	3
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	6

Please refer to the Critical Area Study Map (Appendix B, Sheet 2/2) included in this report for a depiction of the buffer restoration areas.

6.2 PROJECT NOTES

Pre-construction Meeting

Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and the contracted landscaper. The objective will be to verify the location of mitigation planting areas, and to assess the adequacy of decompaction/amendment measures.

Inspections

A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Mercer Island representative and/or the consulting professional will make these decisions during construction.

6.3 PLANTING NOTES

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

Compost/Cultivation

During the pre-construction meeting, the condition of the soils in the restoration area will be evaluated. If soils appear extremely compacted or of poor quality, a plan for cultivating and/or adding compost will be created. If compost is deemed necessary, those planting areas shall receive no less than 2 inches of organic compost after planting. Compost shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

Handling

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon

installation. Soak all containerized plants thoroughly prior to installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage

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

Damaged plants

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

Plant Names

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

Quality and condition

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

Roots

All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland professional and/or City staff.

Sizes

Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form

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

Timing of Planting

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

Weeding

Existing and exotic vegetation in the mitigation areas will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

Site conditions

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

Planting Pits

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

Fertilizer

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

Staking

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

Plant Location

Colored surveyors ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

Arrangement and Spacing

The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. Spacing of the plantings

may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City staff.

Inspection(s)

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

Woodchip Mulch

After buffer restoration plant installation, two to four inches of woodchip mulch shall be placed throughout the restoration area. Woodchips shall be kept at least 2 inches from the trunks and stems of woody plants.

7.0 PROJECT MONITORING PROGRAM

Requirements for monitoring project:

1. Initial compliance/as-built report
2. Site inspection (once per year for 5 years)
3. Annual reports (one report submitted during each monitored year)

Purpose for Monitoring

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

Monitoring

Monitoring shall be conducted annually for five years in accordance with the approved Restoration Plan. The monitoring period will begin upon City acceptance of written notification confirming the mitigation plan has been successfully implemented. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a final report documenting the success of the project.

Vegetation Monitoring

Due to the small physical size of the restoration area, monitoring will occur based on a hand count of installed species. Monitoring of vegetation sampling points shall occur once per year for five years. Semi-annual inspections will be primarily useful for making maintenance recommendations that will ensure long-term success.

Photo points

No less than two permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the restoration area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Monitoring Report Contents

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

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, any structures or special features
5. Stream and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. Observed wildlife, including amphibians, avian species, and others
7. Assessment of nuisance / exotic biota and recommendations for management
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

7.1 GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

The overall goal of this restoration plan is to restore ecological functions within the buffer associated with the on-site piped stream. Specific goals, objectives, and performance standards include the following:

Goal:

Restore buffer functions to the unvegetated portions of the on-site piped watercourse buffer.

Objective 1: Provide diverse native species that can provide forage for wildlife.

Performance Standard 1: The restoration area shall contain at least four different native species (including native pioneer species) during each monitoring year.

Objective 2: Control aggressive non-native species.

Performance Standard 2: Aggressive non-native species (e.g. Himalayan blackberry, English ivy) shall constitute less than 10 percent areal cover in the restoration area for all monitoring years.

7.2 MAINTENANCE

The mitigation areas will require periodic maintenance to remove aggressive non-native species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Maintenance may include, but will not be limited to: removal of competing grasses (by hand), irrigation, fertilization (only if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by City staff, shall be applied by a licensed applicator following all label instructions.

Duration and Extent

In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal

of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance actions.

Survival

The permittee shall be responsible for the health of 100% of all installed woody plants, and 80% of herbaceous plants, for five growing seasons after successful installation. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or City of Mercer Island staff.

Installation Timing for Replacement Plants

Replacement plants shall be installed between November 1 and March 1, unless otherwise determined by the landscape designer, wetland professional, and/or City of Mercer Island staff.

Standards for Replacement Plants

Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by the landscape designer, wetland professional, and/or City of Mercer Island staff.

Replanting

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

Herbicides / Pesticides

Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Mercer Island staff.

Irrigation / Watering

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

7.3 CONTINGENCY PLAN

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

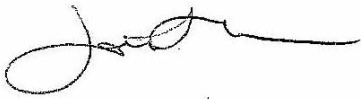
8.0 USE OF THIS REPORT

This Critical Area Study is supplied to Troy Werelius as a means of determining critical area conditions, as required by the City of Mercer Island during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.


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

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

Wetland Resources, Inc.



Joie Goodman
Associate Ecologist



John Laufenberg
Principal Ecologist, PWS #1742

9.0 REFERENCES

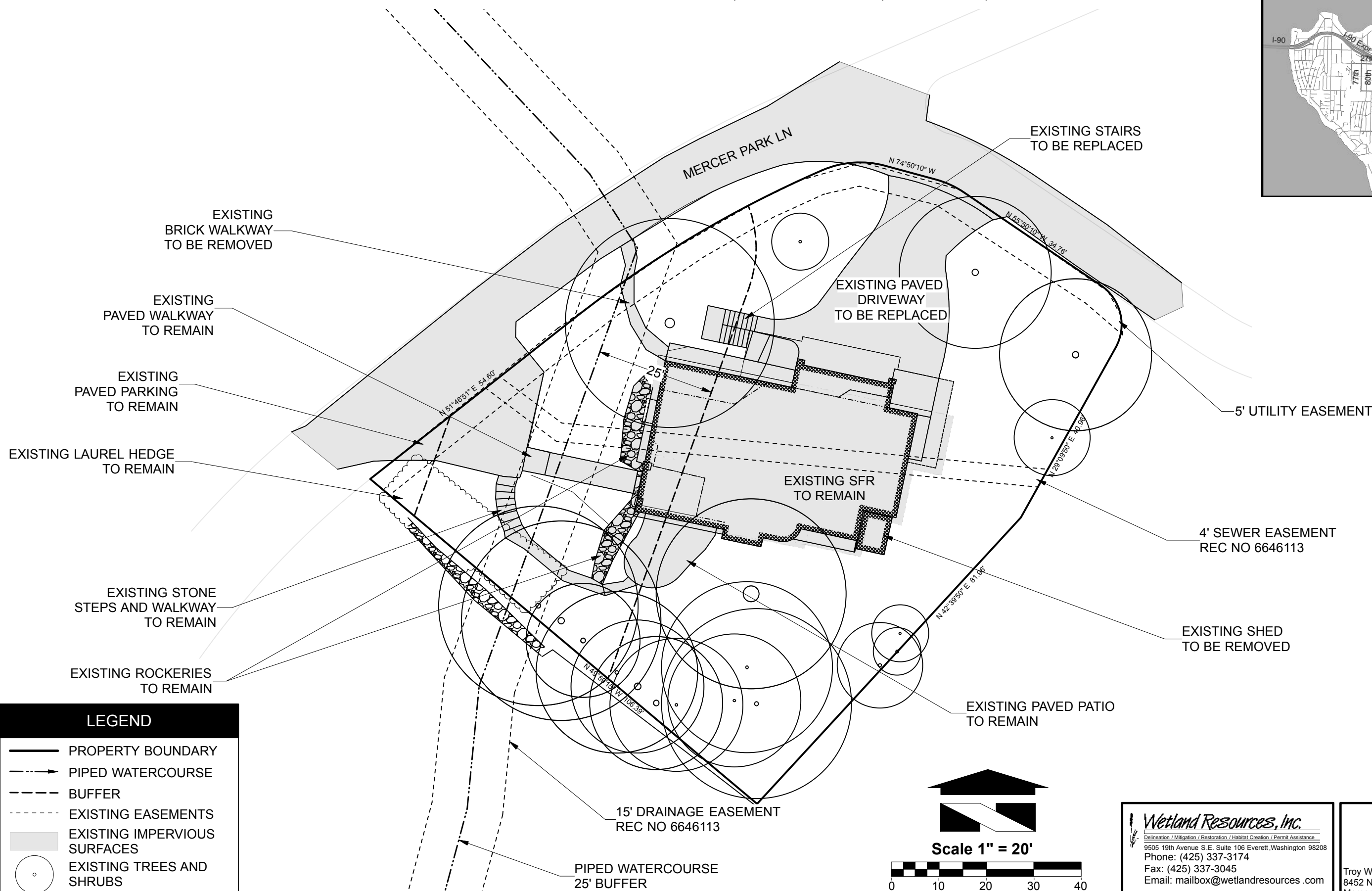
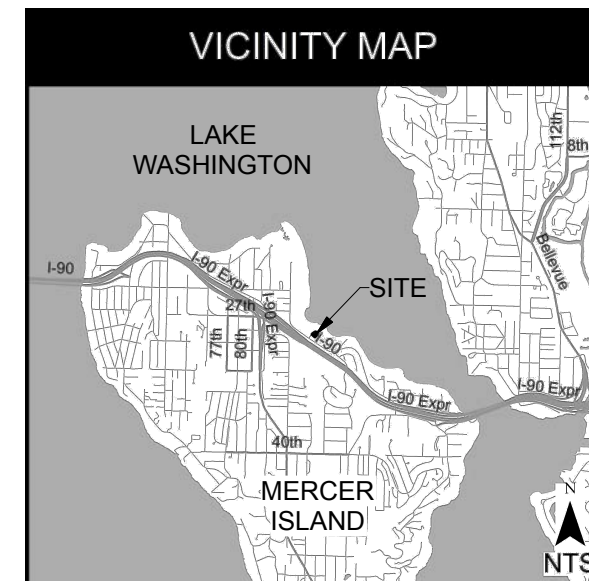
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APPENDIX A

EXISTING CONDITIONS MAP

8452 N MERCER WAY

PORTION OF SECTION 7, TOWNSHIP 24N, RANGE 5E, W.M.



LEGEND

- PROPERTY BOUNDARY
- PIPED WATERCOURSE
- BUFFER
- EXISTING EASEMENTS
- EXISTING IMPERVIOUS SURFACES
- EXISTING TREES AND SHRUBS

Scale 1" = 20'

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Existing Conditions Map
8452 N Mercer Way
 City Of Mercer Island

Troy Werelius
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 Mercer Island, WA 98040

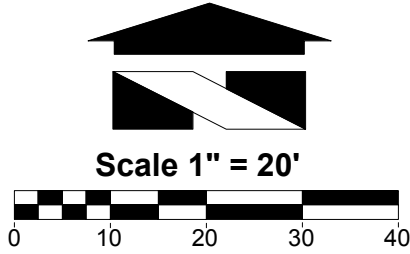
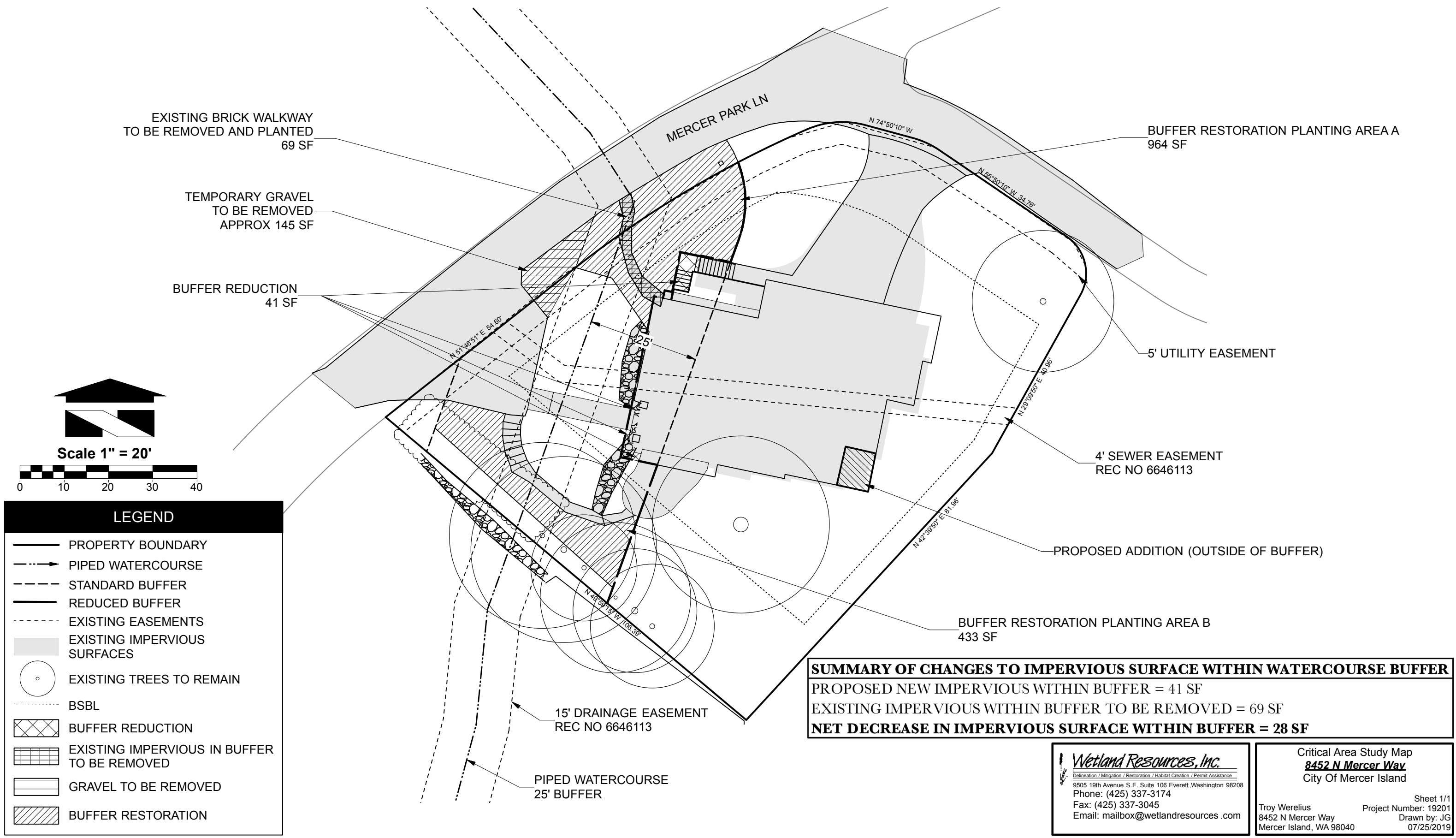
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 Drawn by: JG
 07/25/2019

APPENDIX B

CRITICAL AREA STUDY MAP

8452 N MERCER WAY

PORTION OF SECTION 7, TOWNSHIP 24N, RANGE 5E, W.M.



LEGEND	
	PROPERTY BOUNDARY
	PIPED WATERCOURSE
	STANDARD BUFFER
	REDUCED BUFFER
	EXISTING EASEMENTS
	EXISTING IMPERVIOUS SURFACES
	EXISTING TREES TO REMAIN
	BSBL
	BUFFER REDUCTION
	EXISTING IMPERVIOUS IN BUFFER TO BE REMOVED
	GRAVEL TO BE REMOVED
	BUFFER RESTORATION

SUMMARY OF CHANGES TO IMPERVIOUS SURFACE WITHIN WATERCOURSE BUFFER
 PROPOSED NEW IMPERVIOUS WITHIN BUFFER = 41 SF
 EXISTING IMPERVIOUS WITHIN BUFFER TO BE REMOVED = 69 SF
NET DECREASE IN IMPERVIOUS SURFACE WITHIN BUFFER = 28 SF

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Critical Area Study Map
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