



Formerly DCG/Watershed

Critical Area Report

West Residence

13824 W LAKE KATHLEEN DRIVE, RENTON, WA

MARCH 2026



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The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria report. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

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1. Introduction

The purpose of this report is to document compliance with the requirements in the King County Code (KCC) for the construction of a septic system for a new single-family residence. This project spans across two parcels located in unincorporated King County. Parcels 1823069080 (Western Parcel) and 1823069049 (Eastern Parcel) comprise the project area. A Category III wetland is present on the Western Parcel (Wetland A). A mitigation plan addressing shoreline and buffer impacts associated with the proposed single-family residence on the Eastern parcel has been prepared by MacWhinney in January of 2024. Within the *Impact Assessment* section (p. 5), the proposed home and on-site septic system improvements are evaluated, and appropriate mitigation measures are identified to address potential impacts. Therefore, this report only provides an analysis of the proposed off-site septic system improvements relative to the requirements of KCC Chapter 21A.24 Critical Areas. For additional detail regarding critical area impacts associated with the single-family residence, please refer to the MacWhinney Mitigation Report provided in Appendix A.

The proposed project will result in short-term temporary alteration impacts to Wetland A and the wetland buffer. Temporary construction impacts to Wetland A, and the wetland buffer will be restored in place at a 1:1 ratio. Mitigation sequencing and proposed restoration will ensure no net loss of critical area functions.

This report includes the findings of a Mitigation Plan completed by MacWhinney Environmental Consulting dated January of 2024 (Appendix A) and a wetland and stream delineation report completed by MacWhinney Environmental Consulting, dated April 6, 2021 (Appendix B), and an approved on-site sewage disposal plan by David Huard, dated January 22, 2022 (Appendix C). A Restoration Planting Plan is included in Appendix D.

2. Existing Conditions

2.1 Project Location

The project area is in Section 18, Township 23N Range 06E at 13904 184th Ave. SE in Renton, WA in unincorporated King County. The project area, containing both parcels, is a total of 3.02 acres. The subject property is approximately 2.72 acres in size. The study area, located on the east side of the property, is approximately 1 acre in size.

For purposes of this report, the following terms are defined and used consistently to describe the applicable areas of analysis:

- **Project Area:** The full extent of the proposed project, inclusive of both associated parcels.
- **Subject Property:** The parcel that is the subject of this Critical Areas Report.

- **Study Area:** The specific area evaluated for potential impacts, including the location of proposed off-site septic system improvements and area on the Subject Property where wetlands are present.

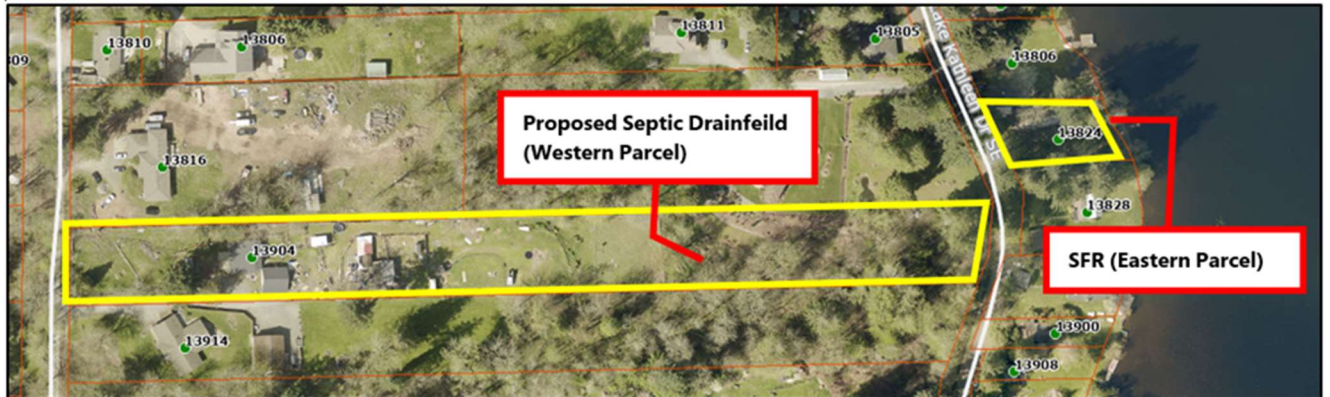


Figure 1. Project Area



Figure 2. Subject Property

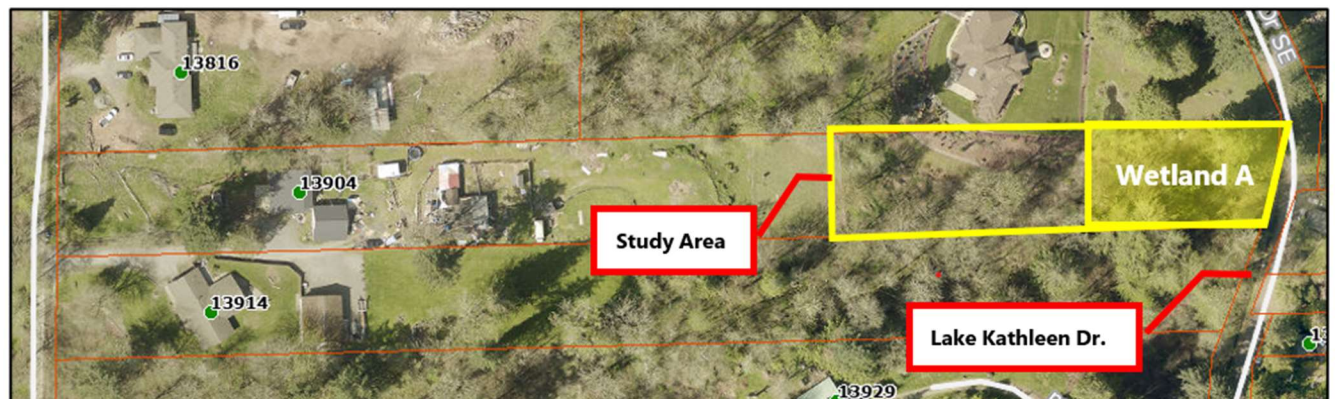


Figure 3. Study Area

2.2 Site Description

The project area is in the Lake Washington-Sammamish River subwatershed (HUC 171100120400) of the Cedar-Sammamish Water Resource Inventory Area (WRIA 8).

The subject parcel, which is not owned by the applicant, contains a single-family residence and outbuildings. The property slopes down to the east from a high elevation of approximately 580 feet to 540 feet where the parcel meets Lake Kathleen Road prism. The westerly half of the road prism and shoulder slope to the west. Wetland areas on the subject parcel contain western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), hardhack (*Spiraea douglasii*), salmonberry (*Rubus spectabilis*), and false lily of the valley (*Mainthemum dilatatum*). The adjacent upland buffer contains western red cedar (*Thuja plicata*), red huckleberry (*Vaccinium parvifolium*), Indian plum (*Oemleria cerasiformis*), salal (*Gaultheria shallon*), Himalayan blackberry (*Rubus armeniacus*), and western swordfern (*Polystichum munitum*) (MacWhinney, 2021).

The subject property and surrounding parcels are zoned as RA-5. The surrounding parcels are developed with single-family homes, outbuildings and garages. The most easterly property line of subject parcel is approximately 200 feet west of Lake Kathleen, outside of shoreline jurisdiction.

The Department of Ecology lists Lake Kathleen as a Category 5 (303d) impaired water for the parameter of total phosphorus.

3. Critical Area Review

3.1 Wetlands

Wetland A is located on the east end of the subject property and runs along the base of the Lake Kathleen Road prism slope. Wetland A is a palustrine scrub-shrub and palustrine forested wetland (MacWhinney, 2021). It extends approximately 175 feet west from Lake Kathleen Road toward the single-family home. The delineated portion of the wetland is confined by the northern and southern property lines.

Additional information is provided in the Wetland and Stream Delineation Report (Appendix B).

3.2 Streams

King County iMap and PHS identifies the closest stream as being May Creek, located approximately 520 feet north of the northern boundary line of the subject property. The Wetland and Stream Delineation Report, completed by MacwWinney in 2021, does not identify any streams present on site.

3.3 Priority Species

The study area was assessed for the presence of wildlife habitat conservation areas (WHCA) are defined under KCC 21A.24.382. In addition to the species habitats individually listed under this provision, active

breeding sites for all federally and state-listed endangered, threatened, sensitive, and candidate species are also identified as wildlife habitat conservation areas. An analysis of the likelihood of species presence in the project area is found in Table 1.

Table 1. Analysis of Potential Species and Habitat Presence in the Project Vicinity.

Species	Protected Status	Habitat Association	Habitat & Species Presence
Oregon spotted frog (<i>Rana pretiosa</i>)	Federally threatened, state endangered	Large shallow wetland systems associated with a stream or stream network; breeding habitat is in seasonally flooded margins of wetlands and areas of extensive shallows	Assumed no presence. On-site wetland is not associated with a stream network.
Canada lynx (<i>Lynx canadensis</i>)	Federally threatened, state endangered	Cold, snowy areas with deep snow persistent into the spring.	No presence. Suitable habitat is not present in the project vicinity.
Grey wolf (<i>Canis lupus</i>)	State endangered	Habitat generalists found in forests, grasslands, shrublands, tundra and deserts. Require sufficient ungulate populations to support the pack.	No presence. Dense urban and suburban areas with high habitat fragmentation are not suitable habitats. Nearest known pack, the Teanaway Pack, is located more than 50 miles east.
Fisher (<i>Pekania pennanti</i>)	State endangered	Upland and lowland forests, primarily in dense coniferous or mixed forests, with dense overhead cover. They generally avoid areas with little forest cover or significant human disturbance and conversely prefer large areas of contiguous interior forest	No presence. Dense urban and suburban areas with high habitat fragmentation and no large, dense, contiguous forests are not suitable habitat.
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Federally threatened	Old-growth and mature forests within 50 miles of marine waters. Large diameter conifer trees with a minimum four-inch-thick lateral branches with moss and lichens for nesting.	No presence. Dense urban and suburban areas with high habitat fragmentation and no mature or old-growth conifer forests are not suitable habitat. No suitable nesting trees present.
Northern spotted owl (<i>Strix occidentalis</i>)	Federally threatened	Large, contiguous old-growth and mature coniferous forests, typically more than 5,000 acres. Presence of large cavity snags and occasional forest openings are required.	No presence. Dense urban and suburban areas with high habitat fragmentation and no large, contiguous, old-growth or mature forests are not suitable habitat.
Vesper sparrow (<i>Pooecetes gramineus affinis</i>)	State endangered	Sparsely vegetated grasslands, savannahs, and prairies.	No presence. Suitable habitat is not present in the project vicinity.

Bald eagle (<i>Haliaeetus leucocephalus</i>)	King County wildlife habitat conservation area	Nests near coastlines, rivers, large lakes, or streams in tall, mature, or old-growth trees; snag; cliffs; rock promontories; sometimes humanmade structures	No eagle nests mapped on, or adjacent to, the project vicinity. No suitable trees or habitat will be impacted.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	King County wildlife habitat conservation area	Roosts and hibernaculum may be found in caves and mines, cliffs, talus, boulders, buildings, bridges, trees and snags with cavities or crevices, habitat generalist for foraging. Applies to nursery colonies outside the UGA.	WHCA not present. No suitable trees or habitat will be impacted.
Great blue heron (<i>Ardea herodias</i>)	King County wildlife habitat conservation area	Nests in forest stands near large lakes, wetlands, or mudflats, but may also occur near rivers.	Species potentially present. No suitable trees or habitat will be impacted.
Osprey (<i>Pandion haliaetus</i>)	King County wildlife habitat conservation area	Nests in treetops, on utility poles, and on constructed nest stands or other man-made features with open access and views near large bodies of water.	No suitable trees or habitat will be impacted.
Northern goshawk (<i>Accipiter gentilis</i>)	King County wildlife habitat conservation area	Mature coniferous forests. Applies to nests outside the UGA.	WHCA not present, project area is located inside the UGA.
Peregrine falcon (<i>Falco peregrinus</i>)	King County wildlife habitat conservation area	Nests on cliffs or artificial structures with ledges, usually near bodies of open water, generally near mountainous or rocky overhangs and sometimes on man-made structures such as buildings and bridges.	Suitable habitat is not present. No cliffs, ledges or open water near mountainous landscape are present in the project vicinity.
Vaux's swift (<i>Chaetura vauxi</i>)	King County wildlife habitat conservation area	Forages in open skies over forests, lakes, and rivers, where insects are abundant. Nesting normally takes place in mature or old-growth forest where large snags, preferably at least 27 inches DBH with cavities of approximately 20 inches in length are available. Applies to nests outside the UGA.	Species potentially present. No suitable trees or habitat will be impacted.
Common loon (<i>Gavia immer</i>)	State sensitive	Clear, low-turbidity lakes containing both shallow and deep-water areas. Nest sites are located on small lake islands or marshy shores with good cover.	No presence. Suitable habitat is not present in the project vicinity.
Steelhead (<i>Oncorhynchus mykiss</i>)	Federally threatened	Streams, lakes, and other freshwater ecosystems, and marine ecosystems	Presence possible in Lake Kathleen. Lake Kathleen is outside of the action area.

Bull trout (<i>Salvelinus confluentus</i>)	Federally threatened	Anadromous life history in both marine and freshwater ecosystems. Require cold, clean headwater streams for spawning.	Presence unlikely. Poor water quality, as identified in Lake Kathleen, is not suitable for bull trout.
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	Federally threatened	Anadromous life history in both marine and freshwater ecosystems. Prefer the mainstems of rivers and larger tributaries.	No presence. Suitable habitat is not present in the project vicinity.
Olympic mudminnow (<i>Novumbra hubbsi</i>)	State sensitive	Quiet waters with mud or dark bottoms, usually well-vegetated areas and areas under overhanging banks, especially in marshy streams and brownish water of bogs and swamps; also disturbed habitats such as roadside ditches and eutrophic waters. The species does not occur in otherwise suitable areas that have introduced spiny-rayed fishes.	No presence. Suitable habitat is not present.
Pygmy whitefish (<i>Prosopium coulterii</i>)	State sensitive	Lakes and flowing waters of clear or silted rivers of mountainous country. Prefer cold waters less than 10° C	No presence. Suitable habitat is not present.

4. Local Regulations

4.1 Shorelines

Shorelines within King County are regulated pursuant to KCC 12A.25 – Shorelines. A comprehensive shoreline regulatory analysis for the Eastern Parcel, which is located within shoreline jurisdiction, is provided in the Mitigation Plan prepared by MacWhinney Environmental (Appendix A). All other project components are located outside of the 200-foot shoreline jurisdiction of Lake Kathleen..

4.2 Wetlands

King County regulates wetlands according to KCC 21A.24 – Critical Areas. Wetlands in King County are classified using the 2014 Update to the Western Washington Rating System (Publication #23-06-009) (Rating System). According to the KCC, wetlands are classified as one of four categories based on the Rating System. Wetland buffers in King County are established based on a combination of wetland category, the habitat score, proximity to the urban growth area, and the intensity of the adjacent land use.

Under King County regulations, Wetland A is a Category III wetland with a habitat score of five points (Macwhinney, 2021), adjacent to a moderate land-use intensity. It is prescribed a standard buffer of 60 feet in accordance with KCC 21A.24.325.A.1.

Pursuant to KCC 21A.24.045, the construction of a new on-site sewage system is an allowed use within a wetland or its buffer, provided that it is not located within a severe channel migration zone, no feasible alternative location exists with less adverse impact to the critical area, and impacts to the buffer and vegetation clearing are minimized to the maximum extent practicable. Notwithstanding this allowance, all such uses are required to demonstrate compliance with mitigation sequencing, as described in Section 4.2.

4.3 Setbacks

King County requires a 15-foot building and structure setback from the edges of all critical area buffers per KCC 21A.24.200. When the site disturbance is within a critical area, the building setback shall be measured from the building footprint to the edge of the approved disturbance. The following are allowed in the building setback area: landscaping, uncovered decks, building overhangs, impervious ground surfaces such as driveways and patios, utility service connections, and minor encroachments if adequate protection of the buffer will be maintained.

5. Proposed Development

5.1 Project Description

Project includes the development of a septic system for a new single-family residence located on the Eastern Parcel. The septic line and drainfield will be developed on an adjacent parcel (King County parcel #1823069080), known herein as the subject property. The subject property, which is located approximately 60 feet south of the Eastern Parcel on the east side of West Lake Kathleen Road SE. The proposed septic line extends 42 feet from the southeast corner of the Eastern Parcel across Lake Kathleen Road, and 42 feet south along the westerly boundary line of the right-of-way until it meets the northeast corner of the subject property. This section of proposed drainpipe is situated within the 60-foot buffer of Wetland A. The septic drainpipe then continues west 385 feet along the northern boundary line of the subject property, through approximately 175 feet of Wetland A and 60 feet of its buffer, until it meets the proposed location of the septic drain field. The drainpipe is situated in a 10-foot easement once it leaves Eastern Parcel. The approved On-Site Sewage Disposal System plans completed by David Huard, can be found in Appendix C.

Mitigation and regulatory analysis associated with the Eastern Parcel have been previously completed in the Mitigation Plan prepared by MacWhinney Environmental (Appendix A) and are not addressed in the following sections of this report. Accordingly, the mitigation sequencing and restoration measures described herein are limited to impacts associated with the proposed septic drainfield and drainpipe on the subject property.

5.2 Mitigation Sequencing

5.2.1 Avoidance

The septic drain field cannot be proposed on the Eastern Parcel because the parcel does not contain sufficient land area to accommodate an on-site sewage system (OSS) for a new single-family residence, while meeting setback requirements. This is true even with applying minimum or reduced setbacks, regardless of the system type. Therefore, avoidance could not fully be achieved.

There will be no permanent direct impacts to the wetland or the wetland buffer. Alterations to approximately 875 square feet of Wetland A and 513 feet of its buffer are expected to be temporary, short-term alterations with no permanent fill. All disturbed areas will be revegetated and restored to pre-construction conditions.

5.2.2 Minimization

Where complete avoidance was not feasible, impacts have been minimized to the greatest extent practicable through a series of targeted measures. The proposed drainpipe installation will result in disturbance to approximately 875 square feet of Wetland A and 513 square feet of associated buffer; however, this impact is confined to a narrow linear corridor rather than a broad area of disruption. This effect does not represent a loss of wetland area or have any demonstrable effects on hydrologic or water quality functions of the wetland. Additionally, any large trees (18 inches in diameter – 2 feet above grade) must be left standing (Huard, 2022, p. 34), minimizing potential habitat loss. Excavation will be limited to a trench approximately three feet in width, with disturbance depth restricted to the upper 10–12 inches of soil. This will help to avoid disruption of deeper hydric soils and minimize alteration of wetland hydrology that could be impacted by soil compaction or composition.

5.2.3 Rectify

Following installation, all excavated areas will be promptly backfilled with native soil and restored to original contours for revegetation. Construction activities will occur during drier conditions, to the extent practicable, to reduce soil compaction and rutting. Temporary construction fencing and high-visibility flagging will clearly delineate approved limits of disturbance to prevent encroachment, and Best Management Practices (BMPs) for erosion and sediment control will be implemented to prevent sediment transport into adjacent wetland areas.

5.2.4 Reduce

Reducing the impact over time will include maintaining the proposed restoration plantings and preserving the revegetated site in perpetuity. This protective measure will reduce the amount of human impact, thereby protecting and preserving the area for its lifespan. If invasive species become present during the restoration plant establishment period, they will be removed to ensure the prosperity of the native plantings.

The proposed impact of installing the septic system transport line through critical areas and buffers can be reduced overtime by regularly servicing the septic system. This will ensure the longevity of the

system to prevent the need to replace the system prematurely or conduct large repairs that could result in disturbance within the wetland and/or buffer. Regular maintenance on a septic system will also prevent the leakage of untreated wastewater into the soil and groundwater.

5.2.5 Compensate

Because the impact is temporary in nature, limited in depth, and confined to a narrow trench with immediate backfill and restoration, permanent loss of wetland area or function is not anticipated. To compensate for temporary impacts, a restoration plan is discussed in detail in Section 6. Should post-construction monitoring determine that wetland vegetation or function has not returned to pre-project conditions, adaptive measures such as supplemental native planting within the disturbed corridor will be implemented to ensure no net loss of wetland function consistent with Washington State policy.

5.2.6 Monitor

Monitoring will commence the first year following planting. Monitoring of plantings requires annual inspections for up to 5 years following installation. Annual inspections will be performed during the growing season of each year. Additional details on monitoring can be found in Section 6.1.6.

6. Restoration Plan

Per KCC 21A.24.130, a restoration and monitoring plan has been included within this report to address temporary impacts to the wetland and wetland buffer as a result of the proposed development. All temporary wetland and buffer impacts will be restored to their predevelopment condition.

6.1.1 Overview

The proposed development includes 875 square feet of temporary impacts to Wetland A and 513 square feet of temporary impacts to the wetland buffer. All wetland and buffer impacts will be restored within one year. Therefore, additional compensatory mitigation under KCC 21A.24.340.C, temporary alterations, is not warranted. The temporary alteration impacts associated with installation of a buried drainpipe will be negligible to the long-term functionality of the wetland. The temporary impacts are confined to a trench corridor that will be immediately backfilled with native soil, restored to pre-construction contours, and include the placement of native plantings within Wetland A and the buffer for revegetation. Plant installation should take place in late fall or early spring following the conclusion of construction activities. Only native species that are compatible with the existing habitat types will be used, and all work will be conducted using low-impact methods to minimize disturbance to other species in the buffer. See Restoration Planting Plan in Appendix D.

6.1.2 Goals and Objectives

Goals:

1. Compensate for quantitative adverse impacts to critical areas and buffers.
2. Improve habitat functions within the modified buffer area and restore pre-project wetland functions.

Objectives:

1. Restore pre-existing surface elevations to maintain historic hydrologic patterns.
2. Preserve existing soils to the extent practicable by limiting excavation depth, immediately replacing native soils, and avoiding compaction.
3. Reestablish native vegetation, within the disturbed wetland and buffer, consistent with adjacent plant communities.
4. Reduce invasive species within the wetland and buffer.

6.1.3 Planting Schedule and Notes

Two different planting zones have been selected due to transition from buffer to wetland alterations. Wetland A, and most of its buffer, are within a forested area. Planting zone 1 is within the buffer. Planting zone 2 is within the wetland. Due to the shallow disturbance and permanent placement of the drainpipe within the wetland only 10-12 inches beneath the soil surface, shallow rooted herbaceous plantings were selected for revegetation and restoration of Wetland A and its buffer. These two zones, appropriate for a forest understory, are described in detail below. Please refer to Appendix D for a site map depicting the planting zones and proposed footprint of the disturbance.

Installation

Planting should take place in the first dormant season following construction of the residence (October 15 to March 1). Plants should be installed in non-equidistant intervals, emulating plant growth in a natural habitat. Planting shall occur within the restoration areas depicted in the Restoration Planting Plan in Appendix D.

Plant Selection

All plant materials recommended in this plan are typically available from local and regional sources, depending on seasonal demand. Plants shall be obtained from a reputable, local nursery. Receipts or written documentation from the plant supplier verifying plant species and quantities shall be retained for preparation of the as-built report.

Tables 2 and 3 provide a list of suitable native plant species and quantities to plant in the restoration areas. Any substitutions for species in this list should be native to western Washington and have similar habitat preferences. All substitutions shall be approved by the County. Stock size shall consist of one-gallon containers and plugs. A minimum of 20 percent of plants shall be one-gallon containers.

Planting Zone 1: Restoration of Wetland Buffer (513 SF)

As noted above, portions of planting zone 1 are within a forested area. The buffer area directly abutting the wetland edge shall be planted with herbaceous, perennial and grass-like species known for shallow root systems and nutrient uptake. Additionally, the project proposes to remove invasive species, such as Himalayan blackberry (*Rubus armeniacus*), from the easement area within the wetland buffer to allow prosperity for the native plantings. The native herbaceous species will enhance approximately 513 square feet of wetland buffer. As this area already contains patches of dense vegetation, the spacing is the minimal recommended.

Table 2. Table of Planting Zone 1

PLANTING ZONE 1	COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	# OF PLANTS
	SALAL	<i>Gaultheria shallon</i>	FACU	3 ft on center	35
	YARROW	<i>Achillea millefolium</i>	FACU		40
	OAK FERN	<i>Gymnocarpium dryopteris</i>	FAC		15
	SWORDFERN	<i>Polystichum munitum</i>	FACU		35
	FALSE LILLY OF THE VALLEY	<i>Maianthemum dilatatum</i>	FAC		15

Planting Zone 2: Restoration of Wetland A (875 SF)

Planting zone 2 will also consist of herbaceous, perennial and grass-like species selected based on their wetland functions and survivability on this site. Plants will be arranged to simulate natural, asymmetric vegetation establishment patterns. Species will be planted 3 feet apart in a triangular planting pattern. These plantings will enhance approximately 875 square feet of Wetland A.

Table 3. Table of Planting Zone 2

PLANTING ZONE 2	COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	# OF PLANTS
	SLOUGH SEDGE	<i>Carex obnupta</i>	OBL	3 ft on center	36
	GOLDEN BLUE-EYED GRASS	<i>Sisyrinchium californicum</i>	FACW		26
	SKUNK CABBAGE	<i>Lysichiton americanum</i>	OBL		36
	NORTHERN LADY FERN	<i>Athyrium filix-femina</i>	FAC		56
	SILVERWEED	<i>Potentilla anserina var. pacifica</i>	OBL		26
	OAK FERN	<i>Gymnocarpium dryopteris</i>	FAC		36
	THICK-HEAD SEDGE	<i>Carex pachystachya</i>	FAC		36

6.1.4 Performance Standards

1. Plant survival: 90% of planted species will survive or be replanted after the first year of planting. 80% survival rate will be attained during the remaining monitoring period.
2. Maintenance of the restoration area shall occur at least annually, or more often as needed.

3. Invasive noxious weed species shall not comprise more than 10% of the restoration area in any monitoring year. Noxious weeds include all Class A, B, and C weeds as listed by the King County Noxious Weed Control Board.

6.1.5 Maintenance

Maintenance of the restoration area should be conducted as needed throughout the monitoring period. Maintenance shall occur at least twice yearly and at a minimum should include:

1. Removal and replacement of all dead or dying plantings. This should be evaluated in the fall and plant replacement should occur during the late fall or winter (dormant season). Removed/replaced plantings should be documented in the annual monitoring report.
2. Removal of non-native, noxious weed species should be completed. Remove all competing weeds and weed roots from beneath each installed plant. Frequent weeding will result in lower mortality, lower plant replacement costs, and increased likelihood of meeting performance standards at the end of the monitoring period. More frequent weeding may be necessary.
3. Irrigation is necessary during the first two growing seasons and should occur as needed throughout the 5-year monitoring period. This should include at least an inch of water per week period during the dry months of the growing season.

Additional maintenance may include the application of slow-release fertilizer or replacement of mulch.

6.1.6 Monitoring

The monitoring program is designed to track the success of the restoration site over time and to measure the degree to which it is meeting the performance standards outlined in Section 6.1.4 of this report. Annual monitoring reports will be prepared by the homeowners, or qualified professional, and will be submitted to the County until the monitoring period is complete. Monitoring shall occur for a minimum period of five (5) years after the implementation of this plan.

An as-built plan will be prepared prior to the beginning of the monitoring period. This report shall be submitted within 90 days of plant installation. The as-built plan will document complete installation, date(s) of installation, and any departures in plant placement or other minor deviations from the proposed plan. Photo points and installed plant counts will also be documented in the as-built report.

The annual report should be submitted to the County by December 31 of each monitoring year and should include the following:

1. Plant counts: Counts of dead plants, by species, in all restoration areas. Herbaceous plant counts will be counted by percent survival.
2. Invasive noxious weed cover: Percent cover.
3. Photos: Photos from established photo points.

6.1.7 Contingency Plan

If monitoring results indicate that performance standards are not being attained for any monitoring year, replanting may be necessary. However, some of the planted species may need to be substituted with other species for one reason or another. A longer monitoring period may be required by the County based on this initial restoration plan or review of subsequent monitoring reports. If monitoring indicates that the project has failed, in whole or in part, and if that failure is beyond the scope of routine maintenance, the applicant will work with the County to prepare a contingency plan to be implemented. Contingency plans can include, but are not limited to: soil amendment, additional plant installation, and plant substitutions of type, size, quantity, and location.

6.1.8 Site Protection

The County shall require the applicant to record a copy of the approved restoration plan, along with a notice to title referencing the plan. This will provide long-term protection of the restoration area. A total of 1,388 square feet of construction-related temporary alteration impacts are proposed. Temporary wetland and wetland buffer impacts will be restored in place according to the Restoration Planting Plan (Appendix D).

7. Conclusion

The proposed development includes the extension of a septic drainpipe from a single family residence to an adjacent parcel where the construction of the drainpipe will temporarily alter the wetland and wetland buffer. Construction activities will result in 1,388 square feet of temporary impacts to a wetland and wetland buffer. The disturbed area will consist of a narrow, shallow trench. Impacts will be mitigated with immediate backfill and restoration. Permanent loss of wetland area or function is not anticipated. Implementation of this restoration plan will ensure restoration of pre-project conditions and compliance with Washington State's mitigation sequencing requirements and no-net-loss policy.

References

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APPENDIX A. Mitigation Plan (MacWhinney
Environmental)

Mitigation Report

Parcel 182306-9034



Prepared for Gina Weigum

January 23, 2024


macwhinney
ENVIRONMENTAL CONSULTING LLC
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Introduction

This report presents a mitigation plan for proposed activity on parcel 182306-9034. The parcel is 0.3 acres. One mobile home is present on the parcel. The owner proposes to replace the mobile home with a new house that would increase the interior living space over existing.

The purpose of this document is to describe existing conditions, proposed development, and proposed mitigation.

Site Description

The parcel is zoned RA5 and situated in a rural portion of unincorporated King County east of the City of Renton. The property is on Lake Kathleen, which forms the east property boundary. Adjacent parcels are developed with single-family residences, as is most of the shoreline of Lake Kathleen. The site is dominated by maintained lawn, with a few large trees along the property boundaries.

The site is in the May Creek drainage basin within the Cedar Sammamish Water Resource Inventory Area (WRIA 8). Lake Kathleen is a Type S aquatic area, and its' shoreline is considered a shoreline of the state with the designation of Rural. No wetlands or streams are present on the parcel. Photos of the parcel are provided on the cover page, and Figure 1.

Lake Kathleen is a shallow, approximately 49-acre freshwater lake surrounded by single-family homes. The outlet is at the north end of the lake and flows north to May Creek. The lake supports fish and has a regulatory buffer of 165 feet. It is also considered a shoreline of the state, with a Rural Shoreline designation.



Figure 1. Looking west from shoreline.

Regulatory Context

The owners propose to replace the existing one-story mobile home with a new one-story house. The proposed new home will include approximately 923 square feet more floor space than the existing mobile home. King County Code 21A.24.045 D 7 allows an addition/replacement of up to 1,000 square feet of footprint within the 165-foot buffer, provided the specific criteria are met. These are addressed in Table 1.

The Shoreline Code (21A.25.210) allows expansion of a dwelling unit or residential accessory structure located in the shoreline jurisdiction, if allowed under K.C.C.

21A.24.045, subject to the following:

- A. If the proposed expansion will result in a total cumulative expansion of the dwelling unit and accessory structures of more than one thousand square feet, a shoreline variance is required.
- B. If the site has an approved rural stewardship plan under K.C.C. 21A.24.055, the expansion is not allowed.

The shoreline code does not specify whether the square footage is interior living space or building footprint, and different reviewers have interpreted this differently. This project proposes just under 1,000 s.f. of interior living space.

Table 1. Criteria for 1,000 s.f. addition

Criteria (21A.24.045 D 7)	Comment
a. the expansion or replacement does not increase the footprint of a nonresidential structure;	N/A.
b.(1) for a legally established dwelling unit, the expansion or replacement, including any expansion of a legally established accessory structure allowed under this subsection B.7.b., does not increase the footprint of the dwelling unit and all other structures by more than 1,000 s.f., not including any expansion of a drainfield made necessary by the expansion of the dwelling unit. To the maximum extent practical, the replacement or expansion of a drainfield in the buffer should be located within areas of existing lawn or landscaping, unless another location will have a lesser impact on the critical area and its buffer;	Meets criteria. Approximately 998 s.f. of increase over existing residence is proposed. Area is within existing lawn and no closer to lake than existing house.
(2) for a structure accessory to a dwelling unit, the expansion or replacement is located on or adjacent to existing impervious surface areas and does not result in a cumulative increase in the footprint of the accessory structure and the dwelling unit by more than one thousand square feet;	N/A
(3) the location of the expansion has the least adverse impact on the critical area; and	No alternative location that is not a critical area buffer.
(4) a comparable area of degraded buffer area shall be enhanced through removal of nonnative plants and	Proposed mitigation described in this report.

Criteria (21A.24.045 D 7)	Comment
replacement with native vegetation in accordance with an approved landscaping plan;	
c. the structure was not established as the result of an alteration exception, variance, buffer averaging or reasonable use exception;	Meets criterion.
d. to the maximum extent practical, the expansion or replacement is not located closer to the critical area or within the relic of a channel that can be connected to an aquatic area; and	Criterion met.
e. The expansion of a residential structure in the buffer of a Type S aquatic area that extends towards the ordinary high water mark requires a shoreline variance if: the expansion is within thirty-five feet of the ordinary high water mark; or the expansion is between thirty-five and fifty feet of the ordinary high water mark and the area of the expansion extending towards the ordinary high water mark is greater than three hundred square feet.	The expansion is greater than 50' from the ordinary high water mark.

Alternatives Analysis

The site is entirely encumbered by the aquatic buffer from Lake Kathleen. There are no alternative locations that would avoid impact to the lake buffer.

Impact Assessment

Project impacts are summarized in Table 2. Note: areas provided are based on information provided by drainage engineer and architect. The impact area is primarily maintained lawn.

Table 2. Summary of impacts (square feet).

Item	Impact	Removed	Net New Impact
Net new home area	1866	-868	998
New driveway	648	0	648
Drainage bmps	108	0	108
Septic improvements	141	0	141
Deck & stairs	0	-349	-349
Net New Impact			1546

Mitigation Overview

The mitigation proposal involves enhancing approximately 2772 square feet of area within the aquatic buffer by removing gravel and rip rap and planting native vegetation. This is anticipated to improve function over the existing condition. These elements are shown on the accompanying Planting Plan and described below. The existing condition of the area is shown in Figure 3.



Figure 2. Shoreline area to be restored.

Enhancement

The proposed permanent impact of 1546 square feet within the aquatic buffer is proposed to be mitigated by planting 6 trees and 106 shrubs in an area that is currently devoid of woody vegetation. This additional buffer planting is expected to offset the minimal impacts anticipated from the proposed activity.

Restoration Goals

Goals for this restoration project are to improve buffer function over existing

condition.

Restoration Objectives

The objectives of the mitigation are to offset impacts from house construction. Specifically:

- Stabilize soils;
- Restore shoreline health by removing hardscaping and replacing with native vegetation;
- Improve buffer quality over existing conditions by installing native shrubs and trees with increased structural and vegetative complexity; and
- Benefit water quality by providing complex root systems that will ultimately serve to slow and purify water before it enters Lake Kathleen.
- Augmenting soil as needed with compost to improve organic content and increase survivorship of planted specimens.
- Meet a set of performance standards appropriate to the functions and values of the aquatic buffer.

Functional Lift

Table 1 provides an assessment of existing function and anticipated functional lift for habitat, water quality, and hydrologic functions on the site.

Table 1. Assessment of functional lift.

Buffer Function	Existing Condition	Proposed Condition	Net Functional Change
Habitat	Very low vegetative species diversity; structural diversity limited to a low stratum of grass. Foraging and nesting are opportunities limited.	Increased vegetative diversity, in both composition and structure. Addition of native trees and shrubs. Removal of invasive species.	An immediate lift in wildlife cover, foraging, and nesting opportunities. Increasing habitat value as site matures.
Water quality	Gravel and rockery reduce ability to filtrate water before surface runoff reaches the wetland.	Increased stem density, increased plant foliage and foliage height diversity.	Filtration potential will improve with higher stem density and removal of hardscaping.
Hydrology	Low foliage limits transpiration rate. Low stem density limits flow attenuation of surface runoff to the wetland.	Increased stem density, increased plant foliage and foliage height diversity.	Transpiration will increase with increase in foliage. Increased stem density with aid flow attenuation.

Maintenance and Monitoring Plan

Maintenance and monitoring will be conducted for three years post-installation, or longer if standards are not met by Year 1.

Performance Standards

The mitigation will be measured against the following performance standards.

Survival:

100% of installed plants will be alive at the end of Year 1. Plants will be replaced as needed to achieve this standard. Native volunteer plants may count toward this standard.

At least 85% survival of installed plants will be achieved in Years 2 through 5.

Native woody vegetation cover:

60% cover of native trees and shrubs will be achieved by Year 3 within the mitigation area and maintained until Performance Standard 2.b (below) is met. Volunteer and existing plants may count towards this cover standard.

80% cover of native trees and shrubs will be achieved by the end of Year 3. Volunteer native plants may count towards this cover standard.

Native plant diversity: At least 4 native shrub species and 2 native tree species will be established in the mitigation area by the end of Year 3. Volunteer plants may count towards this standard.

Invasive cover: No more than 10% cover by invasive plants will be present in any stratum in any monitoring year.

Native plants will exhibit good health, vigor, and growth in each monitoring year.

Maintenance

Maintenance will take place twice yearly (or more often if necessary), in spring and fall, for the length of the monitoring period.

A temporary irrigation system will be installed in the rehabilitation area. Water will be delivered in the period from June 15 through September 15 (or as needed) at a minimum rate of 1 inch per week.

Dead mitigation plants will be replaced as needed during fall visits.

All invasive woody plants in the planting areas will be removed by hand or with light equipment during maintenance, including roots. No herbicides will be used.

Non-native herbaceous weeds will be removed to the dripline of installed plants.

Mulch rings will be replenished around installed plants to maintain a thickness of 3 inches to the dripline until plants are established.

Any litter, dumping, and non-native vegetation will be removed and disposed of properly off-site.

Damaged or missing fencing will be repaired or replaced upon discovery.

The mitigation will be measured against the following performance standards.

Methods and Reporting

Plant survival and native plant diversity will be documented by performing a full count of installed and volunteer plants in monitoring year 1.

Native vegetation cover and invasive plant cover will be measured by line-intercept along transects spanning the mitigation area. Transect length will be dictated by the width of the mitigation area. Five transects will be established in Year 1 and used in each monitoring year.

Four photograph points will be established in Year 1 and photographs submitted with each monitoring report.

Visual inspection will be used to determine plant health and vigor and to assess for structure damage and litter.

Monitoring reports will be submitted to Issaquah Planning and Development by October 31 of each monitoring year. Reports will include methods, results, analysis, and recommendations for maintenance and remedial actions. Any wildlife sign or presence will be noted.

Construction

Installation Oversight

MacWhinney and Associates or other qualified restoration professionals will conduct an initial inspection of plant material and monitor through periodic checks invasive species removal, plant and mulch placement, and soil preparation. After installation, any deviations from the Mitigation Plan will be documented, and documentation will be submitted to the City.

Work Sequence

Construction of the mitigation site will begin in the autumn following approval of the mitigation plan. The general sequencing of mitigation installation is as follows:

1. Use appropriate erosion control throughout construction.
2. Carefully remove rocks and top 3-inches of gravel at shoreline. Dispose of properly outside of buffer areas.
3. Install plants per typical container planting detail as shown on Plan Sheet 3 of the Mitigation Plan set.
4. Amend each planting pit with one shovelful of compost.
5. Water each plant thoroughly by hand/hose to remove air pockets.

6. Install a 3-inch-thick layer of coarse wood chip mulch around the base of each installed plant in an 18-inch-diameter circle. Mulch should not touch plant stems.
7. Water as necessary until plants are established. Supplement precipitation such that plants receive one inch of water per week during the growing season for at least three years.
8. Monitor the site for three years to ensure success of planted species.
9. Provide annual reports to King County.

Materials Specifications

Compost: 100% vegetable compost without non-organic materials.

Fertilizer: Slow release, granular, phosphorus-free may be applied in Years 2 and 3, not in Year 1. Follow manufacturer's instructions for use.

Irrigation system: Automated temporary above-ground system capable of meeting water delivery requirements as stated in the Mitigation Plan.

Mulch: Chipped woody material 1-3 inches in maximum dimension, without measurable quantities of soil, debris, or non-organic materials.

Contingency Plan

If there is a significant problem with the mitigation achieving its performance standards, the bond-holder shall work with the City of Issaquah to develop a Contingency Plan. Contingency plans can include, but are not limited to regrading, additional plant installation, erosion control, modifications to hydrology, and plant substitutions of type, size, quantity, and location. Such Contingency Plan shall be submitted to County by December 31 of any year when deficiencies are discovered.

Summary and Conclusions

The owners intend to replace the existing legal residence on this property with a new home that increases the interior living space by 923 s.f. This is an allowed alteration per KCC 21A.24.045. Unavoidable impacts are proposed to be mitigated by planting native vegetation along the shoreline of Lake Kathleen.

The information provided in this report represents best professional judgment regarding site conditions. However, King County staff is responsible for verifying the determinations offered in this report. Wetland mitigation can be a somewhat subjective process, since these are natural systems that are not always easily classified into human-made categories, and it is difficult to rapidly quantify both loss and future anticipated function. Human alteration, weather, and varying professional opinions may affect the location of wetland/stream boundaries and ratings, as well as mitigation proposals. The mitigation plan described in this report is the result of best-professional judgment and subject to modification until reviewed and approved by the governing jurisdiction.

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Department of Permitting
 Environmental Review
 35030 SE Douglas Str, Suite 210
 Snoqualmie, WA 98065-9266
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King County

**Critical Areas Mitigation
 Bond Quantity Worksheet**

C24 09/09/2015
 Is-wks-sensareaaBQ.xls
 Is-wks-sensareaaBQ.pdf

Project Name: Weigum **Date:** 1-Feb-24 **Prepared by:** MacWhinney

Project Number: **Project Description:** SFR

Location: 82306-9034 **Applicant:** Weigum **Phone:**

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	\$5.00	Each			\$ -
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	106.00		\$ 1,219.00
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each	6.00		\$ 120.00
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each			\$ -
PLANTS: Seeding, by hand	\$0.50	SY			\$ -
PLANTS: Slips (willow, red-osier)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Flats/plugs	\$2.00	Each			\$ -
TOTAL					\$ 1,339.00

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit	Quantity	Description	Cost
Compost, vegetable, delivered and spread	\$37.88	CY			\$ -
Decompacting till/hardpan, medium, to 6" depth	\$1.57	CY			\$ -
Decompacting till/hardpan, medium, to 12" depth	\$1.57	CY			\$ -
Hydroseeding	\$0.51	SY			\$ -
Labor, general (landscaping other than plant installation)	\$40.00	HR			\$ -
Labor, general (construction)	\$40.00	HR			\$ -
Labor: Consultant, supervising	\$55.00	HR			\$ -
Labor: Consultant, on-site re-design	\$95.00	HR			\$ -
Rental of decompacting machinery & operator	\$70.00	HR			\$ -
Sand, coarse builder's, delivered and spread	\$42.00	CY			\$ -
Staking material (set per tree)	\$7.00	Each			\$ -
Surveying, line & grade	\$250.00	HR			\$ -
Surveying, topographical	\$250.00	HR			\$ -
Watering, 1" of water, 50' soaker hose	\$3.62	MSF			\$ -
Irrigation - temporary	\$3,000.00	Acre			\$ -
Irrigation - buried	\$4,500.00	Acre			\$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	\$1.02	SY			\$ -
TOTAL					\$ -

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Fascines (willow)	\$ 2.00	Each			\$ -
Logs (cedar), w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each			\$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each			\$ -
Logs, w/o root wads, 16"-24" diam., 30' long	\$245.00	Each			\$ -
Logs w/ root wads, 16"-24" diam., 30' long	\$460.00	Each			\$ -
Rocks, one-man	\$60.00	Each			\$ -
Rocks, two-man	\$120.00	Each			\$ -
Root wads	\$163.00	Each			\$ -
Spawning gravel, type A	\$22.00	CY			\$ -
Weir - log	\$1,500.00	Each			\$ -
Weir - adjustable	\$2,000.00	Each			\$ -
Woody debris, large	\$163.00	Each			\$ -
Snags - anchored	\$400.00	Each			\$ -
Snags - on site	\$50.00	Each			\$ -
Snags - imported	\$800.00	Each			\$ -
TOTAL					\$ -

* All costs include delivery and installation

EROSION CONTROL

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Backfill and Compaction-embankment	\$ 4.89	CY			\$ -
Crushed surfacing, 1 1/4" minus	\$30.00	CY			\$ -
Ditching	\$7.03	CY			\$ -
Excavation, bulk	\$4.00	CY			\$ -
Fence, silt	\$1.60	LF			\$ -
Jute Mesh	\$1.26	SY			\$ -
Mulch, by hand, straw, 2" deep	\$1.27	CY			\$ -
Mulch, by hand, wood chips, 2" deep	\$3.25	SY	55.00		\$ 178.75
Mulch, by machine, straw, 1" deep	\$0.32	SY			\$ -
Piping, temporary, CPP, 6"	\$9.30	LF			\$ -
Piping, temporary, CPP, 8"	\$14.00	LF			\$ -
Piping, temporary, CPP, 12"	\$18.00	LF			\$ -
Plastic covering, 6mm thick, sandbagged	\$2.00	SY			\$ -
Rip Rap, machine placed, slopes	\$33.98	CY			\$ -
Rock Constr. Entrance 100'x15'x1'	\$3,000.00	Each			\$ -
Rock Constr. Entrance 50'x15'x1'	\$1,500.00	Each			\$ -
Sediment pond riser assembly	\$1,695.11	Each			\$ -
Sediment trap, 5' high berm	\$15.57	LF			\$ -
Sediment trap, 5' high berm w/spillway incl. riprap	\$59.60	LF			\$ -
Sodding, 1" deep, level ground	\$5.24	SY			\$ -
Sodding, 1" deep, sloped ground	\$6.48	SY			\$ -
Straw bales, place and remove	\$600.00	TON			\$ -
Hauling and disposal	\$20.00	CY			\$ -
Topsoil, delivered and spread	\$35.73	CY			\$ -
TOTAL					\$ 178.75

GENERAL ITEMS					
ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	\$18.89	LF			\$ -
Fencing, chain link, corner posts	\$111.17	Each			\$ -
Fencing, chain link, gate	\$277.63	Each			\$ -
Fencing, split rail, 3' high (2-rail)	\$10.54	LF			\$ -
Fencing, temporary (NGPE)	\$1.20	LF			\$ -
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each			\$ -
				TOTAL	\$ -
OTHER				(Construction Cost Subtotal)	\$ 1,517.75
ITEMS	Percentage of Construction	Unit			Cost
Mobilization	10%	1			\$ 151.78
Contingency	30%	1			\$ 455.33
				TOTAL	\$ 607.10
MAINTENANCE AND MONITORING <p style="font-size: small; margin: 0;">NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years.</p>					
Maintenance, annual (by owner or consultant)					
Less than 1,000 sq. ft. and buffer mitigation only	\$ 1.08	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Less than 1,000 sq. ft. with wetland or aquatic area mitigation	\$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq. ft. of buffer mitigation	\$ 180.00	EACH	3.00	(4hr @ \$45/hr)	\$ 540.00
Larger than 1,000 sq. ft. but less than 5,000 sq. ft. of wetland or aquatic area mitigation	\$ 270.00	EACH		(6hr @ \$45/hr)	\$ -
Larger than 5,000 sq. ft. but < 1 acre -buffer mitigation only	\$ 360.00	EACH		(8 hrs @ 45/hr)	\$ -
Larger than 5,000 sq. ft. but < 1 acre with wetland or aquatic area mitigation	\$ 450.00	EACH		(10 hrs @ \$45/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600.00	DAY		(WEC crew)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 2,000.00	DAY		(1.25 X WEC crew)	\$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq. ft. but less than 5,000 wetland or buffer mitigation	\$ 720.00	EACH	3.00	(8 hrs @ 90/hr)	\$ 2,160.00
Larger than 5,000 sq. ft. but < 1 acre with wetland or aquatic area impacts	\$ 900.00	EACH		(10 hrs @ \$90/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY		(16 hrs @ \$90/hr)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area impacts	\$ 2,160.00	DAY		(24 hrs @ \$90/hr)	\$ -
				TOTAL	\$ 2,700.00
Total					\$4,824.85



King County
 Department of Permitting
 and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- Zoning
- Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

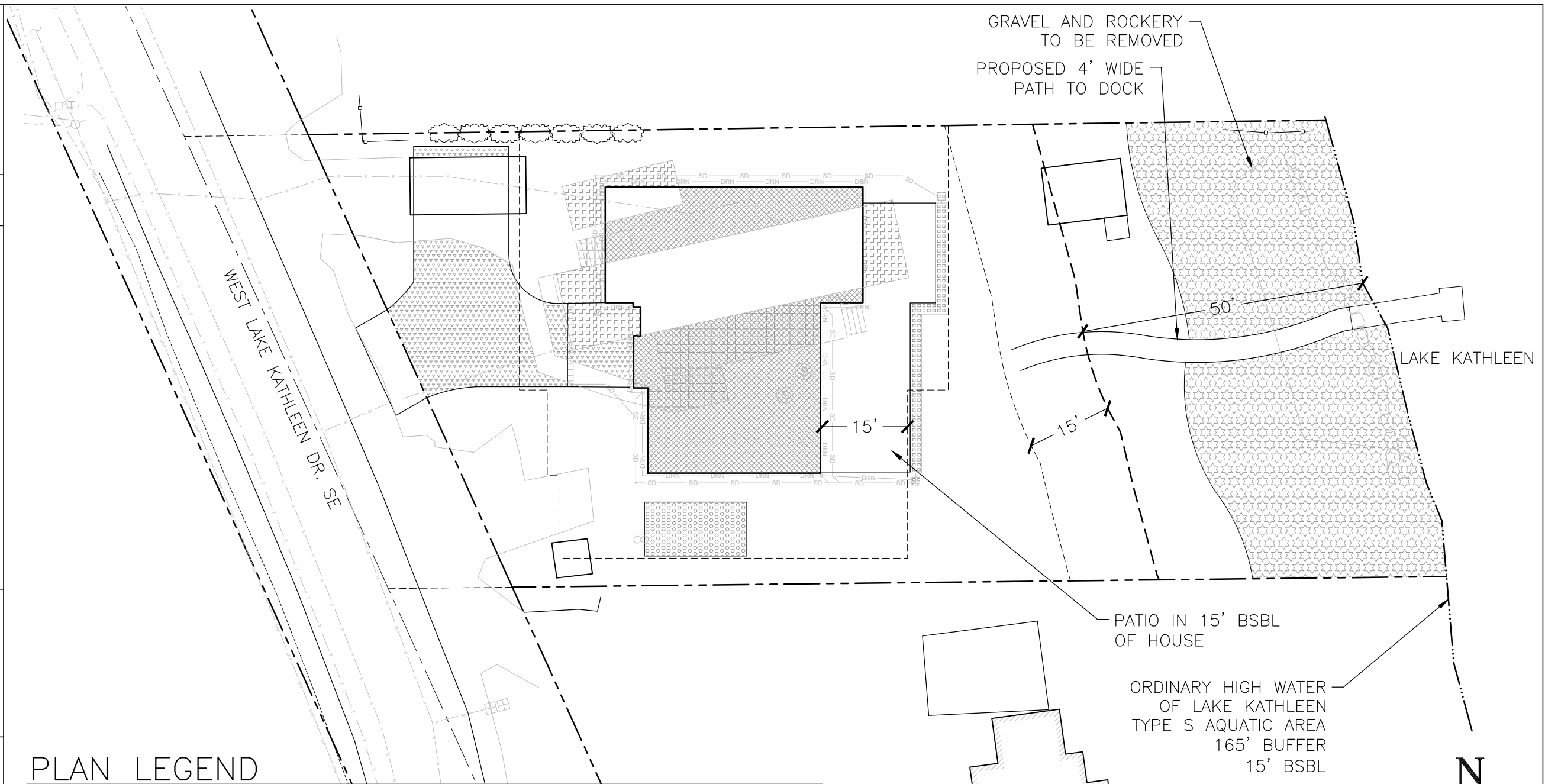
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Date: _____

Fire Approval

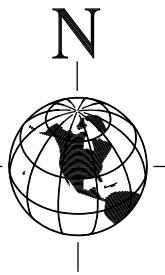
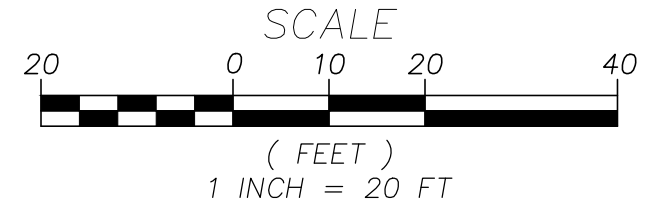
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Date: _____



PLAN LEGEND

	PROPERTY LINE
	ORDINARY HIGH WATER TYPE S AQUATIC AREA
	50' SHORELINE SETBACK
	165' AQUATIC BUFFER (ENTIRE PARCEL WITHIN AQUATIC BUFFER)
	15' BSBL
	NEW STRUCTURE - 1,866 SF
	STRUCTURE TO BE REMOVED - -868 SF
	NET NEW STRUCTURE - 998 SF
	NEW DRIVEWAY - 648 SF
	NEW DRAINAGE BMPS - 108 SF
	SEPTIC IMPROVEMENTS - 141 SF
	EXISTING DECK AND STAIRS TO BE REMOVED - -349 SF
	NET NEW IMPACT - 1,546 SF
	MITIGATION PLANTING AREA - 2,772 SF



NOTES

1. BASE INFORMATION PROVIDED BY ENCOMPASS, 165 JUNIPER STREET, SUITE 201, ISSAQUAH, WA 98027, 425.392.0250.

SITE PLAN IMPACTS & MITIGATION

Permit Number: _____ Parcel Number: 1823069034

Applicant Name: WEIGUM

13824 WEST LAKE KATHLEEN, KING COUNTY, WA 98059
 Site Address: _____

Engineering Scale: 1" = 20'

Sheet 2 of 5



King County
 Department of Permitting
 and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- Zoning
- Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

Date: _____

Fire Approval

Signature: _____

Date: _____

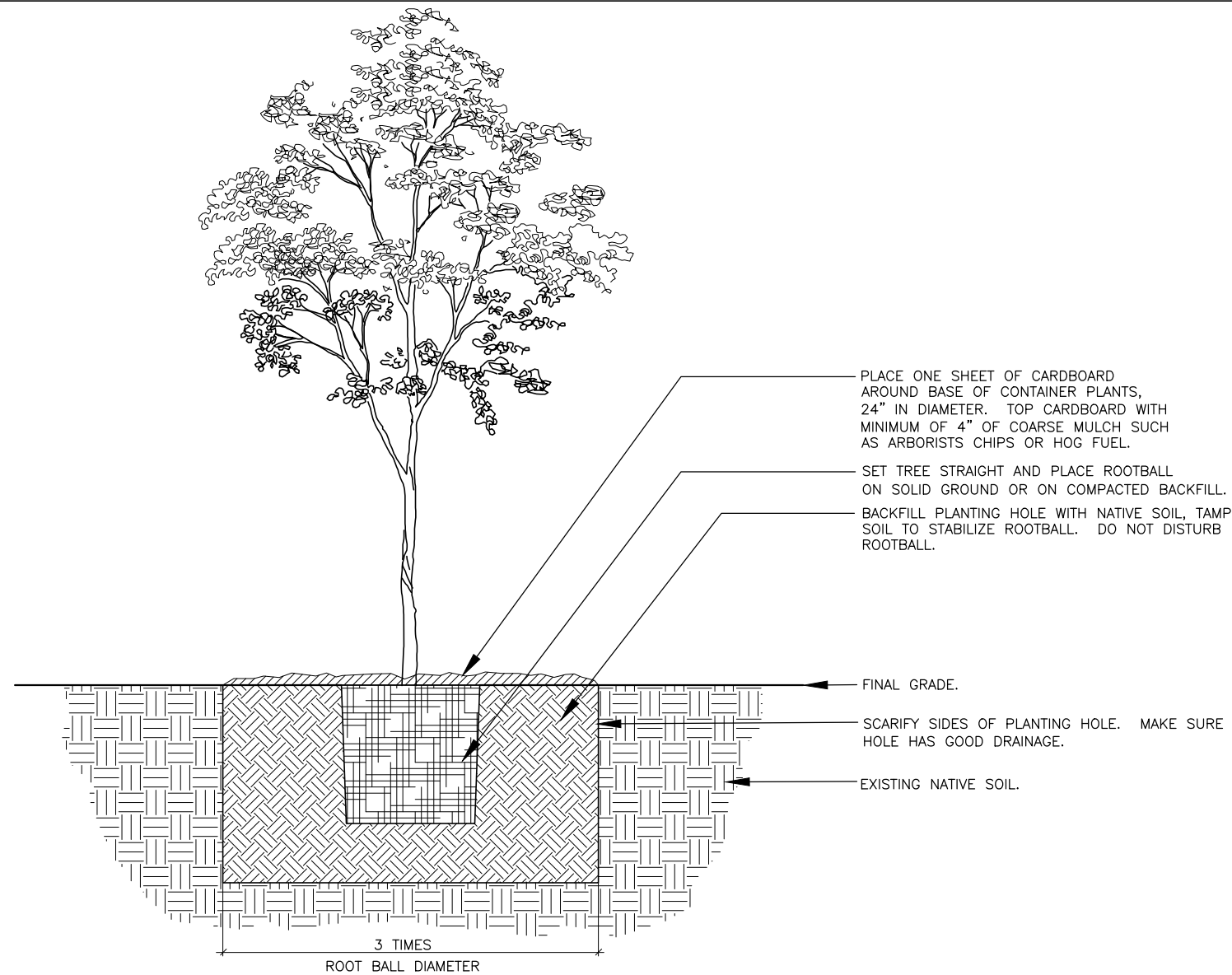
Permit Number: _____ Parcel Number: 1823069034

Applicant Name: WEIGUM

Site Address: 13824 WEST LAKE KATHLEEN, KING COUNTY, WA 98059

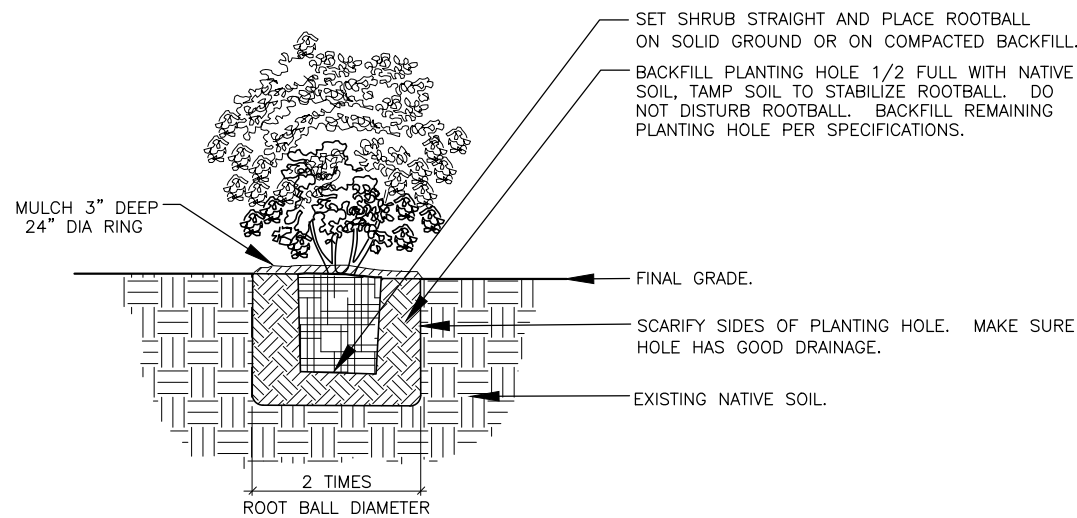
Engineering Scale: 1" = _____

Sheet 4 of 5



1 TREE PLANTING

Scale: NTS



2 SHRUB PLANTING

Scale: NTS

PLANTING DETAILS



King County
 Department of Permitting
 and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- o Zoning
- o Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

Date: _____

Fire Approval

Signature: _____

Date: _____

SPECIFICATIONS

CONSTRUCTION/SPECIFICATIONS

- Prior to construction, the limits of work will be clearly staked at 20-foot intervals and all temporary erosion and sedimentation controls in place.
- Activity on steep slopes must be minimized and shall not occur during wet, rainy periods. Prior to weed removal or planting activities, erosion control must be installed near the stream edges, using compost socks or straw wattles.
- Prior to planting, remove Himalayan blackberry, and other noxious weeds (per King County Noxious Weed List) in areas to be planted. Do not remove roots of invasive plant roots on the wetland slopes.
- Areas of compacted soil (near the parking area) shall be restored. Gravel shall be removed and the subsoil replaced with a quality topsoil or amended to allow for 15 inches of a plantable medium.
- Areas vegetated lawn grasses and ivy that are not on slopes shall be covered in cardboard and mulched with 4 inches of coarse wood chips.
- Plants in other areas of site shall be mulched with a 24" mulch ring.
- Species substitution shall not be made without approval of wetland biologist.
- Plants shall be locally grown (western Washington or Oregon), of normal health, vigorous, and free of weeds, diseases, insects, insect eggs and larvae.
- Container grown plants shall not be loose in container and shall not be pot-bound.
- B&B plant material shall not have cracked or mushroomed root balls. Root balls shall be firm, natural balls of earth of sufficient size to encompass the fibrous and feeding rooting system necessary for establishment and health of plant.
- Do not prune plants prior to delivery or planting.
- Take all precautions and customary good trade practices in preparing plants for transport. Cover plants transported on open vehicles with a protective covering to prevent wind burn.
- Protect plants from drying out. Bare root and B&B plant material shall have their roots kept moist at all times. Protect from freezing, wind, and sun. If planting is delayed by more than 24 hours, cover roots/root balls with sawdust, compost, or soil. Water plants as necessary.
- Water plants within 24 hours of planting.
- All receipts for labor and materials shall be retained for submittal to the City if requested.
- The bond holder shall replace any plants that die within the first year following approval of installation.

SHRUB AND TREE SOURCES

STORM LAKE GROWERS
 MONROE, WA
 (360) 794-4842

TADPOLE HAVEN NATIVE PLANTS
 WOODINVILLE, WA
 (425) 788-6100

OXBOW FARMS
 CARNATION, WA
 (425) 788-1134
 EXT. 4

KING COUNTY CONSERVATION DISTRICT
[HTTP://KINGCD.ORG/PROGRAMS-NATIVE-WALK-UP-SALE.HTM](http://kingcd.org/programs-native-walk-up-sale.htm)

SPECIFICATIONS

Permit Number: _____ Parcel Number: 1823069034 Applicant Name: WEIGUM Site Address: 13824 WEST LAKE KATHLEEN, KING COUNTY, WA 98059

Engineering Scale: 1" = _____

Sheet 5 of 5

APPENDIX B. Wetland and Stream Delineation
Report (MacWhinney
Environmental)

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APPENDICES

Appendix A: Wetland Rating Form & Figures

Appendix B: Data Sheets

Appendix C: Site Plan

Introduction

This report presents the results of a critical areas study conducted on a portion of parcel 1823069080. The total parcel area is 2.72 acres. The lot currently is developed with a house and outbuildings. Only the eastern end of the property was reviewed. The purpose of the review was to determine the feasibility of placing a drainfield for a nearby parcel on this property.

Site Description

The portion of the site that was evaluated is approximately an acre in size, and slopes down to the east, from a high elevation of approximately 580 feet, to 540 feet where the site meets West Lake Kathleen Drive. The parcel is zoned RA-5.

Methods

Prior to conducting a site visit, aerial photographs, topography maps, and the NRCS Soil Survey were reviewed. The site was subsequently evaluated during a field visit on April 1, 2021, using the methods described in the Corps of Engineers 1987 Wetland Delineation Manual, as required by King County Code. Wetlands and streams were identified and rated using criteria in King County Code 21A.24, the 2014 Wetland Rating form for Western Washington. Soil pits were hand-excavated to help determine the wetland boundary; some of these were formally documented and attached to this report. Regulated features were marked in the field with pink plastic flagging printed with “Wetland Delineation”. Wetland boundaries were located using a hand-held GPS unit.

Results

A wetland is present at the east end of the site. The wetland would be classified as a palustrine scrub shrub and palustrine forested community based on the Cowardin rating system, and in the depressional hydrogeomorphic class. A photo of the wetland area is shown in Figure 1.

Vegetation in the wetland includes western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), hardhack (*Spiraea douglasii*), salmonberry (*Rubus spectabilis*), and false lily of the valley (*Mainthemum dilatatum*). The adjacent upland buffer contains western red cedar (*Thuja plicata*), red huckleberry (*Vaccinium parvifolium*), Indian plum (*Oemleria cerasiformis*), salal (*Gaultheria shallon*), Himalayan blackberry (*Rubus armeniacus*), and western swordfern (*Polystichum munitum*).

Soils at the site are mapped as Alderwood gravelly sandy loam. This is not a hydric soil; however, it is not unusual to find hydric soils within larger mapping units due to the scale of the mapping effort. Soils within the wetland are dark brown to black silty and gravelly loams for the top several inches; at 13 inches the soil is brown with redoximorphic features.



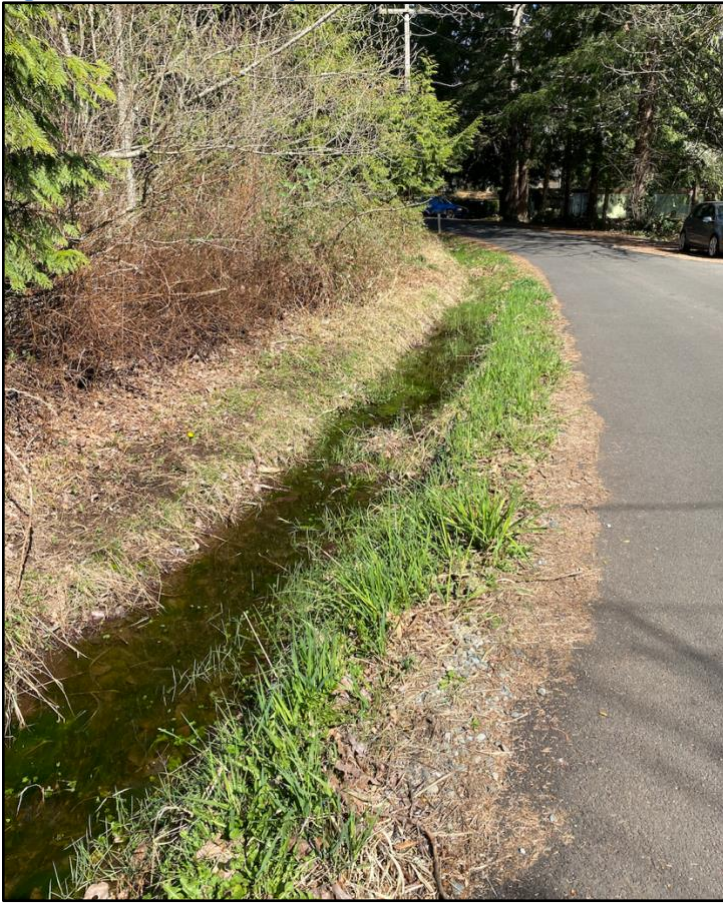
Figure 1. Wetland dominated by salmonberry (*Rubus spectabilis*).

Water is present at and near the surface throughout the wetland. It is expected that water enters the wetland as runoff from the surrounding hillside and is impounded by the road fill. A drainage ditch adjacent to West Lake Kathleen Dr. SE (Figure 2) is not directly connected to the wetland but may serve as an outlet during high water events, or as subsurface conveyance.

The wetland was rated using the Washington State Wetland Rating System (2014) and determined to be Category III with five habitat points. The buffer on this wetland for this wetland would be 60 feet. The rating form and required figures are provided in Appendix B.

A small area identified as DP-3 on the accompanying site plan was evaluated in more detail because surface water was present at the time of the site visit. The area with patches of shallow surface water is approximately 20 square feet in size, and sparsely vegetated with Himalayan blackberry (*Rubus armeniacus*), common ladyfern (*Athyrium cyclosum*), vine maple (*Acer circinatum*), and salmonberry (*Rubus spectabilis*). Soils did not meet the criteria for a wetland, however. The surrounding area is similarly vegetated, but includes western swordfern.

Figure 2. Roadside ditch adjacent to wetland.



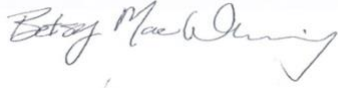
Conclusions and Regulatory Implications

One Category III wetland is present on the portion of the parcel that was reviewed. The buffer for moderate impact would be 60 feet, and low impact would be 40 feet. The definition of low impact per KCC 21A.24.325 includes “utility corridors without a maintenance road and little or no vegetation maintenance.” King County would make the determination as to which buffer width applies.

The information provided in this report represents my best professional judgment regarding site conditions. However, King County staff is responsible for verifying the wetland boundaries and rating, and providing code interpretation. Wetland and stream identification, delineation, and rating can be somewhat subjective, since these are natural systems that are not always easily classified into human-made categories. Boundary determination is based on observations of vegetation, soil and hydrology. Human alteration, weather, and varying professional opinions may affect the location of wetland/stream boundaries or make a precise determination or classification problematic. Wetland/stream determinations are the result of best-professional judgment and subject to modification until reviewed and approved by the governing jurisdiction.

Thank you for the opportunity to assist you with your project. Please let me know if you have any questions or concerns about this report.

Sincerely,

A handwritten signature in cursive script that reads "Betsy MacWhinney". The signature is written in black ink and is positioned above the typed name.

Betsy MacWhinney
Principal, Wetland Ecologist
www.MacWhinney.com

References

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. Wetlands Regulatory Assistance Program. May 2010. ERDC/EL TR-10-03.

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Washington State Department of Ecology. March 2015. Washington State Wetland Program Plan. Publication #14-06-005. Olympia, WA. 115 pages.

Washington State Wetland Rating System for Western Washington: 2014 Update (Effective January 2015), Publication 14-06-029, Published 10/14.

Appendix A: Wetland Rating Form & Figures

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Weigum Date of site visit: 1-Apr

Rated by MacWhinney Trained by Ecology? Yes No Date of training _____

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? Yes No

NOTE: Form is not complete with out the figures requested (figures can be combined).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY _____ (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

- _____ Category I - Total score = 23 - 27
- _____ Category II - Total score = 20 - 22
- x Category III - Total score = 16 - 19
- _____ Category IV - Total score = 9 - 15

Score for each function based on three ratings
(order of ratings is not important)

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>List appropriate rating (H, M, L)</i>				
Site Potential	M	M	M	
Landscape Potential	H	M	M	
Value	M	M	L	Total
Score Based on Ratings	7	6	5	18

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1

Wetland name or number

Hydroperiods	D 1.4, H 1.2	1
Location of outlet <i>(can be added to map of hydroperiods)</i>	D 1.1, D 4.1	n/a
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	6
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	2
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	5

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream <i>(can be added to another figure)</i>	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants <i>(can be added to another figure)</i>	S 4.1	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
 If 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 annual low flow below 0.5 ppt (parts per thousand)?

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

Wetland name or number

*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 an **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?

- 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;
 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?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 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?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

- NO - go to 6 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 ditched, but has no obvious natural outlet.

- NO - go to 8 YES - The wetland class is **Depressional**

8. 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.

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u>		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	2
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
<input type="checkbox"/> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
<input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u>	Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	3
Wetland has persistent, ungrazed, plants > 1/2 of area	points = 3	
Wetland has persistent, ungrazed plants > 1/10 of area	points = 1	
Wetland has persistent, ungrazed plants < 1/10 of area	points = 0	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u>		
<i>This is the area that is ponded for at least 2 months. See description in manual.</i>		
Area seasonally ponded is > 1/2 total area of wetland	points = 4	2
Area seasonally ponded is > 1/4 total area of wetland	points = 2	
Area seasonally ponded is < 1/4 total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	7

Rating of Site Potential If score is: 2 - 16 = H 11 = M 0 = L *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	3

Rating of Landscape Potential If score is: or 4 = H or 2 = M L *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 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	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	1

Rating of Value If score is: 2 - 4 = H = M L *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	3
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
<input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
<input type="checkbox"/> The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
<input type="checkbox"/> The area of the basin is less than 10 times the area of the unit	points = 5	3
<input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit	points = 3	
<input type="checkbox"/> The area of the basin is more than 100 times the area of the unit	points = 0	
<input type="checkbox"/> Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	8

Rating of Site Potential If score is: 2 - 16 = H 11 = M 0 = L *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5 Add the points in the boxes above	2

Rating of Landscape Potential If score is: = H = M = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

<p>D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</p> <p>The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):</p> <ul style="list-style-type: none"> <input type="checkbox"/> • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 <input type="checkbox"/> • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 <input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin. points = 1 <input type="checkbox"/> The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 <input type="checkbox"/> There are no problems with flooding downstream of the wetland. points = 0 		1
--	--	---

D 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	0
Total for D 6 Add the points in the boxes above	1

Rating of Value If score is: - 4 = H = M = L Record the rating on the first page

These questions apply to wetlands of all HGM classes.

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 Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Aquatic bed 4 structures or more: points = 4 <input type="checkbox"/> Emergent 3 structures: points = 2 <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) 1 structure: points = 0 <p>If the unit has a Forested class, check if:</p> <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon		1
<p>H 1.2. Hydroperiods</p> <p>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Permanently flooded or inundated 4 or more types present: points = 3 <input checked="" type="checkbox"/> Seasonally flooded or inundated 3 types present: points = 2 <input type="checkbox"/> Occasionally flooded or inundated 2 types present: points = 1 <input type="checkbox"/> Saturated only 1 types present: points = 0 <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake Fringe wetland 2 points <input type="checkbox"/> Freshwater tidal wetland 2 points 		1
<p>H 1.3. Richness of plant species</p> <p>Count the number of plant species in the wetland that cover at least 10 ft². Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</p> <p>If you counted: > 19 species points = 2 5 - 19 species points = 1</p>		2

Rating of Landscape Potential If Score is: - 6 = H 3 = M = L Record the rating on the first page

H 3.0. Is the habitat provided by the site valuable to society?	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.</p> <p>Site meets ANY of the following criteria: points = 2</p> <ul style="list-style-type: none"> <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan <p>Site has 1 or 2 priority habitats (listed on next page) within 100m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	0

Rating of Value If Score is: = H = M = L Record the rating on the first page

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:
<http://wdfw.wa.gov/conservation/phs/list/>

Count how many of the following priority habitats are within 330 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 of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, 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/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – 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.
- Westside Prairies:** Herbaceous, non-forested 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*).
- Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

Wetland name or number

- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine Wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
<input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt	
<input type="checkbox"/> Yes - Go to SC 1.1 <input type="checkbox"/> No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	
<input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
<input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	
<input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II	
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?	
<input type="checkbox"/> Yes - Go to SC 2.2 <input type="checkbox"/> No - Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
<input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
<input type="checkbox"/> Yes - Contact WNHP/WDNR and to SC 2.4 <input type="checkbox"/> No = Not WHCV	
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?	
<input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i>	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?	
<input type="checkbox"/> Yes - Go to SC 3.3 <input type="checkbox"/> No - Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less	

	<p>than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes - Go to SC 3.3 <input type="checkbox"/> No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No - Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog</p>	
	<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a forested wetland for this section</p>	
	<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes - Go to SC 5.1 <input type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	
	<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes - Go to SC 6.1 <input type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? <input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p>	

Wetland name or number

Yes = **Category III**

No = **Category IV**

Category of wetland based on Special Characteristics

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

--



Figure 1. Plant communities. PFO & PSS

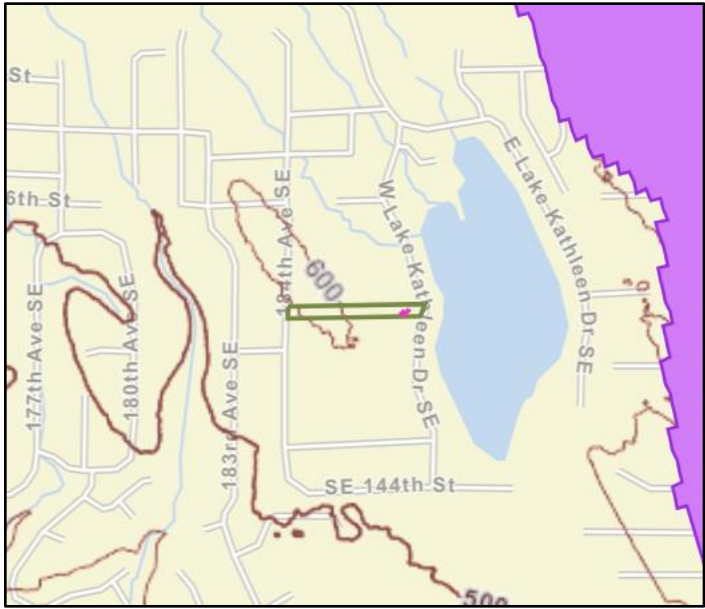


Figure 2. No TMDL



Figure 3. 150' Upslope from Wetland.

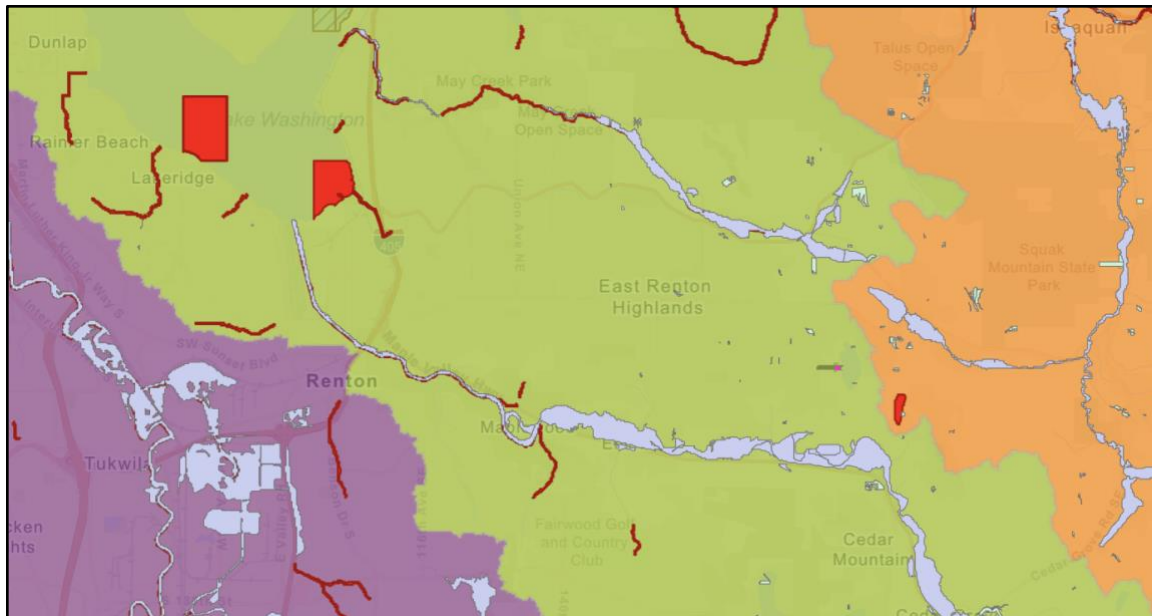


Figure 4. 303D listed waters in basin

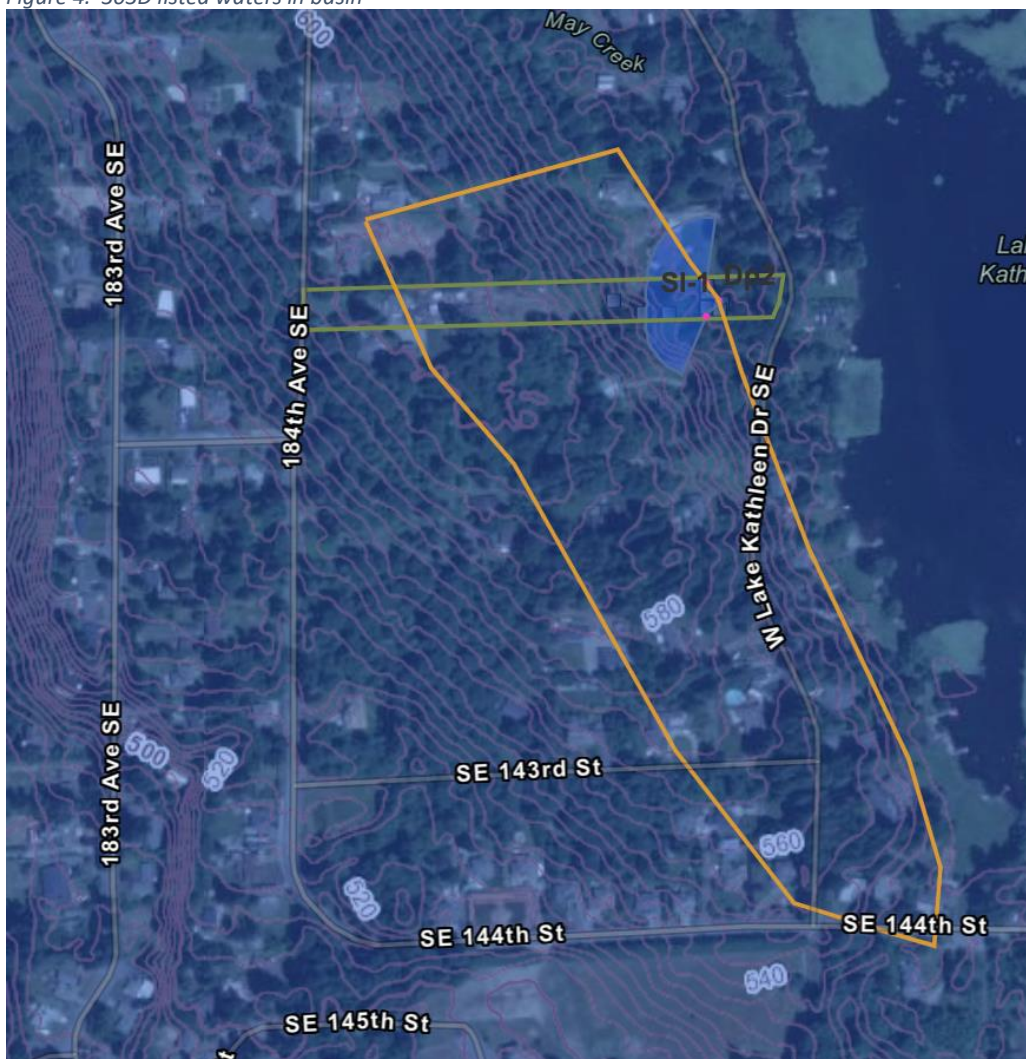


Figure 5. Upstream Contributing Basin

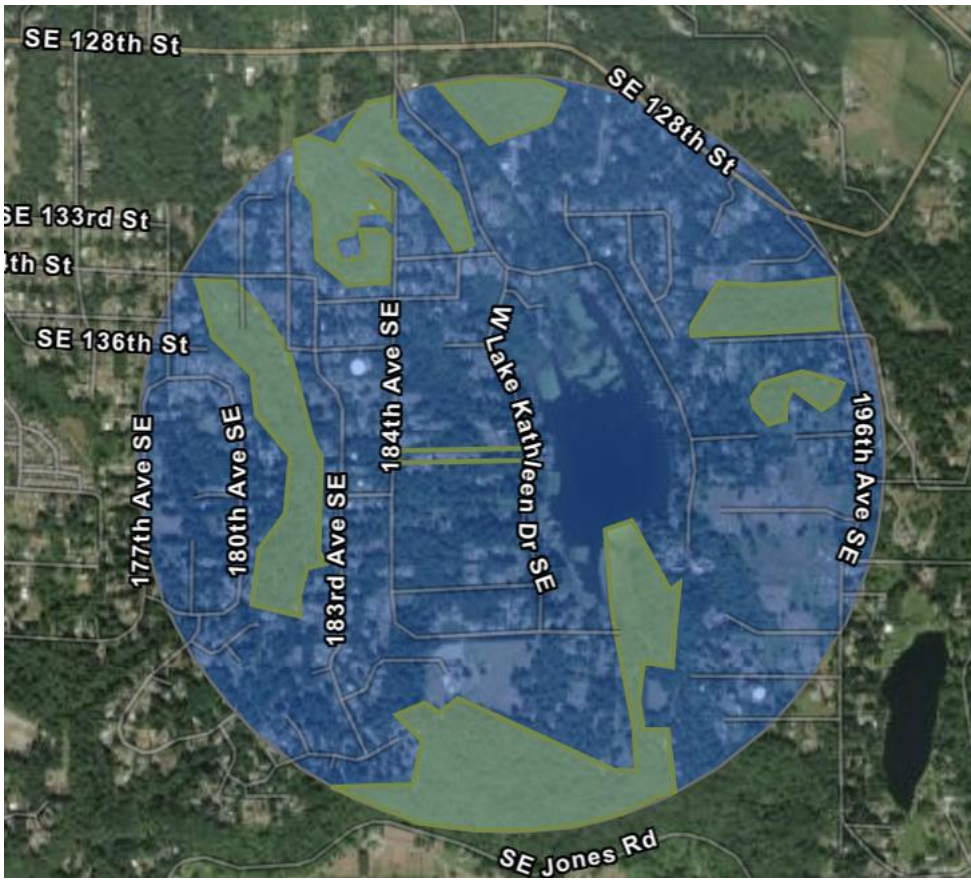


Figure 6. Relatively Undisturbed Habitat.

Appendix B: Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Weigum Site 2 City/County: King Sampling Date: 4/1/21
 Applicant/Owner: Applicant: Weigum State: WA Sampling Point: DP-1
 Investigator(s): MacWhinney Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI Classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status																	
1. <u>Thuja plicata</u>				FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____																					
3. _____																					
4. _____																					
_____ = Total Cover					Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>100</u></td> <td>x 3 = <u>300</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u></td> <td>(A) <u>300</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.000</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>100</u>	x 3 = <u>300</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u>	(A) <u>300</u> (B)	Prevalence Index = B/A = <u>3.000</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>0</u>	x 2 = <u>0</u>																				
FAC species <u>100</u>	x 3 = <u>300</u>																				
FACU species <u>0</u>	x 4 = <u>0</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>100</u>	(A) <u>300</u> (B)																				
Prevalence Index = B/A = <u>3.000</u>																					
_____ = Total Cover																					
Sapling/Shrub Stratum (Plot size: _____)																					
1. <u>Rubus spectabilis</u>	40	Y	100.0	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																					
3. _____																					
4. _____																					
5. _____																					
_____ = Total Cover																					
Herb Stratum (Plot size: _____)																					
1. <u>Maianthemum dilatatum</u>	60	Y	100.0	FAC																	
2. _____																					
3. _____																					
4. _____																					
5. _____																					
6. _____																					
7. _____																					
8. _____																					
9. _____																					
10. _____																					
11. _____																					
_____ = Total Cover																					
Woody Vine Stratum (Plot size: _____)																					
1. _____					Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No																
2. _____																					
_____ = Total Cover																					
% Bare Ground in Herb Stratum <u>20</u>																					
Remarks:																					

SOIL Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR	2/1						
13-16	10YR	3/2	10yr	4/6	3	c	m	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | |
|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Frost-Heave Hummocks (D7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

Surface Water Present? Yes No Depth (inches): 2
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Weigum Site 2 City/County: King Sampling Date: 4/1/21
 Applicant/Owner: Applicant: Weigum State: WA Sampling Point: DP-2
 Investigator(s): MacWhinney Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI Classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status															
1. _____					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)														
2. _____																			
3. _____																			
4. _____																			
_____ = Total Cover																			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species <u>0</u></td><td>x 1 = <u>0</u></td></tr> <tr><td>FACW species <u>0</u></td><td>x 2 = <u>0</u></td></tr> <tr><td>FAC species <u>75</u></td><td>x 3 = <u>225</u></td></tr> <tr><td>FACU species <u>45</u></td><td>x 4 = <u>180</u></td></tr> <tr><td>UPL species <u>0</u></td><td>x 5 = <u>0</u></td></tr> <tr><td>Column Totals: <u>120</u></td><td>(A) <u>405</u> (B)</td></tr> </tbody> </table> Prevalence Index = B/A = <u>3.375</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>75</u>	x 3 = <u>225</u>	FACU species <u>45</u>	x 4 = <u>180</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>120</u>	(A) <u>405</u> (B)
Total % Cover of:	Multiply by:																		
OBL species <u>0</u>	x 1 = <u>0</u>																		
FACW species <u>0</u>	x 2 = <u>0</u>																		
FAC species <u>75</u>	x 3 = <u>225</u>																		
FACU species <u>45</u>	x 4 = <u>180</u>																		
UPL species <u>0</u>	x 5 = <u>0</u>																		
Column Totals: <u>120</u>	(A) <u>405</u> (B)																		
1. <i>Oemleria cerasiformis</i>	25	Y	62.5	FACU															
2. <i>Acer circinatum</i>	15	Y	37.5	FAC															
3. _____																			
4. _____																			
_____ = Total Cover																			
Herb Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
1. <i>Maianthemum dilatatum</i>	60	Y	75.0	FAC															
2. <i>Polystichum munitum</i>	20	Y	25.0	FACU															
3. _____																			
4. _____																			
5. _____																			
6. _____																			
7. _____																			
8. _____																			
9. _____																			
10. _____																			
11. _____																			
_____ = Total Cover																			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No														
1. _____																			
2. _____																			
_____ = Total Cover																			
% Bare Ground in Herb Stratum <u>20</u>																			
Remarks:																			

SOIL Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	3/2						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present?

Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Weigum Site 2 City/County: King Sampling Date: 4/1/21
 Applicant/Owner: Applicant: Weigum State: WA Sampling Point: DP-3
 Investigator(s): MacWhinney Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI Classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	
1. _____					
2. _____					
3. _____					
4. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. <i>Rubus spectabilis</i>	25	Y	62.5	FAC	
2. <i>Rubus armeniacus</i>	15	Y	37.5	FAC	
3. _____					
4. _____					
5. _____					
_____ = Total Cover					
Herb Stratum (Plot size: _____)					
1. <i>Maianthemum dilatatum</i>	60	Y	75.0	FAC	
2. _____	20	Y	25.0		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>20</u>					

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>100</u>	x 3 = <u>300</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u>	(A) <u>300</u> (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

SOIL Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	3/2						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present?

Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C: Site Plan



King County
 Department of Permitting
 and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- Zoning
- Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

Date: _____

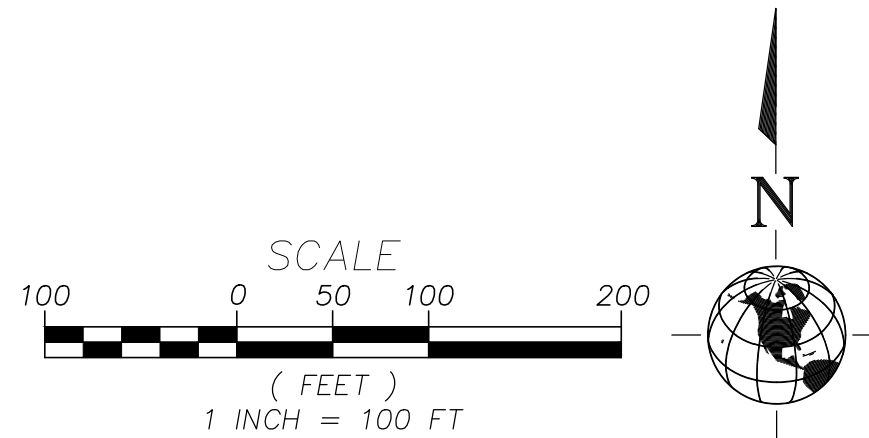
Fire Approval

Signature: _____

Date: _____



PLAN LEGEND
 - - - - - PROPERTY LINE



OVERVIEW PLAN



King County
 Department of Permitting
 and Environmental Review

Residential Site Plan Template

Ref: KCC 21a.12.030

Max. Impervious Surface Allowed _____

Max. Bldg. Height Allowed _____

Ref: KCC 21a.12.170

Min. Blg. Setback From Street _____

Min. Garage Setback From Street _____

Min. Blg. Setback From Interior _____

Permit Center validation:

- Zoning
- Site Review Not Applicable

Validated Signature _____

Login Initials _____ Date: _____

Engineering / Drainage Approval

Signature: _____

Date: _____

Critical Areas Approval

Signature: _____

Date: _____

Clearing / Grading Approval

Signature: _____

Date: _____

Fire Approval

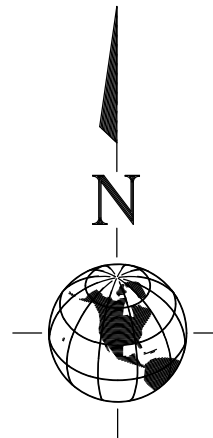
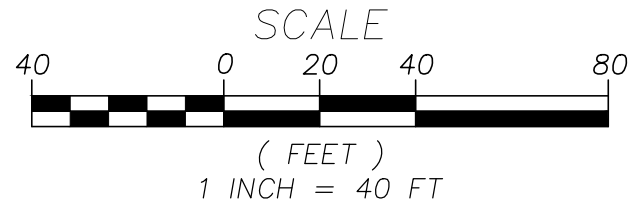
Signature: _____

Date: _____



PLAN LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- WETLAND FLAG LOCATION
- 60' WETLAND BUFFER
- 15' BSBL
- DATA POINT LOCATION



NOTES:

1. WETLAND AND STREAM LOCATION BASED ON HAND-HELD GPS; FEATURES NOT SURVEYED.
2. PHOTO MAY NOT BE ACCURATELY RECTIFIED WITH PARCEL BOUNDARIES. PHOTO SOURCE: KING COUNTY 2019 AERIAL.

CRITICAL AREAS MAP

APPENDIX C. On-Site Sewage System Plan

Public Health

Seattle & King County

Site Design Application Form for Individual On-Site Sewage System (OSS)

THIS IS NOT A PERMIT

ON Record ID: ON0221784Payment Date: 01/26/2022Approximate Site Address: 13824 WEST LAKE KATHLEEN DR SE Unincorporated King County WA 98059

Applicant Information

Name & Mailing Address: WEIGUM, GINA 6133 164TH AVE SE BELLEVUE WA 98006Phone Number: 4257770803Email: GINAWEIGUM@WINDERMERE.COMPreferred method of communication: Email Mail

Designer Information

Name: Huard Septic Design, LLCAddress: PO Box 2243Designer Phone Number: 4258311781Email: april@septicdesign.netDOL Certification: 5100122

Property Information

Parcel # (APN): 1823069034

Lot: _____

Block: _____

Subdivision Name: _____

Type of Area: RuralIf replacement, Non-conforming Property Size (sq. ft.): 13068.0Acreage: 0.299999462Design Type: NewDistance from property line to a public sewer is > 200 ft. ? YesWater Supply: Public Water System - Group ADwelling Type: Single FamilyWater System Name: KCWD 90

Water System ID: _____

System Information

Septic Tank Size (in Gal): 1000.0Septic Tank Material: ConcretePump Tank size (in Gal.): 1500.0Pump Tank Material: ConcreteAdditional Tanks?

Other Tank 1 Type: _____ Other Tank 2 Type: _____

Drainfield Type: Subsurface Drip

Other Tank 1 Size: _____ Other Tank 2 Size: _____

Drainfield Material: Not Applicable

If Drainfield Type is OSCAR Coils, OSCAR Coil size: _____

Nibbler: Treatment Type: Proprietary Treatment Product (ATU, etc.)Proprietary Treatment Product: NuWaterProprietary Treatment Product Model: BNR-500Distribution Product Manufacturer and Model (If applicable): NETAFIM SDSDisinfection:

If Disinfection, Disinfection Model: _____

Calculations

Number of bedrooms: 3.0Total Gallons/Day (450 minimum) (Gal): 450.0Soil Texture Type (1-5): 4Application Rate (Gal/sq. ft./day): 0.6Total Absorption Area (sq. ft.): 1425.0

**INSTALL 6/10" INTO UNDISTURBED NATIVE SOIL
DESIGNER TO VERIFY
TOP 14" +/- DISTURBED**

Date Soils Logged: 12/21/2021Drainfield Length(ft.): 570.0Trench Width (inches): 1.0Trench Depth Minimum (inches): 6.0Trench Depth Maximum (inches): 10.0Garbage Disposal: Max. Slope in drainfield/Reserve Area (%): 25.0If encountered, provide depth to the restrictive layer in Inches: 27.0Basement Plumbing:

Site Design Application Form for Individual On-Site Sewage System (OSS)

THIS IS NOT A PERMIT

Record ID: ON0221784

Designer's Comments: ATTN: LIANA

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department. Furthermore, I understand that failure to submit a proper and complete set of supporting documents may result in delay or rejection of my site application.

Designer's e-signature: Huard Septic Design, LLC

Date: 01/26/2022

FOR HEALTH DEPARTMENT USE ONLY:

Drainfield easement shall be surveyed and permanently marked, and the soils within the easements protected against disturbance.



RECORDED COPY OF DRAINFIELD EASEMENT REQUIRED WITH STUBOUT EASEMENT MUST BE SURVEYED AND PERMANENTLY MARKED

A Signed O&M Service Contract and a Recorded Notice on Title Are Required at Stub Out Release

Pre-construction Meeting Required between designer and installer prior to permit issuance.

**LOT SEG DATE 1980
PRE July 1, 1984 OFFSITE
DRAINFIELD EASEMENT
REQUIREMENT**

**INSTALL 6/10" INTO UNDISTURBED NATIVE SOIL
DESIGNER TO VERIFY
TOP 14" +/- DISTURBED**

**ROW USE PERMIT REQUIRED
FOR CROSSING W LK KATHLEEN DRIVE
COPY OF PERMIT REQUIRED WITH STUBOUT RELEASE**

Note: SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL NOT BE CONSIDERED AN ASSURANCE, EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.

Any person aggrieved by any decision or final order of the Health Officer may file a written application for appeal to the Health Officer within 60 calendar days of the date of the above decision. (Title 13, K.C.B.O.H. Chapter 13.12 –Sewage Review Committee). CS 13.15.97 Rev. 7/21/00

Pre-construction Meeting Required between designer and installer prior to permit issuance.

All drainfield easements shall be surveyed and permanently marked, and the soils within the easements protected against disturbance.

Site Plan On-Site Sewage Disposal









Control Point Description: Fence Corner

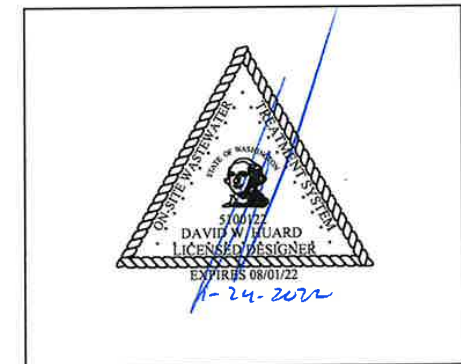
Install 1000 gallon "trash tank"
Install NuWater BNR-500
Install 1500 gallon pump chamber
Install a minimum of 570 lineal feet Netafim
SDS on 2.5' centers.

Stub-out elevation-535'
Septic tank invert elevation-534.5'
Pump intake elevation-529'

All storm/footing drains must discharge
away from tank and drainfield/reserve areas

This drawing does not represent a survey

 SCALE 1"=20'	Legend soil log 
	drainfield trench 
	reserve trench 
	water line 
	Drainage 
	large trees 
	cleanout 



Huard Septic Design & Monitoring, LLC
PO BOX 2243 North Bend, WA 98045
425.831.1781 phone/fax 425.888.2866
dave@septicdesign.net

Gina Weigum
13824 W. Lk. Kathleen Dr. SE
Renton, WA 98059
Tax Parcel #182306-9034
12-27-2021

Dave Huard
Licensed Designer



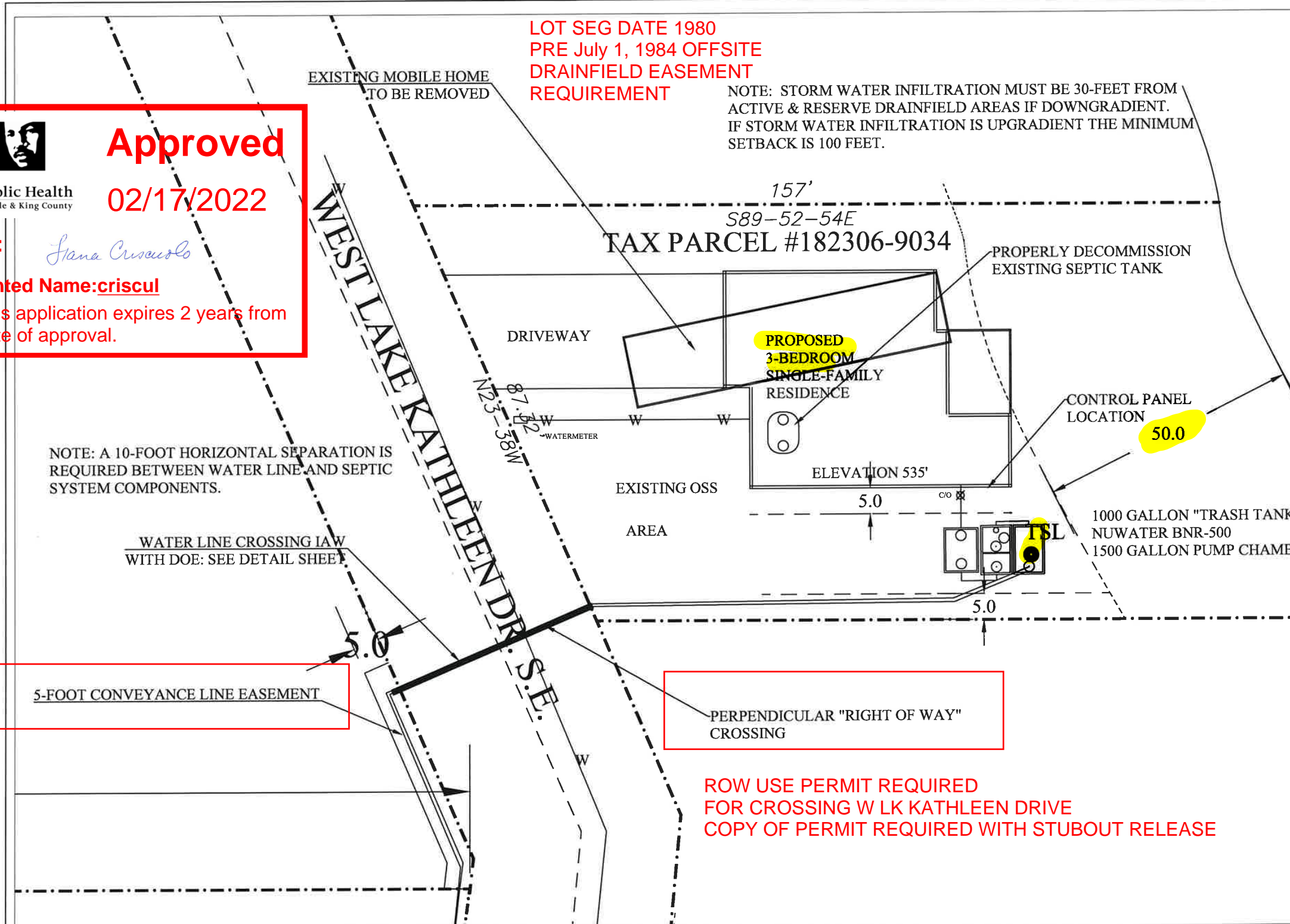
Approved
02/17/2022

Public Health
Seattle & King County

By: *Jana Criscuolo*
Printed Name: **criscul**
This application expires 2 years from
date of approval.

LOT SEG DATE 1980
PRE July 1, 1984 OFFSITE
DRAINFIELD EASEMENT
REQUIREMENT

NOTE: STORM WATER INFILTRATION MUST BE 30-FEET FROM
ACTIVE & RESERVE DRAINFIELD AREAS IF DOWNGRADIENT.
IF STORM WATER INFILTRATION IS UPGRADIENT THE MINIMUM
SETBACK IS 100 FEET.



THIS IS NOT A SURVEY: SITE FEATURES, ELEVATIONS AND BENCHMARKS ARE BASED ON ASSUMED DATUM PROVIDED BY OWNER AND KING COUNTY PLANNING RECORDS AND ARE INTENDED ONLY FOR THE REVIEW AND CONSTRUCTION OF THE PROPOSED SEPTIC SYSTEM DESIGN. HUARD SEPTIC DESIGN, LLC RECOMMENDS THAT A LICENSED PROFESSIONAL LAND SURVEYOR ALWAYS BE USED TO SET CORNERS, ESTABLISH LOT LINES, DETERMINE ELEVATIONS AND TOPOGRAPHY AND/OR PROVIDE A LEGAL SITE PLAN.

METHODS AND EQUIPMENT: FIELD MEASUREMENTS PERFORMED WITH A LEICA TS-16 ROBOTIC TOTAL STATION, LEICA PRISM, LEICA CS-20 DATA COLLECTOR AND STEEL TAPE. HUARD SEPTIC DESIGN, LLC RECOMMENDS THAT LICENSED PROFESSIONAL LAND SURVEYOR ALWAYS BE USED TO SET CORNER, ESTABLISH LOT LINES, DETERMINE SITE ELEVATIONS AND TOPOGRAPHY AND PROVIDE A LEGAL SITE PLAN.



Public Health
Seattle & King County

Approved

02/17/2022

By: *Jana Criscuolo*

Printed Name: **criscul**

This application expires 2 years from date of approval.

Pre-construction Meeting Required between designer and installer prior to permit issuance.

Site Plan On-Site Sewage Disposal

Control Point Description: Fence Corner

Install 1000 gallon "trash tank"
Install NuWater BNR-500
Install 1500 gallon pump chamber
Install a minimum of 570 lineal feet Netafim
SDS on 2.5' centers.

Stub-out elevation-535'
Septic tank invert elevation-534.5'
Pump intake elevation-529'

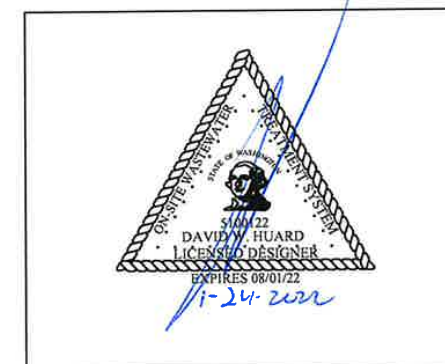
All storm/footing drains must discharge
away from tank and drainfield/reserve areas

This drawing does not represent a survey



SCALE
1"=120'

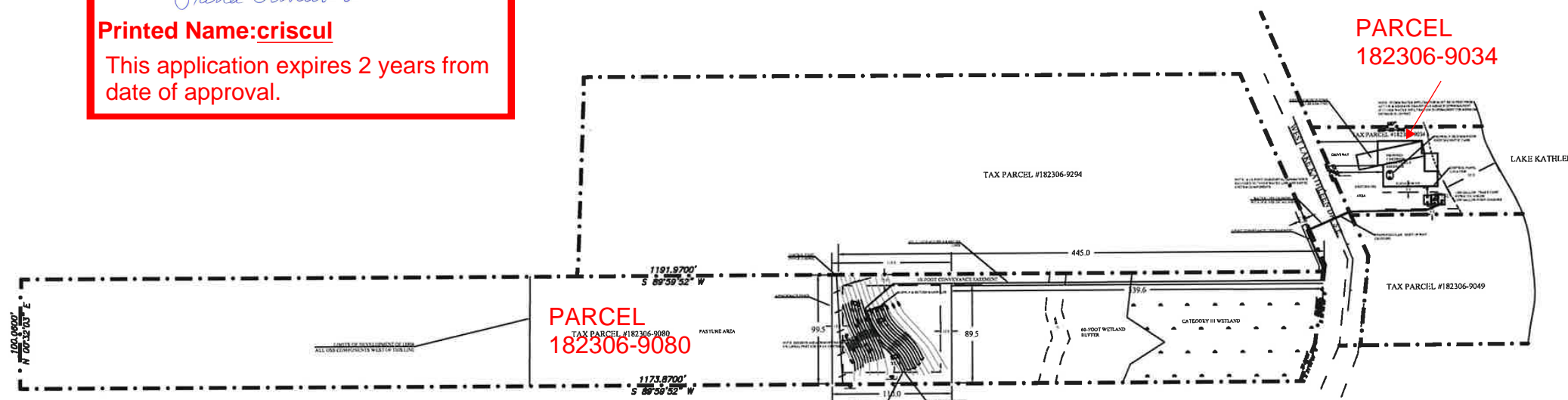
Legend	
	soil log
	drainfield trench
	reserve trench
	water line
	Drainage
	large trees
	cleanout



Huard Septic Design & Monitoring, LLC
PO BOX 2243 North Bend, WA 98045
425.831.1781 phone/fax 425.888.2866
dave@septicdesign.net

Gina Weigum
13824 W. Lk. Kathleen Dr. SE
Renton, WA 98059
Tax Parcel #182306-9034
12-27-2021

Dave Huard
Licensed Designer

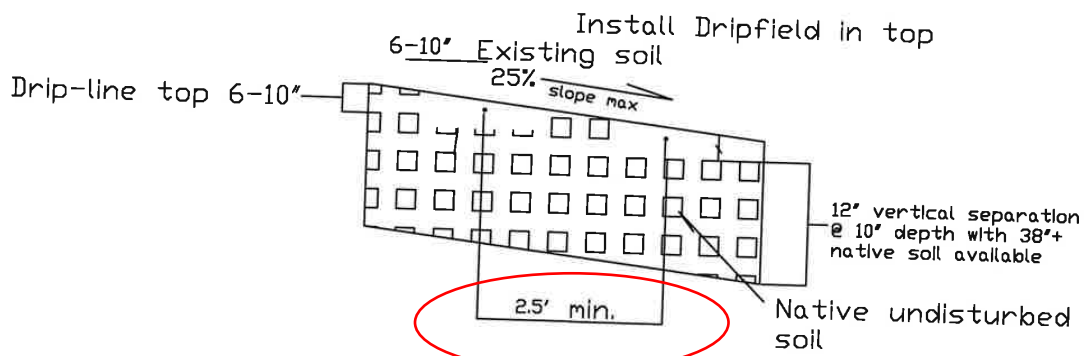


**ROW USE PERMIT REQUIRED
FOR CROSSING W LK KATHLEEN DRIVE
COPY OF PERMIT REQUIRED WITH STUBOUT RELEASE**

THIS IS NOT A SURVEY: SITE FEATURES, ELEVATIONS AND BENCHMARKS ARE BASED ON ASSUMED DATUM PROVIDED BY OWNER AND KING COUNTY PLANNING RECORDS AND ARE INTENDED ONLY FOR THE REVIEW AND CONSTRUCTION OF THE PROPOSED SEPTIC SYSTEM DESIGN. HUARD SEPTIC DESIGN, LLC RECOMMENDS THAT A LICENSED PROFESSIONAL LAND SURVEYOR ALWAYS BE USED TO SET CORNERS, ESTABLISH LOT LINES, DETERMINE ELEVATIONS AND TOPOGRAPHY AND/OR PROVIDE A LEGAL SITE PLAN.

METHODS AND EQUIPMENT: FIELD MEASUREMENTS PERFORMED WITH A LEICA TS-16 ROBOTIC TOTAL STATION, LEICA PRISM, LEICA CS-20 DATA COLLECTOR AND STEEL TAPE. HUARD SEPTIC DESIGN, LLC RECOMMENDS THAT LICENSED PROFESSIONAL LAND SURVEYOR ALWAYS BE USED TO SET CORNER, ESTABLISH LOT LINES, DETERMINE SITE ELEVATIONS AND TOPOGRAPHY AND PROVIDE A LEGAL SITE PLAN.

Subsurface drip cross-sectional drawing



**INSTALL 6/10" INTO UNDISTURBED NATIVE SOIL
DESIGNER TO VERIFY**

13824 W Lake Kathleen Dr SE, Renton, WA 98059
Location: 47.478197, -122.090373

**SOIL LOG TRAIL
ENTER THRU WEST
SIDE 13821
SEE DETAIL**



INCLIVITY TRAIL

King County iMap - 9080 easement



The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

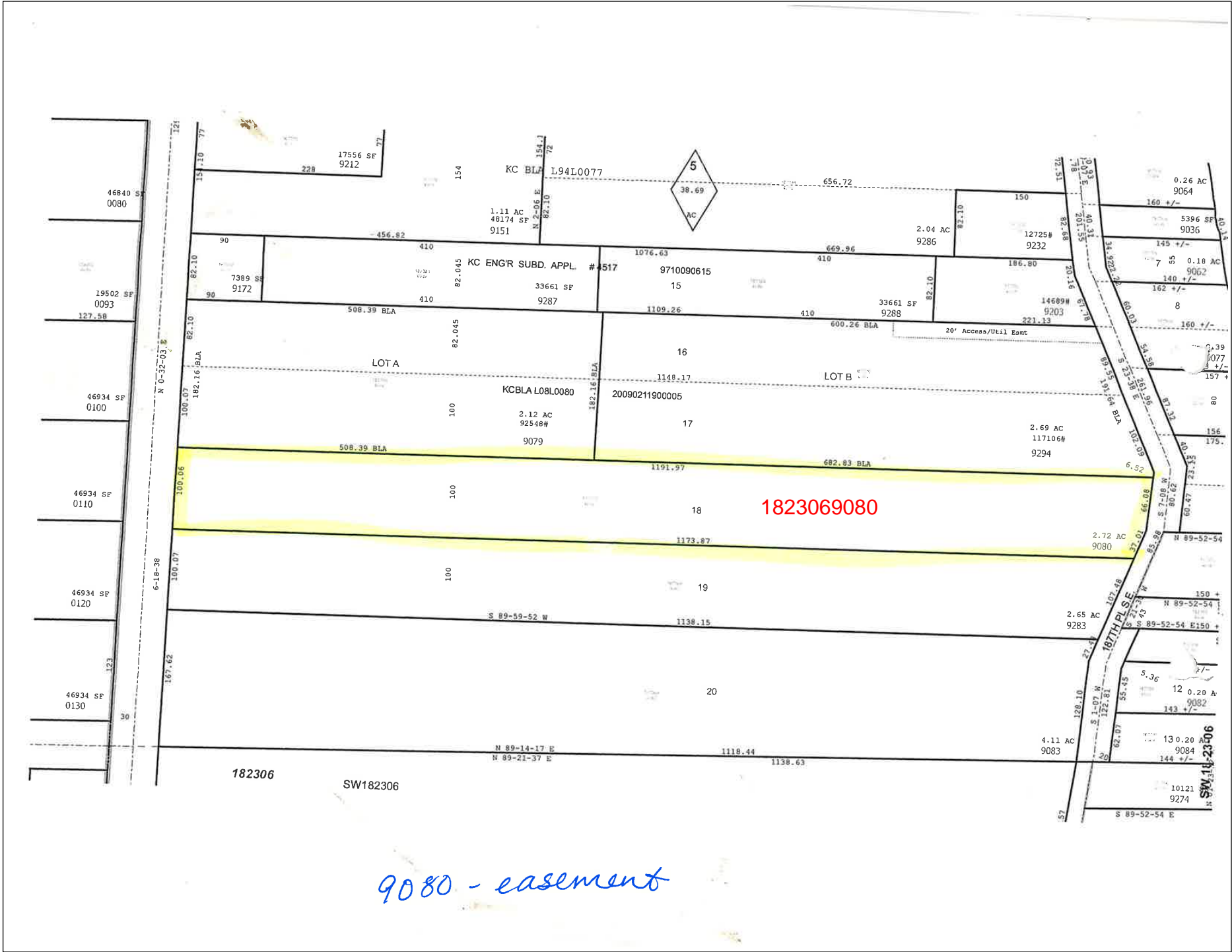
Date: 12/30/2020

Notes:



King County

King County, EagleView Technologies, Inc.



46840 SF 0080
 19502 SF 0093
 46934 SF 0100
 46934 SF 0110
 46934 SF 0120
 46934 SF 0130

17556 SF 9212
 49174 SF 9151
 7389 SF 9172
 33661 SF 9287
 2.12 AC 92546# 9079
 33661 SF 9288
 2.69 AC 117106# 9294
 4.11 AC 9083

1.11 AC 49174 SF 9151
 2.04 AC 9286
 2.12 AC 92546# 9079
 2.72 AC 9080
 4.11 AC 9083

0.26 AC 9064
 5396 SF 9036
 0.18 AC 9062
 160 +/-
 145 +/-
 7 5
 140 +/-
 162 +/-
 160 +/-
 2.39 +/-
 157 +
 80
 156
 175.
 6.52
 2.72 AC 9080
 2.65 AC 9283
 12 0.20 AC 9082
 13 0.20 AC 9084
 144 +/-
 10121 9274
 S 89-52-54 E

154
 150
 15
 16
 17
 18
 19
 20

KC BLP L94L0077
 KC ENGR SUBD. APPL. # 517
 LOTA
 KCBLA L08L0080
 LOT B
 20' Access/Util Esmt

1823069080



April Huard <aprilhuard@gmail.com>

Application for PN 1823069034 with Drainfield easement on PN 1823069080

Schneider, Lynn <Lynn.Schneider@kingcounty.gov> Fri, Jan 21, 2022 at 1:37 PM
To: April Huard <april@septicdesign.net>, "Criscuolo, Liana" <Liana.Criscuolo@kingcounty.gov>
Cc: "ginaweigum@windermere.com" <ginaweigum@windermere.com>

Hi April and Liana,

Due to the extreme difficulty in getting permission from a neighbor to get an easement and the improvement to Lake Kathleen to move the drainfield way from the lake, we are willing to accept the application with the CAD only for the drainfield parcel. As I mentioned to Gina, Dave's license may require him to have the CAD for the lake parcel prior to submitting to us. If Dave is not comfortable submitting with out it, we understand.

We encouraged Gina to move forward with applying for the CAD for PN 1823069034 so she would have it available for when she wants to build. Liana, there are soil pits on the neighbor's property that would be good to get to as soon as the application is paid for. It would be good to get the soil pits closed up soon and to look at them during the wet season.

April, please let Liana know when you submit the application.

Thank you all,

Lynn Schneider
Public Health Seattle & King County
On-site Sewage System Program Supervisor
14350 SE Eastgate Way, Bellevue, WA 98007
(206) 477-2124
lynn.schneider@kingcounty.gov

For online services please visit our website at: www.kingcounty.gov/oss

From: Gina Weigum <ginaweigum@windermere.com>
Sent: Friday, January 21, 2022 1:28 PM
To: Schneider, Lynn <Lynn.Schneider@kingcounty.gov>
Subject: Re: Public Health review for building remodel

[EXTERNAL Email Notice!] External communication is important to us. Be cautious of phishing attempts. Do not click or open suspicious links or attachments.

ADDRESS OF PROPERTY 13802 188th SE RENTON

SEATTLE-KING COUNTY DEPARTMENT OF PUBLIC HEALTH
DIVISION OF SANITATION
904 Public Safety Building

AS-BUILT SEWAGE DISPOSAL PLAN
(Submit in Triplicate)

LEGAL DESCRIPTION: 18-23-06 580 FT. W. OF N890 FT. M/L OF GLS LVE OF 1/2 PERMIT NO. _____
Owner: ROBERT W. RYGER 20 FT FOR RD Address: 13802 FALL CITY-CARV. RD NE Phone: 333-7368
Builder: _____ Address: CARNATION W/4 Phone: _____
Designer: SAME Address: SAME Phone: _____
Installer: _____ Address: _____ Phone: _____

I hereby certify the accompanying drawing is an accurate representation of the system installed at the listed address. I further certify all recommendations and restrictions (concerning plumbing stub elevations, maintenance of grades, fills, surface drains, etc.) listed by me on my approved site plan (or latest approved revision thereof) dated 9-25-75 have been complied with. I further certify that this system meets all requirements of the Rules and Regulations established under King County Resolution No. 22873 or City of Seattle Ordinance No. 90181 whichever is applicable.

Robert W. Ryger

10-22-75

CERTIFICATE NO.

SIGNATURE OF DESIGNER

DATE

TO BE FILLED IN BY HEALTH DEPARTMENT ONLY

Date Accepted: 10/13/75 Date Not Accepted: _____

Signature of Sanitarian: _____

Remarks: _____

INSTRUCTIONS: You may use the reverse side of this form for the drawing or attach separate sheet. Use a scale which will permit the greatest detail and still contain the entire site on one page.

ATTENTION HOME OWNER:

Your septic tank has limitations! It was designed and installed to care for an average-size family. Overloading the septic tank or disturbance of the drainfield may seriously impair satisfactory operation. Points to remember:

1. Have your tank checked periodically to see if pumping is necessary (2 1/2-3 years).
2. Do not channel ground water, surface water, footing drains or downspouts into the tank or drainfield.
3. Do not excavate, fill, place a structure, driveway or patio in, on, or over the drainfield.
4. Limit toilet fixture disposal to sanitary wastes and toilet tissue.
5. Detergents and bleaches used in normal household quantities will not harm the action of the septic tank and disposal field.

WARRANTY DEED
(STATUTORY FORM)

The Grantor EMANOR H. KRYGER, and ROBERT H. KRYGER, her husband
PHYLLIS P. GOODWIN, and DARYL B. GOODWIN, her husband
residing at 250 Fall City-Carn. Rd. NE Carnation, Wa. (Goodwin's) Grueson Norwalk, Conn.
for and in consideration of the sum of _____
Ten thousand and no/100 Dollars (\$10,000),
in hand paid, CONVEY and WARRANT to _____
Linda Ann and Michael D. Waller, the Grantee
the following described real estate:

Section 18; Township 23; Range 06; Block 9054; Code 6055
S 80 ft 1/4 of N 850 ft 1/4 of gl 5 by E of C/L of rd Wly 20ft for rd.

RECORDED THIS DAY
JUL 16 1980
MAYOR
RECORDS & ELECTIONS
MAYOR

SALES TAX PAID OR CONTRACT AFF. NO. E454606
THIS OR. RECORDS DIVISION
BY G. Trenchoff DEPUTY

situated in the County of Fine State of Washington.

Dated this 20th day of May 1980

STATE OF ~~WASHINGTON~~ CONNECTICUT }
County of FAIRFIELD } ss. (Individual Acknowledgment)

I, GLORIA RUTH BISHOP, Notary Public in and for the State of CONNECTICUT
do hereby certify that on this 13 day of June, 1980, personally appeared
before me PHYLLIS P. GOODWIN AND DARYL B. GOODWIN
to me known to be the individual s described in and who executed the within instrument and acknowledged
that they signed the same as their free and voluntary act and deed for the uses and
purposes herein mentioned.

GIVEN UNDER MY HAND AND OFFICIAL SEAL, this 13 day of June, 1980

Notary Public in and for the State of CONNECTICUT residing at NSS, Calder Plaza in said County,
West Rocks Rd., Norwalk, Ct. 06851

STATE OF WASHINGTON }
} ss. (Corporate Acknowledgment)

STATE OF WASHINGTON }
} ss. NOTARY PUBLIC CERTIFICATION
(INDIVIDUAL ACKNOWLEDGMENT)

County of Kingman Co. DeBeer Notary Public in and for the State of Washington residing at
Carnation do hereby certify that on this 15th day of July, 1980
personally appeared before me Robert W. Kryger and Gledner M. Kryger
to me known to be the individual s described in and who executed the foregoing instru-
ment and acknowledged that they signed and sealed the same as their free and voluntary act and deed for the uses
and purposes therein mentioned.

GIVEN UNDER MY HAND AND OFFICIAL SEAL, this 15th day of July, 1980
Mary A. DeBeer
Notary Public in and for the State of Washington residing at
Carnation in said County.

8007160659

RETURN ADDRESS

PLEASE PRINT NEATLY OR TYPE INFORMATION
DOCUMENT TITLE(S)

DRAINFIELD EASEMENT

REFERENCE NUMBER (S) OF RELATED DOCUMENTS

GRANTOR (S) (LAST, FIRST, AND MIDDLE INITIAL)

ADDITIONAL REFERENCE #'S ON PAGE _____

FOWLER, MARY ANN

Mary Ann Fowler

ADDITIONAL GRANTORS ON PAGE _____

GRANTEE(S) (LAST, FIRST, MIDDLE INITIAL)

WEIGUM, GINA

ADDITIONAL GRANTEES ON PAGE _____

LEGAL DESCRIPTION (ABBREVIATED FORM: I.E. LOT, BLOCK, PLAT OR SECTION, TOWNSHIP, RANGE,
QUARTER/QUARTER)

STR182306 TAX LOT 80

ADDITIONAL LEGAL IS ON PAGE _____

ASSESSOR'S PROPERTY TAX PARCEL/ACCOUNT NUMBER

182306-9080

ADDITIONAL PARCEL #'S ON PAGE _____

THE AUDITOR/RECORDER WILL RELY ON THE INFORMATION PROVIDED ON THIS FORM. THE STAFF WILL NOT READ THE DOCUMENTS TO VERIFY THE ACCURACY OR COMPLETENESS OF THE INDEXING INFORMATION PROVIDED HEREI

DRAINFIELD EASEMENT

The UNDERSIGNED owner(s) of the following described land located in King county, State of Washington, to wit:

(Legal)_____

POR OF GOV LOT 5 IN SW 1/4 OF SEC 18-23-06 - BEG NE CORNER OF GOV LOT 5 TH S 89-59-52 W 265 FT TH S 02-04-32 W 394.03 FT TH S 25-42-00 E 88.78 FT TH S 07-07-00 E 201.55 FT TH S 23-38-00 E 261.96 FT TH S 07-08-00 W 9.52 FT TO TPOB TH S 07-08-00 W 71.10 FT TH S 21-30-00 W 139.13 FT TH S 89-59-52 W 1159.65 FT TO EAST LINE OF CO RD TH N 02-06-03 E ALG SD RD LN WCH IS 30 FT ELY OF & PLW THE WLY LN OF GOV LOT 5 200.13 FT TH N 89-59-52 E 1211.13 FT TO TPOB LESS S 100.07 FT - AKA TRACT 18 OF REVISED LAKE KATHLEEN ACRES UNRECORDED PLAT

(Address) 13904 184th AVE SE

(Parcel Number) 182306-9080

Do hereby define(s), declare(s), and dedicate(s) the following easement over, across and under that portion of the property described as follows:

(Legal)POR OF GOV LOT 5 IN SW 1/4 OF SEC 18-23-06 - BEG NE CORNER OF GOV LOT 5 TH S 89-59-52 W 265 FT TH S 02-04-32 W 394.03 FT TH S 25-42-00 E 88.78 FT TH S 07-07-00 E 201.55 FT TH S 23-38-00 E 261.96 FT TH S 07-08-00 W 9.52 FT TO TPOB TH S 07-08-00 W 71.10 FT TH S 21-30-00 W 139.13 FT TH S 89-59-52 W 1159.65 FT TO EAST LINE OF CO RD TH N 02-06-03 E ALG SD RD LN WCH IS 30 FT ELY OF & PLW THE WLY LN OF GOV LOT 5 200.13 FT TH N 89-59-52 E 1211.13 FT TO TPOB LESS S 100.07 FT - AKA TRACT 18 OF REVISED LAKE KATHLEEN ACRES UNRECORDED PLAT

(Address) 13904 184th AVE SE

(Parcel Number) 182306-9080

FROM A POINT OF BEGINNIN AT NORTHEAST PROPERTY CORNER OF TAX PARCEL #182306-9080 THENCE; 445 FEET S89-59-52W THENCE; 99.5 FEET SOUTH THENCE; 110 FEET N89-59-52E THENCE; 89.5 FEET NORTH THENCE; 339.6 FEET N89-59-52E THENCE 11 FEET N07-08-00E TO POINT OF BEGINNING.

Said easement is for the purpose of installation and maintenance of the drainfield portion of an on-site sewage disposal system to serve the following described properties:

(Legal) PP ACT 39637350 MOBILE HOME S 80 FT M/L OF N 890 FT M/L OF GL 5 LY E OF C/L OF RD WLY 20 FT FOR RD

(Address) 13824 W LAKE KATHLEEN DR. SE

(Parcel Number) 182306-9034

NOW THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s), his/her (their) heirs, successors and assigns will not construct or maintain or suffer to be constructed or maintained within the easement area: any structures, roads, driveways, or trails for vehicular traffic; and shall not excavate or compact natural soil within this area.

These covenants shall run with the land and shall be binding on all parties having or acquiring any right, title, or interest in the land described herein or any part thereof.

The easement shall terminate one hundred and eighty (180) days after public sewers become available to the property being served by easement.

WITNESS _____ hand _____ this 27th day of 09, 20 21.

Mary Ann (Seal)

Fowler (Seal)

State of Washington
County of King

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 27th day of 09, 20 21, personally appeared before me: _____ to me known to be the individual(s) described herein and who executed the within instrument and acknowledge that he/she (they) signed and sealed the same as a free and voluntary act and deed, for the uses and purposes herein mentioned.

GIVEN under my hand and official seal the day and year last above written.

Chetna Maini CHEITNA MAINI
Notary Public in and for the State of Washington
Residing at: UPS STORE - 4532 Kenwa - 98056



RETURN ADDRESS

PLEASE PRINT NEATLY OR TYPE INFORMATION
DOCUMENT TITLE(S)

CONVEYANCE LINE EASEMENT

REFERENCE NUMBER (S) OF RELATED DOCUMENTS

GRANTOR (S) (LAST, FIRST, AND MIDDLE INITIAL)

ADDITIONAL REFERENCE #'S ON PAGE _____

STICHLING, HERMAN

ADDITIONAL GRANTORS ON PAGE _____

GRANTEE(S) (LAST, FIRST, MIDDLE INITIAL)

WEIGUM, GINA

ADDITIONAL GRANTEES ON PAGE _____

LEGAL DESCRIPTION (ABBREVIATED FORM: I.E. LOT, BLOCK, PLAT OR SECTION, TOWNSHIP, RANGE,
QUARTER/QUARTER)

LOT B OF KING COUNTY BLA #L08L0080 REC 20090211900005

ADDITIONAL LEGAL IS ON PAGE _____

ASSESSOR'S PROPERTY TAX PARCEL/ACCOUNT NUMBER

182306-9294

ADDITIONAL PARCEL #'S ON PAGE _____

THE AUDITOR/RECORDER WILL RELY ON THE INFORMATION PROVIDED ON THIS FORM. THE STAFF WILL NOT READ THE
DOCUMENTS TO VERIFY THE ACCURACY OR COMPLETENESS OF THE INDEXING INFORMATION PROVIDED HERE!

DRAINFIELD EASEMENT

The UNDERSIGNED owner(s) of the following described land located in King county, State of Washington, to wit:

(Legal) LOT B OF KING COUNTY BLA #L08L0080 REC 20090211900005

(Address) 13821 W LAKE KATHLEEN DR. SE.

(Parcel Number) 182306-9294

Do hereby define(s), declare(s), and dedicate(s) the following easement over, across and under that portion of the property described as follows:

(Legal) LOT B OF KING COUNTY BLA #L08L0080 REC 20090211900005

(Address) 13821 W LAKE KATHLEEN DR. SE.

(Parcel Number) 182306-9294

FROM A POINT OF BEGINNIN AT SOUTHEAST CORNER OF TAX PARCEL #182306-9294 THENCE; 5.9 FEET N07-08-00E THENCE; 41.3 N23-38W THENCE; 5-FEET S66-31-13W THENCE; 40 FEET S23-38E THENCE 5.4 FEET S66-31-13E 5 FEET N89-59-52E TO POINT OF BEGINNING

Said easement is for the purpose of installation and maintenance of the conveyance line portion of an on-site sewage disposal system to serve the following described properties:

(Legal) PP ACT 39637350 MOBILE HOME S 80 FT M/L OF N 890 FT M/L OF GL 5 LY E OF C/L OF RD WLY 20 FT FOR RD

(Address) 13824 W LAKE KATHLEEN DR. SE

(Parcel Number) 182306-9034

NOW THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s), his/her (their) heirs, successors and assigns will not construct or maintain or suffer to be constructed or maintained within the easement area: any structures, roads, driveways, or trails for vehicular traffic; and shall not excavate or compact natural soil within this area.

These covenants shall run with the land and shall be binding on all parties having or acquiring any right, title, or interest in the land described herein or any part thereof.

The easement shall terminate one hundred and eighty (180) days after public sewers become available to the property being served by easement.

WITNESS _____ hand _____ this _____ day of _____, 20 _____.

H. Stichling (Seal)

_____ (Seal)

State of Washington
County of King

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 7 day of JANUARY, 20 22, personally appeared before me: MAT BROWN to me known to be the individual(s) described herein and who executed the within instrument and acknowledge that he/she (they) signed and sealed the same as a free and voluntary act and deed, for the uses and purposes herein mentioned.

GIVEN under my hand and official seal the day and year last above written.

Matt B

Notary Public in and for the State of Washington
Residing at: ISSAQUAH, WA





King County
DDES
 DEPARTMENT OF DEVELOPMENT AND
 ENVIRONMENTAL SERVICES
 900 Oakesdale Avenue Southwest
 Renton, Wa 98055-1219

This certificate provides the Seattle King County Department of Public Health and the Department of Development and Environmental Services with information necessary to evaluate development proposals.

King County Certificate of Water Availability

Do not write in this box

number

name

- Building Permit Preliminary Plat or PUD
 Short Subdivision Rezone or other _____

Applicant's name Weigum (ginawlegum@comcast.net)
 Proposed use: Single Family Residence
 Location: 13824 W LK Kathleen, Renton WA, 98059 (1823069034)

(attach map and legal description if necessary)

Water purveyor information:

1. a. Water will be provided by service connection only to an existing (8") water main that is fronting the site.
 OR/AND
 b. Water service will require an improvement to the water system of:
 (1) _____ feet of water main to reach the site; and/or
 (2) The construction of a distribution system on the site; and/or
 (3) Other (describe) _____
2. a. The water system is in conformance with a County approved water comprehensive plan.
 OR
 b. The water system improvement is not in conformance with a County approved water comprehensive plan and will require a water comprehensive plan amendment. (This may cause a delay in issuance of a permit or approval).
3. a. The proposed project is within the corporate limits of the District or has been granted Boundary Review Board approval for extension of service outside the district or city or is within the County approved service area of a private water purveyor.
 OR
 b. Annexation or Boundary Review Board (BRB) approval will be necessary to provide service.
4. a. Water **will be** available at the rate of flow and duration indicated below at no less than 30 psi measured at the nearest fire hydrants within 180 feet from all buildings/property (or **as marked on the attached map**):

Rate of flow at Peak Demand	Duration
<input type="checkbox"/> less than 500 gpm (approx. _____ gpm)	<input type="checkbox"/> less than 1 hour
<input type="checkbox"/> 500 to 999 gpm	<input type="checkbox"/> 1 hour to 2 hours
<input checked="" type="checkbox"/> 1000 gpm or more	<input checked="" type="checkbox"/> 2 hours or more
<input type="checkbox"/> flow test of _____ gpm	<input type="checkbox"/> other _____
<input type="checkbox"/> calculation of _____ gpm	

(Note: Commercial building permits which includes multifamily structures require flow test or calculation.)

 OR
 b. Water system is not capable of providing fire flow.
5. a. Water system has certificates of water right or water right claims sufficient to provide service.
 OR
 b. Water system does not currently have necessary water rights or water right claims.

Comments/conditions: Fees per lot: WAC @ \$150,

Total Fees Per lot= \$150.00 FEES **SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. Paving plus 20% to be billed separately where applicable. Existing Service to be used**

I certify that the above water purveyor information is true. This certification shall be valid for 1 year from date of signature.

KING COUNTY WATER DISTRICT #90
 Agency name

Joshua Drummond
 Signatory name

**RENEWAL FEES: W/ IN 1 YEAR \$50.00
 AFTER 1 YEAR \$150.00**

Operations Manager
 Title

Signature

1/21/2022
 Date



King County
Permitting Division
Department of Local Services
35030 SE Douglas St., Ste. 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711
www.kingcounty.gov

September 13, 2021

Gina Weigum
6133 164th Avenue Southeast
Bellevue, Washington 98006

RE: Critical Areas Designation CADS21-0132, Parcel 182306-9080
Status: Complete **DRAINFIELD EASEMENT PARCEL**

Dear Gina:

Your property was recently reviewed for a Critical Areas Designation. Our review consisted of a site visit and an in-office review of existing background data. The result of our study is that we have determined that your parcel is host to the critical areas discussed separately below. Specific impacts to development on your parcel are also discussed.

Please note that this Designation is valid only for part of the parcel, as shown on the attached site plan. Other critical areas not discussed here may be present on your property outside the area of this review.

The determinations reported in this letter as to the existence, location, and classification of critical areas and critical area buffers are effective for five years from the date of this letter if there has been no change in site conditions. The Department of Local Services, Permitting Division (Permitting) shall rely on these determinations of the existence, location and classification of critical areas and critical area buffers in its review of complete applications for permits or approvals filed for the subject development site or parcel within five years after the letter is issued.

If you do not plan to develop your property soon after receiving this letter, it may be in your interest to contact us to see if any of the conclusions in this letter have changed or are no longer valid.

Wetlands (21A.24.318 to 21A.24.345)

Your parcel contains a **Category III wetland**. The buffer width for this category of wetland (which on an undeveloped lot is to remain unaltered native vegetation) is **60 feet**. Structures must honor an additional 15-foot building setback beyond the buffer. Within a **currently** undeveloped buffer, no development of any kind is usually allowed, including clearing, grading, or any other alteration of the existing vegetation. Within legally developed buffers, maintenance of existing structures and landscaping is allowed as well as limited expansions of some structures.

In your particular case, the wetland was described in a report (dated April 6, 2021) by MacWhinney Environmental Consulting, LLC. This Category III wetland has 5 habitat points. Wetlands such as these are assigned 60-foot buffers if moderate-impact projects are proposed.

Water Service

New development in the rural area must be served by Group A water systems, Group B water systems or individual private wells as provided for in King County Code (KCC) 13.24.138. If potable water is required for development, a Certificate of Water Availability or approval of an alternative water source consistent with the priority order provided in KCC 13.24.138 will be required under KCC 21A.21A.28.040. Attached is a flow chart summarizing water service requirements and links to additional information. Read the chart by starting in the upper left corner, "Unincorporated King County, Property Location". It appears this property is in the King County Water District 90 water service area, which should be confirmed by the applicant. It is the applicant's responsibility to verify water availability, in priority order, preceding submittal of an application. If you have questions about these requirements, please contact Permit Review Coordinator at the Permitting Division.

Closure

When you are applying to the Health Department for septic system design approval or water well site approval, please include a copy of this letter and any attachments with your application to them. Similarly, a copy should be included with any building permit application. This critical area determination is not based on a professional survey of the site. As a result, this CAD may be relied on for the type and general location of critical areas but does not represent a confirmation of the precise boundaries of identified critical areas. Depending on the scope and type of development proposed on the site, a survey may be required with a permit application. If additional critical areas that are not reflected in the CAD become known during permit review, the development would still need to comply with applicable critical areas regulations.

The purpose of this review is to determine the location and classification of critical areas on your site that might affect your proposed development activities and is not an approval of existing or proposed development. Additional reviews, including but not limited to drainage, clearing, grading, compliance with critical area codes, and fire flow may occur during the building permit review process.

A clearing and grading permit would be required in order to clear land for access to a well site within critical areas prior to obtaining a building permit.

CADS21-0132
September 13, 2021
Page 3 of 3

Please feel free to contact me at 206-477-3721 or cholcomb@kingcounty.gov if you have any questions.

Sincerely,

Chris Holcomb

Digitally signed by Chris Holcomb
DN: C=US,
E=Cholcomb@kingcounty.gov,
O=Department of Local
Services, OU=Permitting
Division, CN=Chris Holcomb
Date: 2021.09.12 23:50:55-07'00'

Chris Holcomb, MES
Environmental Scientist II-Ecologist

Attachments: Site Map
Water Service Requirements Flow Chart



King County
Permitting Division

Department of Local Services
35030 SE Douglas St., Ste. 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711
www.kingcounty.gov

February 11, 2022

Gina Weigum
6133 164th Ave SE
Bellevue, WA 98006

RE: Critical Areas Designation CADS22-0027, Parcel 182306-9034
Status: Complete

Dear Applicant:

Your property was recently reviewed for a Critical Areas Designation. Our review consisted of a site visit and an in-office review of existing background data. The result of our study is that we have determined that your parcel is host to the critical areas discussed separately below. Specific impacts to development on your parcel are also discussed.

The determinations reported in this letter as to the existence, location, and classification of critical areas and critical area buffers are effective for five years from the date of this letter if there has been no change in site conditions. The Department of Local Services, Permitting Division (Permitting) shall rely on these determinations of the existence, location and classification of critical areas and critical area buffers in its review of complete applications for permits or approvals filed for the subject development site or parcel within five years after the letter is issued. If you do not plan to develop your property soon after receiving this letter, it may be in your interest to contact us to see if any of the conclusions in this letter have changed or are no longer valid.

Aquatic Areas (21A.24.355 to 21A.24.380)

Your parcel contains a Type S aquatic area. The standard buffer width for this type of aquatic area (which on an undeveloped lot is to remain unaltered native vegetation) is 165-feet. Structures must honor an additional 15-foot building setback beyond the buffer. Within a currently undeveloped buffer, no development of any kind is usually allowed, including clearing, grading, or any other alteration of the existing vegetation. Within legally developed buffers, maintenance of existing structures and landscaping is allowed as well as limited expansions of some structures.

In your particular case, the Type S aquatic area is Lake Kathleen which was described in the report (dated April 2, 2021) by *MacWhinney Environmental Consulting, LLC*. Type S aquatic areas that are located outside of the Urban Growth Area are assigned 165-foot buffers.

Shoreline Designation (21A.25)

This parcel is located within the Lake Kathleen shoreline jurisdiction. The shoreline is designated Rural. Shoreline uses and modifications are regulated to provide no net loss of shoreline ecological functions. Depending on your shoreline designation and proposed project, a shoreline permit may be required. Please see KCC 21A.25 for specific shoreline regulations.

Water Service

New development in the rural area must be served by Group A water systems, Group B water systems or individual private wells as provided for in King County Code (KCC) 13.24.138. If potable water is required for development, a Certificate of Water Availability or approval of an alternative water source consistent with the priority order provided in KCC 13.24.138 will be required under KCC 21A. 21A.28.040. Attached is a flow chart summarizing water service requirements and links to additional information. Read the chart by starting in the upper left corner, “Unincorporated King County, Property Location.” It appears this property is in the King County Water District 90 water service area, which should be confirmed by the applicant. It is the applicant’s responsibility to verify water availability, in priority order, preceding submittal of an application. If you have questions about these requirements, please contact a Permit Review Coordinator at the Permitting Division.

Closure

When you are applying to the Health Department for septic system design approval or water well site approval, please include a copy of this letter and any attachments with your application to them. Similarly, a copy should be included with any building permit application. This critical area determination is not based on a professional survey of the site. As a result, this CAD may be relied on for the type and general location of critical areas but does not represent a confirmation of the precise boundaries of identified critical areas. Depending on the scope and type of development proposed on the site, a survey may be required with a permit application. If additional critical areas that are not reflected in the CAD become known during permit review, the development would still need to comply with applicable critical areas regulations.

The purpose of this review is to determine the location and classification of critical areas on your site that might affect your proposed development activities and is not an approval of existing or proposed development. Additional reviews, including but not limited to drainage, floodplain, shorelines, clearing, grading, compliance with critical area codes, and fire flow may occur during the building permit review process.

Your site is entirely constrained by critical areas and their buffers. Therefore, you may need a Critical Areas Alteration Exception in order to develop the property. A mandatory pre-application meeting is the first step towards obtaining an Alteration Exception.

CADS22-0027
February 11, 2022
Page 3 of 3

A clearing and grading permit would be required in order to clear land for access to a well site within critical areas prior to obtaining a building permit.

Please feel free to contact me at cholcomb@kingcounty.gov if you have any questions regarding ecological critical areas.

Sincerely,

Chris Holcomb, MES
Environmental Scientist II-Ecologist

Attachments: Critical Areas Site Map
Water Service Requirements Flow Chart

CADS22-0027 Critical Areas Site Map

Critical Areas located within parcel:

- Type S Aquatic Area
- Rural Shoreline (Entire Parcel)

Type S Aquatic Area;
-dotted blue line represents ordinary high water mark

15' BSBL

165' Wetland Buffer

Shoreline Management Designation; *Rural*
(covers entire parcel)



King County

Department of Local Services - Permitting Division

Critical Areas Review

APPROVED

By:

Date:

02/10/2022

Jessica Guillotte, Environmental Scientist II

King County, EagleView Technologies, Inc.



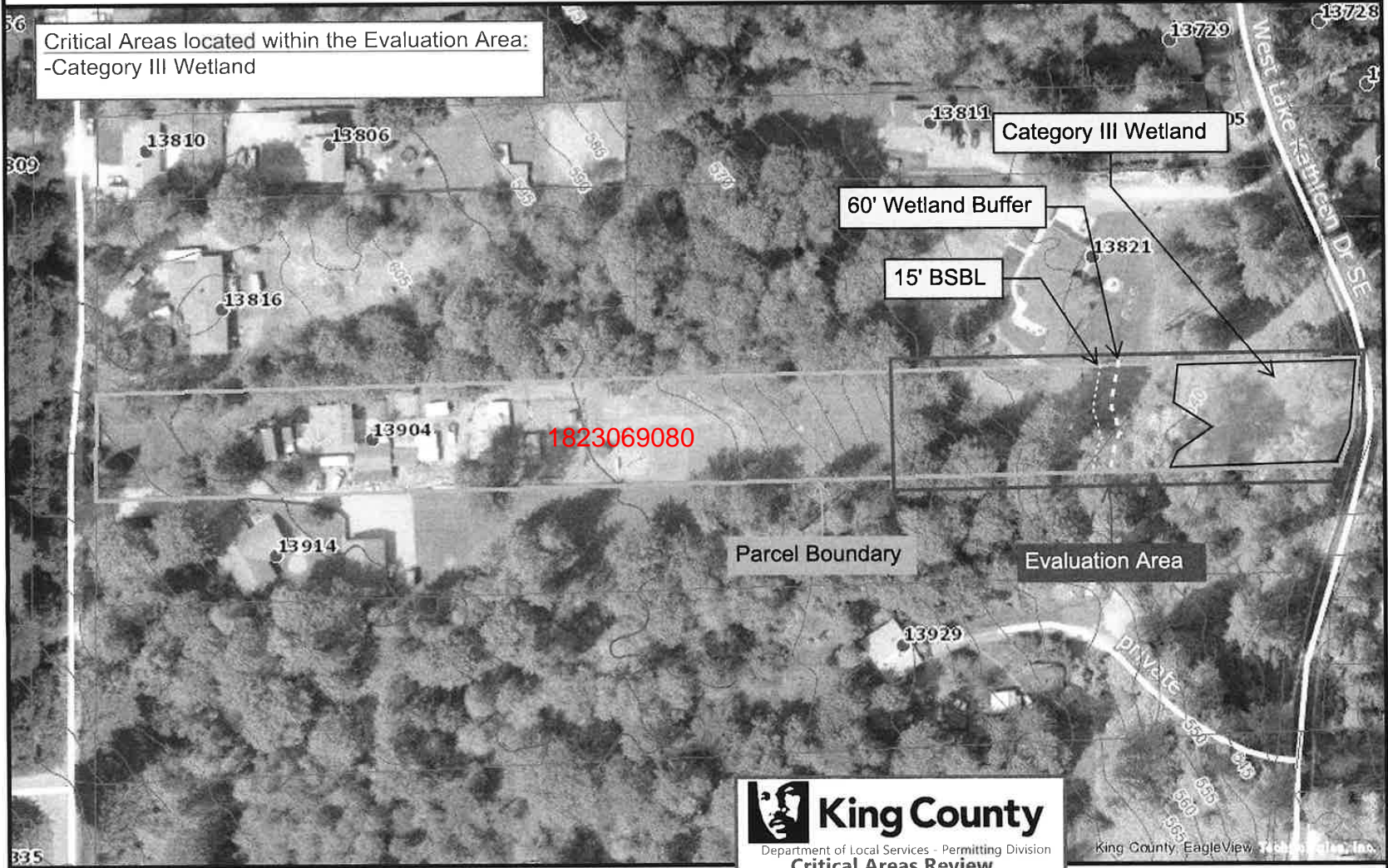
King County

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Date: 2/10/2022

Notes: Map not to scale

CADS21-0132 Map of Critical Areas



Critical Areas located within the Evaluation Area:
 -Category III Wetland

Category III Wetland

60' Wetland Buffer

15' BSBL

Parcel Boundary

Evaluation Area

1823069080

King County
 Department of Local Services - Permitting Division
Critical Areas Review
APPROVED
 By: *Chris Holcomb* Date: 9/13/2021
 Chris Holcomb, Environmental Scientist II

King County, EagleView, 2018, 2019, 2020, 2021, Inc.

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Date: 9/12/2021 Notes:

ON-SITE SEWAGE DISPOSAL SYSTEM
KING COUNTY
TAX PARCEL #182306-9034

LEGAL DESCRIPTION: SEE ATTACHED

I. PROJECT

To construct a 3-bedroom single-family residence. Water supply is a public source. Due to limited space, drip irrigation will be utilized (off site OSS easement).

II. TANKS

The tank specified is an approved 1000-gallon (trash tank). The septic tank will be watertight and have locking risers extending to grade. A NuWater BNR-500 will be used as the pretreatment component. The pump tank will be a 1500-gallon single compartment concrete tank. The pump tank will have a locking riser extending to grade. The pump will be mounted and fitted so it can be easily removed and remounted without removing the float switches. Conduct watertight testing of all tanks, test to consist of 24-hour standing head test. No leakage is acceptable.

No garbage grinder.

III. AS-BUILT INSPECTIONS

Pre-installation inspection, as-built inspection, pressure test, final cover inspection and other required as-built materials have not been paid as part of this design package. All additional inspections, field work, or other services required by the designer shall be additional with a payment due prior to the stub-out release. Please call for current pricing.

IV. PRE-TREATMENT

A NuWater BNR-500 system will be utilized. See attached installation instructions and detail sheets.

V. PLUMBING

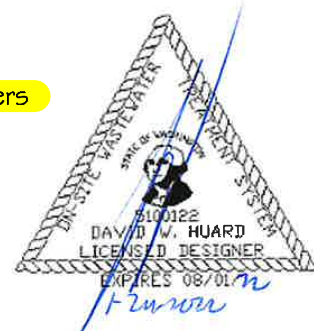
All plumbing must be of PVC material. The house side-sewer connection pipe must be four (4) inch diameter ASTM D3034; all others must be Class 200.

VI. ELECTRICAL

All electrical work from the pump station to the control panel must be completed prior to final inspection.

VII. NETAFIM DRIPFIELD

Install a minimum of 570 lineal feet Netafim drip lines on 2.5' centers with emitters on 1' spacing. See calculation sheet for details.



The flow rate to the dripfield is 3.9 gpm - dripfield shall be dosed 12 times daily
 $450/12 = 37.5$ gallons per dose $37.5 / 3.9 = 9.6$ minutes on and 2 hours off.

VIII. CONTROL PANEL

Use a NuWater control panel. Mount the control panel on a non-bedroom exterior wall or on its own pedestal approximately five (5) feet high above final grade. The system must be weather-tight and suitable for outside installation. The panel must have an audio and a visual high-level alarm. The panel's front covers must be visible from the pump tank's lid. All electrical wiring must be done in accordance with manufacturer's specifications and Washington State Electrical code.

SOIL LOGS 12-21-2022

SOIL LOG #TSL 0-2" SOD, 2-16" BROWN TO GRAY LOAM (TYPE 4), WATER @16".

SOIL LOG #1 0-17" FILL/DISTURBED, 17-46" LIGHT BROWN GRAVLEY SANDY LOAM WITH ROOTS (TYPE 4), 46-62" GRAY MOTTLED SANDY LOAM (TYPE 4), WATER @62".

SOIL LOG #2 0-12" FILL/DISTURBED, 12-38" LIGHT BROWN GRAVLEY SANDY LOAM WITH ROOTS (TYPE 4), 38-53" GRAY MOTTLED SANDY LOAM (TYPE 4), WATER @53", WET @38".

SOIL LOG #3 0-14" FILL/DISTURBED, 14-46" LIGHT BROWN GRAVLEY SANDY LOAM WITH ROOTS (TYPE 4), 46-53" GRAY MOTTLED SANDY LOAM (TYPE 4), COMPACTED @53".

SOIL LOG #4 0-14" FILL/DISTURBED, 14-46" LIGHT BROWN GRAVLEY SANDY LOAM WITH ROOTS (TYPE 4), 46-52" GRAY MOTTLED SANDY LOAM (TYPE 4), WATER @52", WET @43".

KCHD FIELD INSP. 2.17.2022

SL1 0-18" Disturbed/ fill debris observed, 18-36" BSL, 36-54" GRY SL/ DRY

SL2 0-18", 18-31" BSL, 31-52" GRY SL, EV. OF WATER AT BOTTOM/ DRY

SL3 0-18", 18-36" BSL, 36-51" GRY SL/ DRY

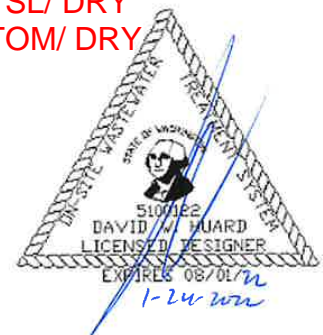
SL4 SAME AS #2

topo undulating

slopes less than 20%

area appears to have been disturbed at some time

0-14" as designer calls out



AGREEMENT FOR PROFESSIONAL SERVICES

Project: Operation and Maintenance Inspections **Phone:** Office-
Client Name: **Phone:** Cell-
E-mail: **Phone:** Fax-
Site Address: **Mailing Address:**
City, State: **City, State:**
Parcel Number: **Date:** January 24, 2022
System Type: **In Service Date:**

Purpose: To fulfill the requirements of King County Title 13.60, Operation and Maintenance Monitoring and Management. Attached hereto and as a part of this contract are: Copy of Operation/Performance Monitoring Report and the interval requirements by system type as detailed in King County Title, Table 13.60-1.

SCOPE AND COSTS OF WORK: HUARD SEPTIC DESIGN AND MONITORING, LLC, (herein referred to as "HSDM".) will provide Operation and Maintenance Inspection data solely as a convenience to

(Herein referred to as "Client".) Inspection includes one site visit by licensed maintainer per inspection and a written report on forms provided by the health officer (Form Attached.)

Inspection does NOT include additional site visits, meetings, labor, additional inspections, corrections, possible laboratory analysis, tank pumping, or designs required to fulfill the requirements of King County Public Health required to complete the inspection.

Inspection will be performed at the rate applicable to your system type in accordance with HSDM's rate then in force. Any additional work, such as location, accessibility of system or site conditions are such that the inspection cannot be completed, shall be completed on a time and materials basis in accordance with HSDM's hourly rate then in force. Additional administrative fees may be applied for services or additional copies of documentation provided for the convenience of Client.

Should Client cancel the inspection less than 24 hours prior to inspection a cancellation fee of \$75.00 will be applied. Should the inspection be completed prior to cancellation the applicable fee will be charged.

CLIENT'S RESPONSIBILITIES: Client is responsible for the continuous operation and maintenance of the on-site sewage system as outlined in the Homeowner's Manual available from the King County Health Department. HSDM shall inspect and report to client on the condition of their on-site sewage system. Client is solely responsible for addressing and correcting any items noted during the inspection.

NOTICE OF OCCUPANCY: It is the client's responsibility to notify HSDM of the date of occupancy. If HSDM does not receive said notice within three months of move-in this contract is void.

BILLING: HSDM will bill for services progressively. Client shall pay all fees and costs billed by HSDM within 10 days of the date of billing. In the event Client fails to make payment within 30 days, this agreement between the parties shall be in default and can be terminated with or without cause, without liability to either party. However, termination shall not relieve Client of the duty to pay for services rendered by HSDM. In the event of default by Client, Client shall pay HSDM all expenses incurred and fees earned by HSDM in performance of work on behalf of Client through the date of default. Interest at the rate of one and one half percent (1 ½%) per month will be added to unpaid accounts due over 30 days. HSDM will stop work should Client account(s) become 30 days delinquent. In the event that HSDM institutes legal proceedings to enforce any obligation, Client agrees that venue for such suit shall be King County, Washington at the option of HSDM. All expenses incurred in obtaining any lien or collecting any delinquent amounts including, but not limited to, reasonable attorney's fees, witness fees, court costs, and charges at current billing rates for time, transportation and subsistence shall be paid by Client to HSDM in addition to the delinquent amount. Delinquent accounts shall not be entitled to release of any documents until the account, including any and all additional charges hereunder, has been paid in full.

GOVERNMENTAL FEES: Client shall be responsible for the cost of all fees required by governmental agencies that are necessary for this service.

TERMINATION: Either party to this Agreement may terminate the work and this Agreement with or without cause, without liability to the other. In the event of such termination, Client shall, upon payment in full of outstanding invoices of HSDM be entitled to retain and utilize the work product prepared by HSDM; provided, however, that use of such work product shall be at Client's sole risk and without liability or legal exposure to HSDM. Client releases, and shall defend, indemnify and hold HSDM harmless from all claims, damages, losses and expenses, including attorney's fees, arising out of or relating, in any way, to Client's use of such work. At HSDM's discretion, a termination charge may also be made to cover costs relating to the project termination.

CLIENT AUTHORIZATION: The undersigned Client warrants that he/she is the owner or agent of the owner of the real property upon which services will be rendered by HSDM.

I/We hereby agree to the terms and conditions set forth in this authorization contract and do hereby assume personal liability for charges incurred on this project.

Client

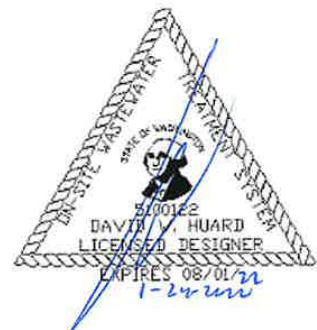
Client

Date

Date

CONSTRUCTION NOTES:

- All work to be conducted in accordance with King County Title 13.
- Install 1000 gallon “trash tank”.
- Install NuWater BNR-500.
- Install 1500 gallon pump chamber.
- Install NuWater timer control panel.
- Install 570 lineal feet Netafim SDS on 2.5’ centers.
- Install dripfield in top 6-10” of existing soil.
- Any cuts or banks created down gradient of primary and reserve area may create setbacks, which could invalidate this design.
- Any clearing of land in primary and reserve areas must be done in the presence of a licensed Master or Associate Installer.
- DO NOT disturb soils in the primary and reserve area doing so may invalidate this design.
- Any large trees (18 inches in diameter - 2 feet above grade) must be left standing or stumps left in place. The stumps may be grinded, burned or removed in some other fashion, which will not disturb the soils.
- All footing and storm drains shall be diverted away from the drainfield and tank areas.
- All property lines and contour lines are based on assumed data and do not represent an actual field survey - Designer takes no responsibility for accuracy.
- All driplines shall follow ground contours.
- All driplines shall be level.
- **Install temporary boundary around drainfield and reserve areas prior to any construction on this site.**



The Netafim Bioline® Calculator estimates the amount of Bioline needed to install a wastewater drip dispersal system along with other design parameters. It is NOT intended to replace a professional design, and should be used for estimating purposes only. Always consult with a professional designer. Do not use this program with other brands of products.

General Instructions

Fill in the violet-shaded cells. Output information will automatically be calculated and shown in blue-shaded cells. Do not attempt to enter data into the blue-shaded cells. It will erase the formula and potentially impact other output data. To save your information as a .txt file for future reference or submittal, fill in the information in the project's name and address fields below. The name you choose for "Job Name/Homeowner" will become the name of the .txt file. It will be saved on your computer when you click the "Save to File" button at the bottom of the sheet. A file folder will be created for you called "Netafim" and the file will be stored there. For example, if the Job Name / Homeowner for the project is Mr. & Mrs. Jones, all of your information will be saved in a file folder called "Netafim" and the file in this folder will be called "Mr. & Mrs. Jones.txt".

Netafim Bioline® Dripplerline Design Recommendations - Based on Maximum Emitter Discharge Rate Per Day

Job Name / Homeowner: _____
 Address: _____
 City, State, Zip: _____
 Permit Agency: _____
 Installer Name: _____
 Designed By: _____
 Date: _____

System Data Input	
Gallons Per Day	450
Maximum Emitter Discharge Rate Per Day	0.8
Select Emitter Flow Rate (GPH)	0.42
Select Emitter Spacing (inches)	12
Flush Velocity (fps)	2

Assumptions	
Estimated Pump Flow Rating (GPM)	20
Inlet Pressure (psi)	25
Inlet Pressure (Feet of Head)	57.8
Row Spacing Between DripLines (feet)	2
Number of Zones	1
Hours Per Day to Use for Dosing	24
Elevation Change from Pump to Dose Tank Outlet (feet)	5
Elevation Change from Dose Tank to Drip Field (feet)	28
Length of Supply Line & Manifolds (feet)	125
Type of Pipe - Supply Line & Manifolds	PVC Sch40
Size of Supply & Manifold Pipe (inches)	1
Pipe Roughness Constant	150
Inside Diameter of Pipe (inches)	1.049
Number of Daily Dosing Events Per Zone	12

Calculation Outputs	
Total System Information	
Application Area Required (square feet)	1,125
Total Amount of Bioline® Required (feet)	563
Total Number of Emitters in the Dripfield	563
Zone Information	
Number of Zones	1
Amount of Bioline® Per Zone (feet)	563
Number of Emitters Per Zone	563
Minimum Number of Laterals Per Zone	3
Maximum Number of Laterals Per Zone	11
Number of Laterals That Will be Used	5
Maximum Length of Bioline® Laterals Based on Inlet Pressure	221
Flow Rate Per Zone (GPM)	3.9
Holding Capacity of Dripplerline Per Zone (Gallons)	7.3
Additional Flow Requirement to Accommodate Flushing Velocity	8.0
Head Loss Data - Dosing Cycle with no Flush	
Friction Loss per 100' (psi) in Supply Line & Manifolds	0.4
Velocity (fps)	1.5
Friction Loss in Supply Line & Manifolds (psi)	0.5
Friction Loss in Supply Line & Manifolds (Feet of Head)	1.2
TDH (Total Dynamic Head in Feet of Head)	92.0
Head Loss Data - Dosing & Flushing Cycle	
Friction Loss per 100' (psi) in Supply Line & Manifolds	3.3
Velocity (fps)	4.4
Friction Loss in Supply Line & Manifolds (psi)	4.2
Friction Loss in Supply Line & Manifolds (Feet of Head)	9.6
TDH (Total Dynamic Head in Feet of Head)	100.4
Control Settings Information	
Total System Runtime Per Day (HH:MM)	1:55
Total Runtime Per Zone Per Day (HH:MM)	1:55
Total System Dosing Events Per Day	12
Runtime For Each Dose (HH:MM)	0:10
Rest Time Between Doses in the Same Zone (HH:MM)	2:01
Miscellaneous Information	
Dosing Volume Per Emitter Per Dose (gallons)	0.07
Inches Per Week of Dosing	4.49
Volume of a Single Dose (gallons)	39.4
Pump Selection	
Pump Flow Rating (GPM)	11.9
TDH (Total Dynamic Head in Feet of Head)	100.4
Pump Manufacturer	Oremco
Pump Model	P200511

Figure 7 Air/Vacuum Relief Valve in Valve Box with Gravel Sump

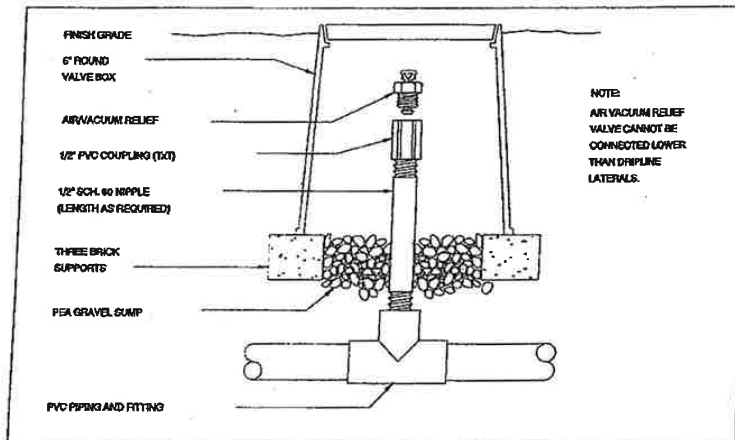
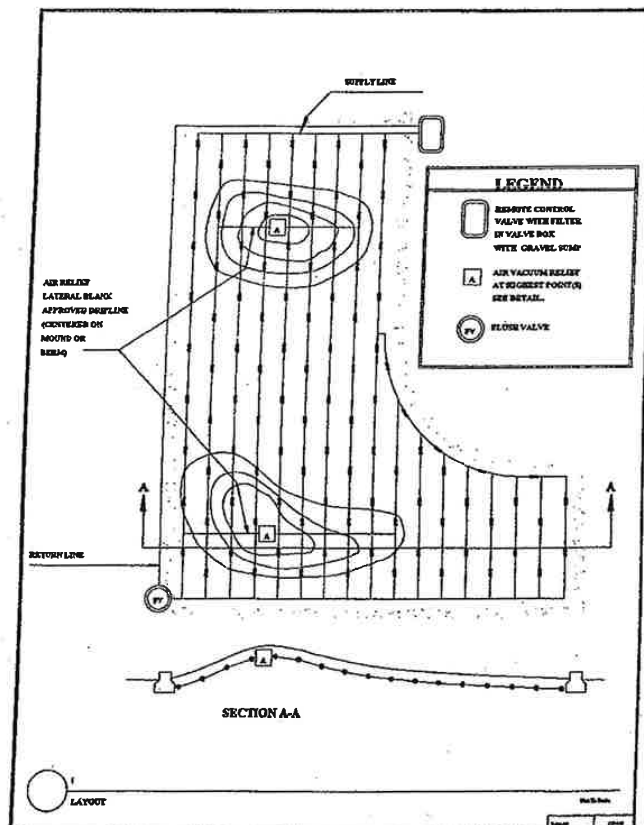


Figure 8 Dripfield Installation on Mounded Site



Netafim Drip Parts List

1" Tech filter

-NFDF4120

3/4" adapter

-NFTL075MA

Coupling

-- NFTLCOUP

0.42 gph 12" spacing Bioline

- NFBL412500E

1" air relief valves

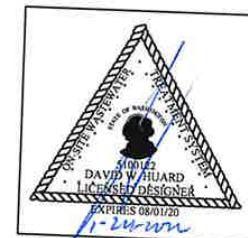
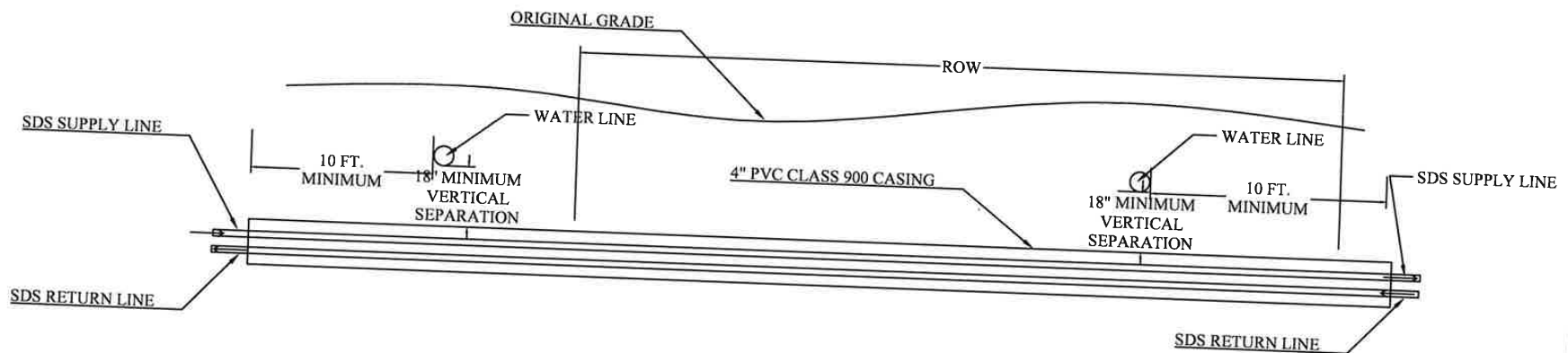
-NFAVR4G

1-100 psi pressure gauges

-ASG100LF

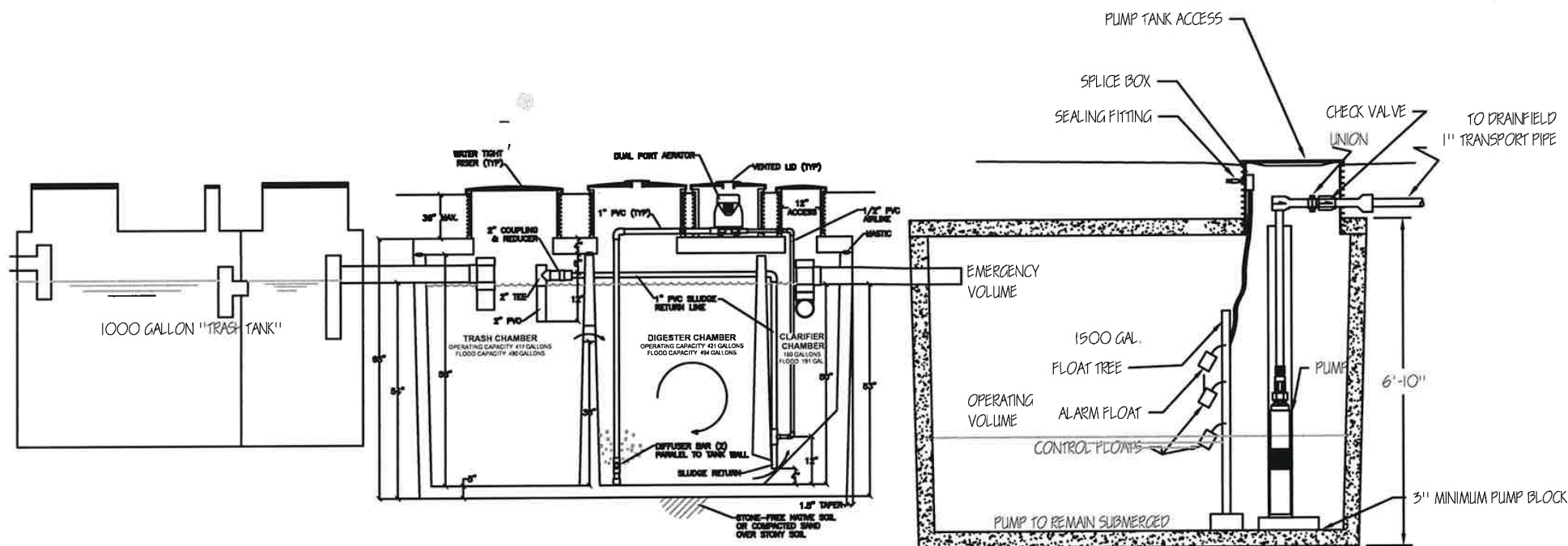
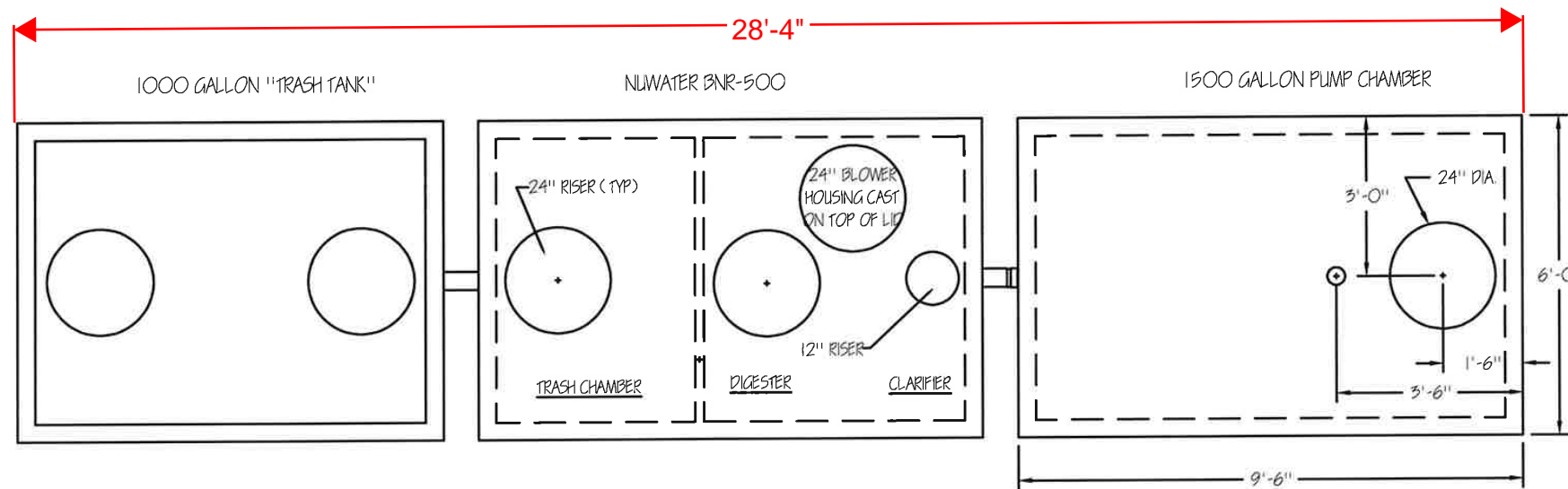
3/4" reclaimer water meter MMMJ23USGR

WATER LINE/SEWAGE TRANSPORT LINE CROSSING--ROW CROSSING





KING COUNTY NUWATER BNR-500
(500 GAL. TREATMENT)

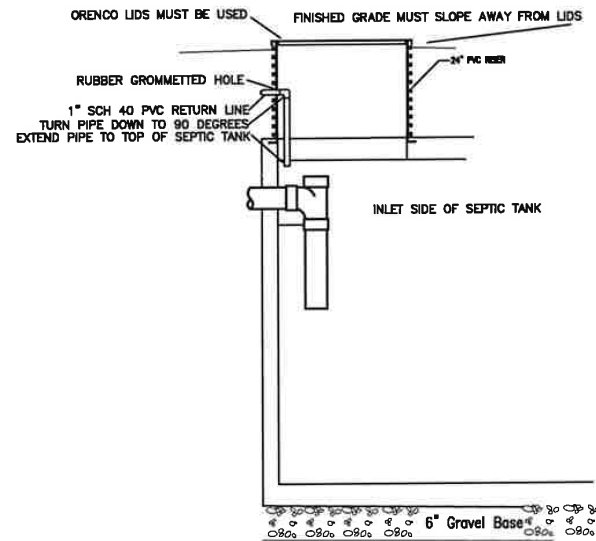


KING COUNTY # CCP 150-1
Pump Tank

INSTALLATION INSTRUCTIONS

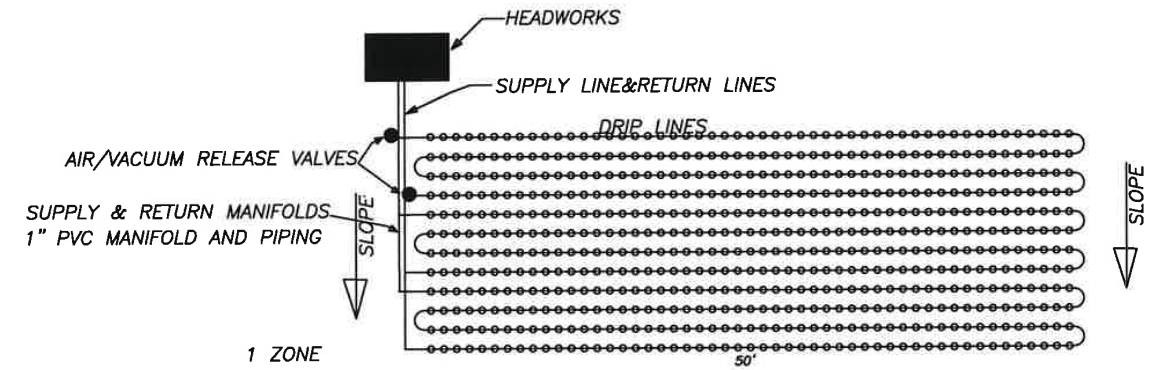
- 1) Excavate tank hole with vertical walls to 1 foot larger than tank on all sides
- 2) If bottom of hole is stony, install 3" of compacted sand & level out with screed.
- 3) Install tank in center of hole, keeping 1 ft. void space on all sides
- 4) As tank is filling with water, fill in void space with compact granular (sandy) soil free of large clumps of clay.
- 5) Install rest of system, & affix risers to adapters with waterproof adhesive.
- 6) perform watertightness test in field as required by local jurisdiction.
- 7) Upon approval to backfill, carefully backfill with native soils over top of tank.
- 8) Final grade the surface to avoid channelling surface water towards tank.

Stub-out elevation-535'
 Septic tank invert elevation-534.5'
 Pump intake elevation-529'



RETURN LINE CROSS SECTION

DRIP FIELD SCHEMATIC
N.T.S.



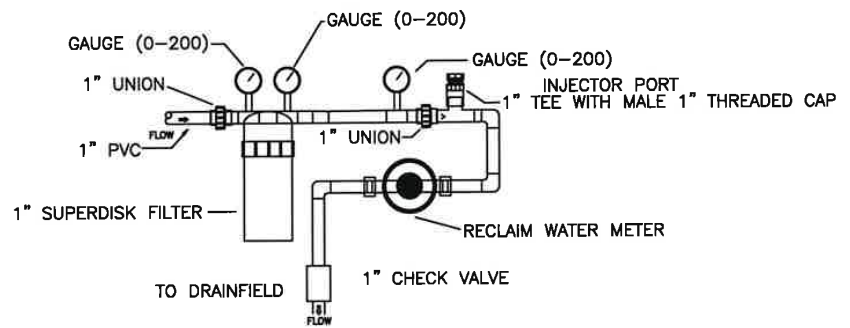
1 ZONE

TYPICAL EXAMPLE ABOVE SHOWING THREE LOOPS. LOOPS CAN BE UP TO 200 FEET LONG. THEY DO NOT HAVE TO BE EVEN IN LENGTH BECAUSE OF PRESSURE COMPENSATING EMITTERS. IF LAST LOOP ENDS AT OPPOSITE END, CONNECT WITH 3/4" SCH 40 PVC AND PIPE IT BACK TO THE RETURN LINE MANIFOLD. NUMBER OF LOOP CONNECTIONS WILL VARY FROM DESIGN TO DESIGN. ADHERE TO THE CALCULATION & SPEC SHEET ON THIS PAGE.

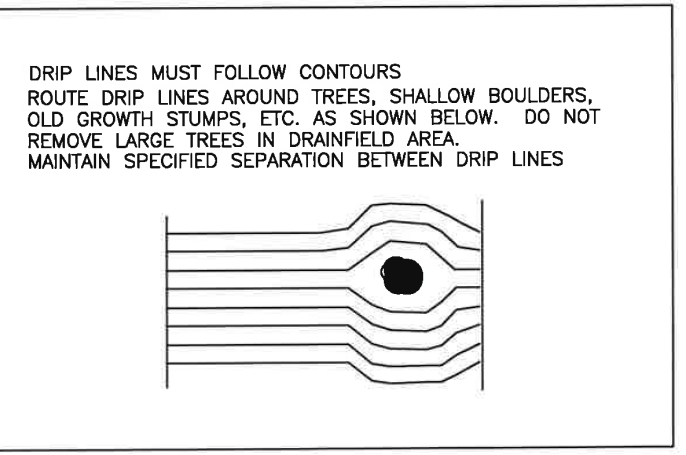
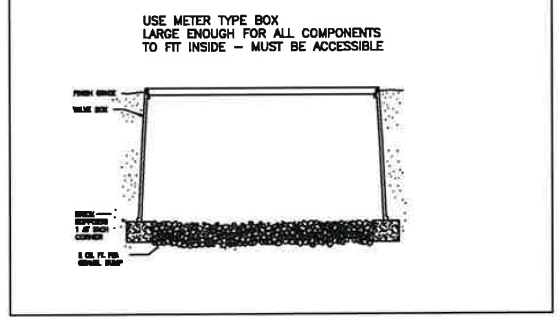
1. DRIP LINES MUST BE INSTALLED AS LEVEL AS POSSIBLE AND PARALLEL TO CONTOURS ON SLOPED SITES.
2. MINIMUM INSTALLATION DEPTH IS 6 INCHES BENEATH GRADE. DRIPLINE MUST BE INSTALLED IN ORIGINAL, UNDISTURBED SOIL. MAXIMUM INSTALLATION DEPTH IS 12"
3. DRIPLINE SPACING MUST BE INCREASED BY ONE FOOT FROM THE VALUES IN TABLE 2 ON SLOPES GREATER THAN 20 PERCENT.
4. MAXIMUM ALLOWABLE FLOW VARIANCE BETWEEN ANY TWO EMITTERS IN A DISTRIBUTION ZONE IS 10 PERCENT.
5. MAXIMUM ELEVATION DIFFERENCE BETWEEN ANY TWO EMITTER IN THE SAME DISTRIBUTION FIELD IS 5 FEET.
6. DRIP LINES SHOULD FOLLOW CONTOURS
7. ROUTE DRIP LINES AROUND TREES, SHALLOW BOULDERS, OLD GROWTH STUMPS, ETC.
8. DO NOT REMOVE LARGE TREES IN DRAINFIELD AREA. STUMPS CAN BE GROUND DOWN FOR AESTHETIC REASONS.

HEADWORKS DETAIL

USE LATEST HEADWORKS PROVIDED BY HD FOWLER



RISER DETAIL

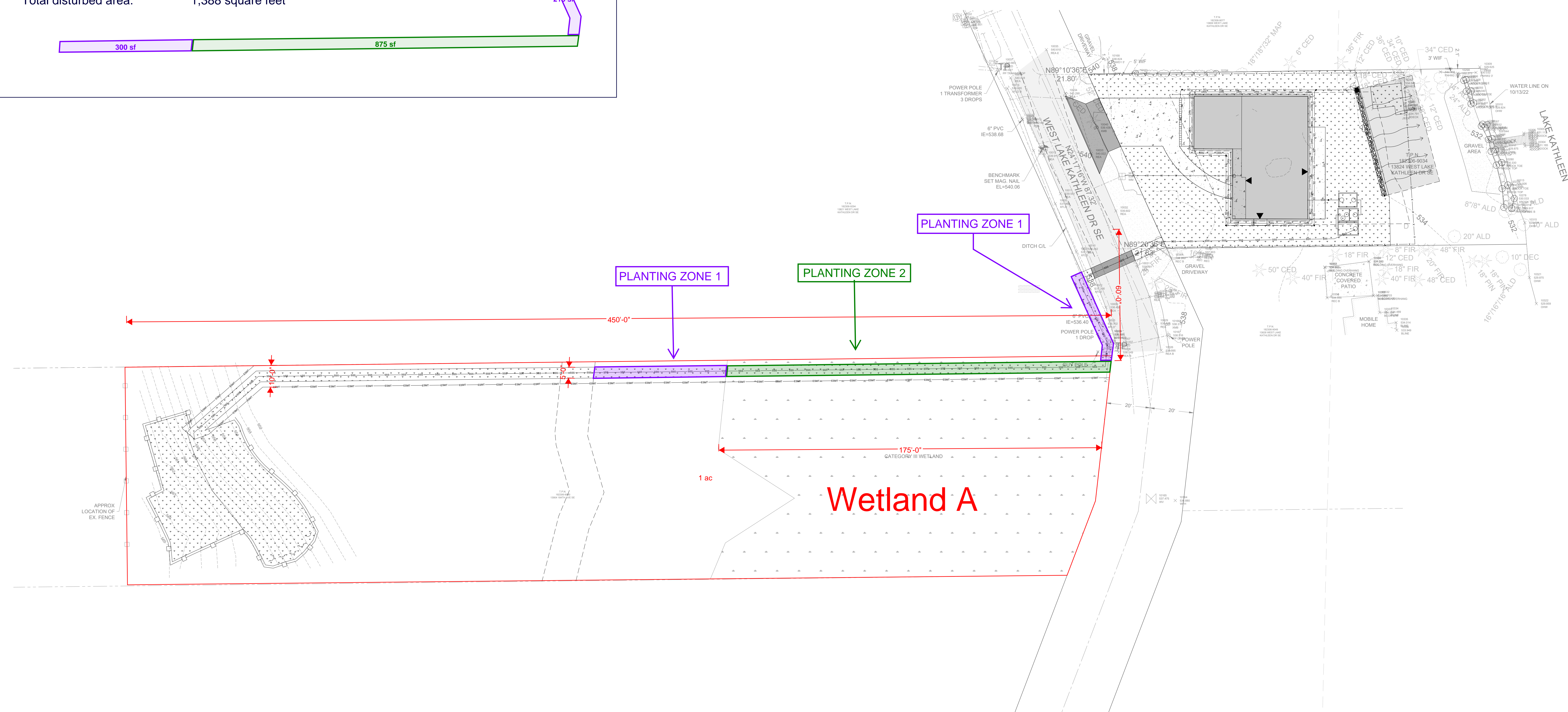
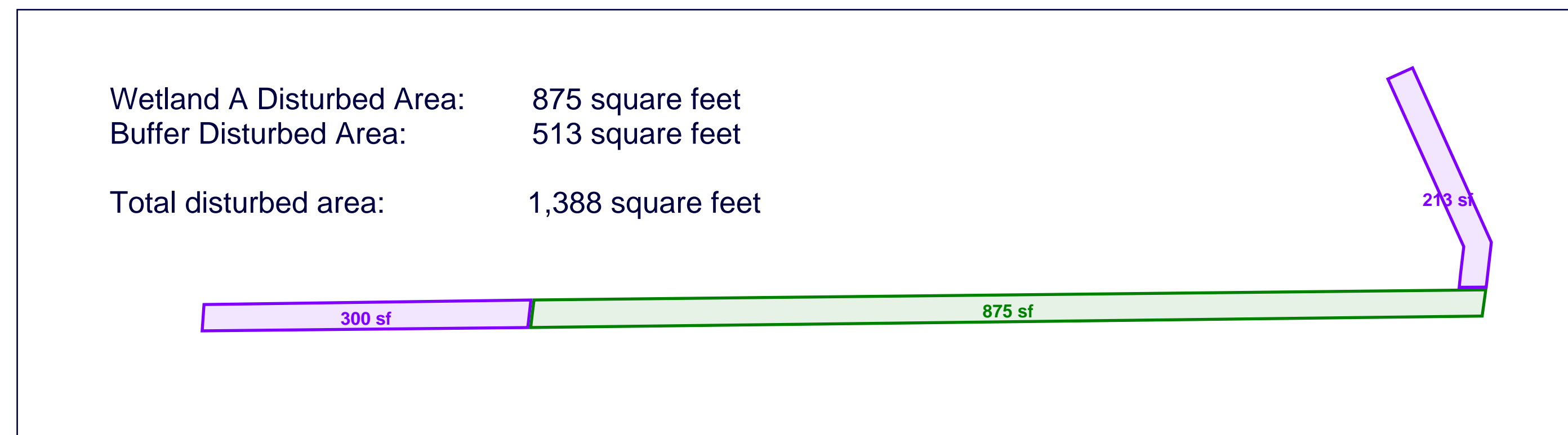


HSDM, LLC
PO BOX 2243
NORTH BEND, WA 98045
425.831.1781 PHONE
425.888.2866 FAX
WWW.SEPTICDESIGN.NET

APPENDIX D. Restoration Plan

MITIGATION PLANTING PLAN

DISTURBANCE AREA OVERVIEW



PLANTING ZONE 1

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	TYPE*	SPACING	# OF PLANTS
SALAL	<i>Gaultheria shallon</i>	FACU	G	3 ft on center	35
YARROW	<i>Achillea millefolium</i>	FACU	G		40
OAK FERN	<i>Gymnocarpium dryopteris</i>	FAC	G		15
SWORDFERN	<i>Polystichum munitum</i>	FACU	G		35
FALSE LILLY OF THE VALLEY	<i>Maianthemum dilatatum</i>	FAC	G		15

PLANTING ZONE 2

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS	SPACING	# OF PLANTS
SLOUGH SEDGE	<i>Carex obnupta</i>	OBL	3 ft on center	36
GOLDEN BLUE-EYED GRASS	<i>Sisyrinchium californicum</i>	FACW		26
SKUNK CABBAGE	<i>Lysichiton americanum</i>	OBL		36
NORTHERN LADY FERN	<i>Athyrium filix-femina</i>	FAC		56
SILVERWEED	<i>Potentilla anserina var. pacifica</i>	OBL		26
OAK FERN	<i>Gymnocarpium dryopteris</i>	FAC		36
THICK-HEAD SEDGE	<i>Carex pachystachya</i>	FAC		36