HEARING EXAMINER MEETING
WEDNESDAY, JULY 24, 2024 – 6:00 PM
501 DELTA AVE, MARYSVILLE, WA 98270

Hearing Examiner Meeting to discuss PA23-030 - Chapel Hill Subdivision

AGENDA

The public hearing is a *hybrid* meeting which you are welcome to attend in-person or via Zoom. Anyone wishing to provide verbal public comment must pre-register by contacting the Project Manager listed in the item by *4PM the day prior to the meeting*. Those providing verbal public comment will need to provide their name, address, e-mail and phone number.

Join Zoom Meeting:

https://us06web.zoom.us/j/82201931923?pwd=6pSaMRbbYqpKe03dCgx18H0iZpHc4l.1

Passcode: 895406

Phone: 253.215.8782

Call to Order

Public Hearings

1. **File Number:** PA23-030

   Land Use Action: The applicant is proposing a 23-lot PRD subdivision and a wetland variance for the placement of a stormwater dispersion trench within the Category III wetland buffer.

   Applicant: Robinett Investment Company/Land Resolutions

   Project Manager: Emily Morgan, Senior Planner, emorgan@marysvillewa.gov

   E001 - Land Use Application - PA23-030.pdf
   E002 - Project Narrative - PA23-030.pdf
   E003 - Title Report-Legal Description - PA23-030.pdf
   E004 - Correspondence - PA23-030.pdf

E005 - Critical Areas Report - PA23-030.pdf
E006 - Traffic Impact Analysis - PA23-030.pdf
E007 - Geotechnical Report - PA23-030.pdf
E008 - Drainage Report - PA23-030.pdf
E009 - Landscape Plan - PA23-030.pdf
E010 - Plat Map - PA23-030.pdf
E011 - Preliminary Civil Plans - PA23-030.pdf
E012 - Letter of Completeness - PA23-030.pdf
E013 - Request for Review - PA23-030.pdf
E014 - Notice of Application - PA23-030.pdf
E015 - Affidavit of Publication - PA23-030.pdf
E016 - Technical Review Comments - PA23-030.pdf
E017 - Resubmittal Letter - PA23-030.pdf
E018 - Preliminary Site Plan - PA23-030.pdf
E019 - Preliminary Civil Plans - PA23-030.pdf
E020 - Landscape Plan - PA23-030.pdf
E021 - Critical Areas Report - PA23-030.pdf
E022 - Drainage Report - PA23-030.pdf
E023 - Traffic Impact Analysis - PA23-030.pdf
E024 - Technical Review Comments 2 - PA23-030.pdf
E025 - Preliminary Site Plan - PA23-030.pdf
E026 - Concurrency Recommendation - PA23-030.pdf
E027 - Concurrency Acceptance - PA23-030.pdf
E028 - Notice of Public Hearing - PA23-030.pdf
E029 - Correspondence - PA23-030.pdf
E030 - Affidavit of Publication - PA23-030.pdf
E031 - Affidavit of Publication - PA23-030.pdf
E032 - Plat Map - PA23-030.pdf
E033 - Correspondence - PA23-030.pdf
E034 - Notice of Public Hearing - PA23-030.pdf
E035 - Affidavit of Publication - PA23-030.pdf
E036 - Staff Recommendation - PA23-030.pdf
E037 - Affidavit of Publication - PA23-030.pdf

Special Accommodations: **The City of Marysville strives to provide accessible meetings for people with disabilities. Please contact the City Clerk's office at (360) 363-8000 or 1-800-833-6384 (Voice Relay), 1-800-833-6388 (TDD Relay) two business days prior to the meeting date if any special accommodations are needed for this meeting.**

AGENDA ITEM NO. 1.

Agenda Bill

HEARING EXAMINER AGENDA ITEM REPORT

DATE: July 24, 2024

SUBMITTED BY: Marisa Nishmura, Community Development

ITEM TYPE: Public Hearing

AGENDA SECTION: **Public Hearings**

SUBJECT: **File Number:** PA23-030

Land Use Action: The applicant is proposing a 23-lot PRD subdivision and a wetland variance for the placement of a stormwater dispersion trench within the Category III wetland buffer.

Applicant: Robinett Investment Company/Land Resolutions

Project Manager: Emily Morgan, Senior Planner, emorgan@marysvillewa.gov

SUGGESTED ACTION:

SUMMARY:

ATTACHMENTS:
E001 - Land Use Application - PA23-030.pdf
E002 - Project Narrative - PA23-030.pdf
E003 - Title Report-Legal Description - PA23-030.pdf
E004 - Correspondence - PA23-030.pdf
E005 - Critical Areas Report - PA23-030.pdf
E006 - Traffic Impact Analysis - PA23-030.pdf
E007 - Geotechnical Report - PA23-030.pdf
E008 - Drainage Report - PA23-030.pdf
E009 - Landscape Plan - PA23-030.pdf
E010 - Plat Map - PA23-030.pdf
E011 - Preliminary Civil Plans - PA23-030.pdf
E012 - Letter of Completeness - PA23-030.pdf
E013 - Request for Review - PA23-030.pdf

E014 - Notice of Application - PA23-030.pdf

E015 - Affidavit of Publication - PA23-030.pdf
E016 - Technical Review Comments - PA23-030.pdf
E017 - Resubmittal Letter - PA23-030.pdf
E018 - Preliminary Site Plan - PA23-030.pdf
E019 - Preliminary Civil Plans - PA23-030.pdf
E020 - Landscape Plan - PA23-030.pdf
E021 - Critical Areas Report - PA23-030.pdf
E022 - Drainage Report - PA23-030.pdf
E023 - Traffic Impact Analysis - PA23-030.pdf
E024 - Technical Review Comments 2 - PA23-030.pdf
E025 - Preliminary Site Plan - PA23-030.pdf
E026 - Concurrency Recommendation - PA23-030.pdf
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E030 - Affidavit of Publication - PA23-030.pdf
E031 - Affidavit of Publication - PA23-030.pdf
E032 - Plat Map - PA23-030.pdf
E033 - Correspondence - PA23-030.pdf
E034 - Notice of Public Hearing - PA23-030.pdf
E035 - Affidavit of Publication - PA23-030.pdf
E036 - Staff Recommendation - PA23-030.pdf
E037 - Affidavit of Publication - PA23-030.pdf

EST. 1891
MARYSVILLE
COMMUNITY DEVELOPMENT

MASTER LAND USE PERMIT APPLICATION

Community Development Department • 501 Delta Avenue • Marysville, WA 98270
Office Hours: Mon - Fri 8:00 AM - 4:30 PM • Phone: (360) 363-8000

SITE INFORMATION

SITE ADDRESS: 6114 83rd Avenue NE	**APN(S):** 30052600403700 & 30052600404300
PROPOSED PROJECT NAME: Chapel Hill	**SECTION, TOWNSHIP, & RANGE:** S.26, T.30N., R.5E.
LAND USE (ZONING) DESIGNATION: R-6.5	**SHORELINE ENVIRONMENT:** N/A
WATER SUPPLY **Current:** Marysville **Proposed:** Marysville	**SEWER SUPPLY** **Current:** Private (septic) **Proposed:** Marysville

PRESENT USE OF PROPERTY: Single family residential

PRE-APPLICATION CONFERENCE HELD? ☒ **Yes, the City file # is** _____ ☐ **No**

	PROPERTY OWNER	APPLICANT	PROJECT CONTACT
NAME	Robinett Investment Company	Robinett Investment Company	Land Resolutions Attn; Jen Haugen
ADDRESS	2825 Colby Avenue #304	2825 Colby Avenue #304	3605 Colby Avenue
CITY, STATE, ZIP	Everett, WA 98201	Everett, WA 98201	Everett, WA 98201
PHONE	425-259-9000	425-259-9000	425-258-4438
E-MAIL	ginger@robinettland.com	ginger@robinettland.com	jen@orcalandsurveying.com

PROJECT INFORMATION

TYPE OF APPLICATION (Check all that apply):
***Permit type has supplemental checklist that must be submitted with Master Land Use Permit Application*

☐ Annexation Request	☐ Grading Permit	☐ SEPA Environmental Review**
☐ Binding Site Plan (Preliminary)**	☒ Major Subdivision (Preliminary)**	☐ Rezone
☐ Boundary Line Adjustment**	☐ Modification**	☐ Shoreline**
☐ Comprehensive Plan Amendment**	☐ Minor	☐ SDP Exemption
☐ Conditional Use Permit**	☐ Major	☐ Substantial Dev. Permit
☐ Critical Area Review	☐ Planned Residential Dev. (PRD)**	☐ Conditional Use Permit
☐ Final Plat Review**	☐ Site Plan Review**	☐ Variance
☐ BSP	☐ Commercial	☐ Variance**
☐ Short Plat	☐ Multifamily	☐ Wireless Communication Facility**
☐ Major Subdivision	☐ Short Plat (Preliminary)	☐ Other

LIST ANY OTHER PERMITS NEEDED (State/Federal):

DETAILED PROJECT DESCRIPTION:

23 lot short plat on 4.01 acres. Existing structures will be removed, and access, utilities and associated infrastructure installed.

I certify that I am the owner or owners authorized agent If acting as an authorized agent, I further certify that I am authorized to act as the Owners agent regarding the property at the above-referenced address for the purpose of filing applications for decision, permits, or review under the Unified Development Code and other applicable Marysville Municipal Codes and I have full power and authority to perform on behalf of the Owner all acts required to enable the City to process and review such applications.

I certify that the information on this application is true and correct and that the applicable requirements of the City of Marysville will be met. I grant permission for City employees, agents of the City and/or other agency officials to enter the subject property, if necessary, for the purpose of site inspection.

Manager — 11/28/23

Owner/Owner's Authorized Agent **Date**

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design · Planning · Management
3605 Colby Ave – Everett, WA 98201
(Office) 425-258-4438 (Fax) 425-258-1616

Project Narrative

November 30, 2023

Project Information
Project Name: Chapel Hill
Site Address: 6114 83rd Avenue NE, Marysville
Parcel Numbers: 30052600403700 & 30052600404300
S/T/R: SE ¼ of the SE ¼ of S26, T30N, R5E, WM, Snohomish County, WA
Zoning: R6.5
Designation: High Density Single Family Residential
Shoreline: N/A
Flood Plain Designation: N/A
Area: 174,580 sf (4.01 acres)
Critical Areas: Offsite wetland to the west, buffers extend on site.
Topography: The site slopes gently down from east to west.

Chapel Hill is being proposed as a 23-lot subdivision using City of Maysville Development codes and on-site density transfer for critical areas in accordance with MMC 22E.010.360. This project will be developed in one phase. The current owner of the site is Robinett Investment Company. On behalf of our client, Robinett Investment Company, located at 2825 Colby Avenue, Suite #304, Everett, WA 98201, we would like to submit the following project narrative:

This proposal consists of twenty (23) detached single family homes. Due to the on-site density transfer, zoning parameters of the R-8 zone were utilized with this application.

Residents of Chapel Hill shall take access from 83rd Avenue N.E. via public road extension. This road has a 50’ cross-section in accordance with MMC codes. Lots 14 and 15 shall share a driveway via panhandle from the public road, with ownership to lot 15. Lot 18 will also have panhandle access with a single driveway. The north end of this public road extension will end in a temporary turnaround until such point it continues north.

Open space for the development is provided via NGPA Tract 998 along the west side of the site, totaling 23,424 SF, consisting of the eastern edge and buffers of a category III wetland offsite to the west.

Buffer Averaging & enhancement is proposed within this application. We are proposing 3,354 SF of buffer addition, and 2,625 SF of reduction, resulting in a net buffer increase of 729 SF. A Critical Area Study and Mitigation Plan has been prepared by Wetland Resources and included with this application.

Drainage will be held and treated in the detention pond located in Tract 999 in the SW corner of the site prior to being disbursed via perforated stub out connection and sheet flow dispersion where feasible.

The existing home is currently serviced by onsite septic but will be converted to City of Marysville sewer and water with this application. The existing home and septic system will be removed and decommissioned prior to final plat approval.

Density on the project is calculated as follows:

Total Site Area	174,580 SF
Minus Flood Plains	0
Minus Utility Easements Over 30'	0
Minus Public Owned Facility & ROW	27,517 SF
Minus Stormwater Detention Tracts	18,177 SF
Minus Access Easements	3,045 SF
Minus Critical Areas Under Water	0
Minus Panhandles	2,002 SF
Net Site Area	123,839 SF

Net Site Area = 123,839 SF or 2.84 acres
2.84 x 8 = 22.74 lots allowable.
We are proposing 23 units in this application.

All existing trees and brush outside of the proposed NGPA fencing shall be removed within the proposed subdivision and a final landscaping plan will be provided at the time of building permit.

Thank you in advance for reviewing this project and we look forward to working with you to complete this application. If you have any questions or comments concerning submittal materials, feel free to contact me at (425) 258-4438 or jen@orcalandsurveying.com.

Sincerely,



Jen Haugen
Land Resolutions
2023-017

SUBDIVISION

Issued By:

CHICAGO TITLE INSURANCE COMPANY

Guarantee/Certificate Number:

500146248
Revision 1

CHICAGO TITLE INSURANCE COMPANY

a corporation, herein called the Company

GUARANTEES

Robinett Investment Company, a Washington limited liability company

herein called the Assured, against actual loss not exceeding the liability amount stated in Schedule A which the Assured shall sustain by reason of any incorrectness in the assurances set forth in Schedule A.

LIABILITY EXCLUSIONS AND LIMITATIONS

1. No guarantee is given nor liability assumed with respect to the identity of any party named or referred to in Schedule A or with respect to the validity, legal effect or priority of any matter shown therein.
2. The Company's liability hereunder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurance herein set forth, but in no event shall the Company's liability exceed the liability amount set forth in Schedule A.

Please note carefully the liability exclusions and limitations and the specific assurances afforded by this guarantee. If you wish additional liability, or assurances other than as contained herein, please contact the Company for further information as to the availability and cost.

Chicago Title Insurance Company

By:

Michael J. Nolan, President

Chicago Title Company of Washington
3002 Colby Ave., Suite 200
Everett, WA 98201

Countersigned By:

Brent Aune
Authorized Officer or Agent

Attest:

Marjorie Nemzura, Secretary

ISSUING OFFICE:
Title Officer: Builder Unit Chicago Title Company of Washington 3002 Colby Ave., Suite 200 Everett, WA 98201 Fax: (866)827-8844 Main Phone: (425)259-8223 Email: evebuilder@ctt.com

SCHEDULE A

Liability	Premium	Tax
$1,000.00	$350.00	$34.65

Effective Date: November 22, 2023 at 08:00 AM

The assurances referred to on the face page are:

That, according to those public records which, under the recording laws, impart constructive notice of matter relative to the following described property:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

Title to said real property is vested in:

Robinett Investment Company, a Washington limited liability company

subject to the matters shown below under Exceptions, which Exceptions are not necessarily shown in the order of their priority.

END OF SCHEDULE A

EXHIBIT "A"

Legal Description

For APN/Parcel ID(s): 300526-004-037-00 and 300526-004-043-00

PARCEL A:

THE SOUTH 368 FEET OF THE EAST 504 FEET OF THE NORTH 925 FEET OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST W.M.;

EXCEPT THE SOUTH 130.0 FEET OF THE EAST 366 FEET OF THE SAID EAST 504.0 FEET OF THE NORTH 925.0 FEET;

EXCEPT COUNTY ROAD;

ALSO KNOWN AS LOT 1 OF CITY OF MARYSVILLE SHORT PLAT 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, EXCEPT ANY PORTION LYING WITHIN DEED TO STATE OF WASHINGTON;

PARCEL B:

THE SOUTH 130 FEET OF THE EAST 366 FEET OF THE EAST 504 FEET OF THE NORTH 925 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER EXCEPT COUNTY ROADS.

ALSO KNOWN AS LOT 2 OF CITY OF MARYSVILLE SHORT PLAT 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, EXCEPT ANY PORTION LYING WITHIN DEED TO STATE OF WASHINGTON;.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

SCHEDULE B

GENERAL EXCEPTIONS:

H. Reservations and exceptions in United States Patents or in Acts authorizing the issuance thereof.

SPECIAL EXCEPTIONS:

1. No search has been made as to property taxes and assessments. Property taxes and assessments will be searched upon request.

2. Waiver of Damages contained in Deed:

   In Favor of: Snohomish County
   Recorded: October 6, 1978
   Recording No.: 7810060337
   As Follows: Said Grantor does hereby relinquish all claims of damage caused or arising by reason of the laying out and establishing of a public road upon the property herein conveyed.

3. Covenants, conditions, restrictions and easements but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

   Recording Date: September 8, 1978
   Recording No.: 7809080292

4. Contract for Deferred Construction of Curbs, Gutters and Sidewalks and the terms and conditions thereof:

   Executed by: The City of Marysville and Van C. Berkbigler and Mary Ann Berkbigler, husband and wife
   Recording Date: April 2, 1991
   Recording No.: 9104020116

5. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, encroachments, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on Survey:

   Recording No: 8807225001

6. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, encroachments, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on Short Plat Number 90-007:

   Recording No: 9104180195

SCHEDULE B
(continued)

7. The search did not disclose any open mortgages or deeds of trust of record, therefore the Company reserves the right to require further evidence to confirm that the property is unencumbered, and further reserves the right to make additional requirements or add additional items or exceptions upon receipt of the requested evidence.

8. Any unrecorded leaseholds, right of vendors and holders of security interests on personal property installed upon the Land and rights of tenants to remove trade fixtures at the expiration of the terms.

9. The Company's liability for this report is limited to $1,000.00. This report is based on the company's property records, and no liability is assumed for items misindexed or not indexed in the public records, or for matters which would be disclosed by an inquiry of the parties in possession or by an accurate survey or inspection of the premises. This report and the legal description given herein are based upon information supplied by the applicant as to the location and identification of the premises in question, and no liability is assumed for discrepancies resulting therefrom. This report does not represent either a commitment to insure title, an examination of, or opinion as to the sufficiency or effect of the matter shown, or an opinion as to the marketability of title to the subject premises.

END OF SCHEDULE B

MARYSVILLE
PUBLIC WORKS

TO: Kacey Simon, Civil Plan Reviewer

FROM: Ryan Keefe, Water Operations Lead II

DATE: April 25th, 2023

SUBJECT: Chapel Hill, 6114 83rd Ave NE

Water Operations has performed a fire flow test as requested for 6114 83rd Ave NE. The results were as follows:

Static:	53 psi
Residual:	51 psi
Pitot:	47 psi
GPM:	1156
GPM @ 20 psi:	5253

The test was performed using Hose Monster equipment with the GPM taken from their flow chart. The GPM @ 20 psi was determined using the hydrant flow test calculator located on the Hose Monster website.

Any questions please contact me at 360-363-8168 or rkeefe@marysvillewa.gov.

(360) 363-8100

Public Works
80 Columbia Avenue
Marysville, WA 98270

CRITICAL AREA STUDY
AND
BUFFER MITIGATION PLAN

FOR

CHAPEL HILL
MARYSVILLE, WA

Wetland Resources, Inc. Project #23040

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

November 15, 2023

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APPENDIX B: DEPARTMENT OF ECOLOGY WETLAND RATING FORMS AND FIGURES

APPENDIX C: CRITICAL AREA STUDY AND MITIGAITON MAPS (1-2/2)

1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) completed a site investigation on February 24 and May 17, 2023, to locate and evaluate jurisdictional wetlands and streams on and near the subject property. The 4-acre site is composed of two parcels (30052600403700 and 30052600404300), located at 6114 83rd Ave NE, within the city limits of Marysville, Washington (Section 26, Township 30N, Range 5E, W.M.). The property is situated within the Allen Creek Sub-basin of the Snohomish River Basin, Water Resources Inventory Area (WRIA) 7.

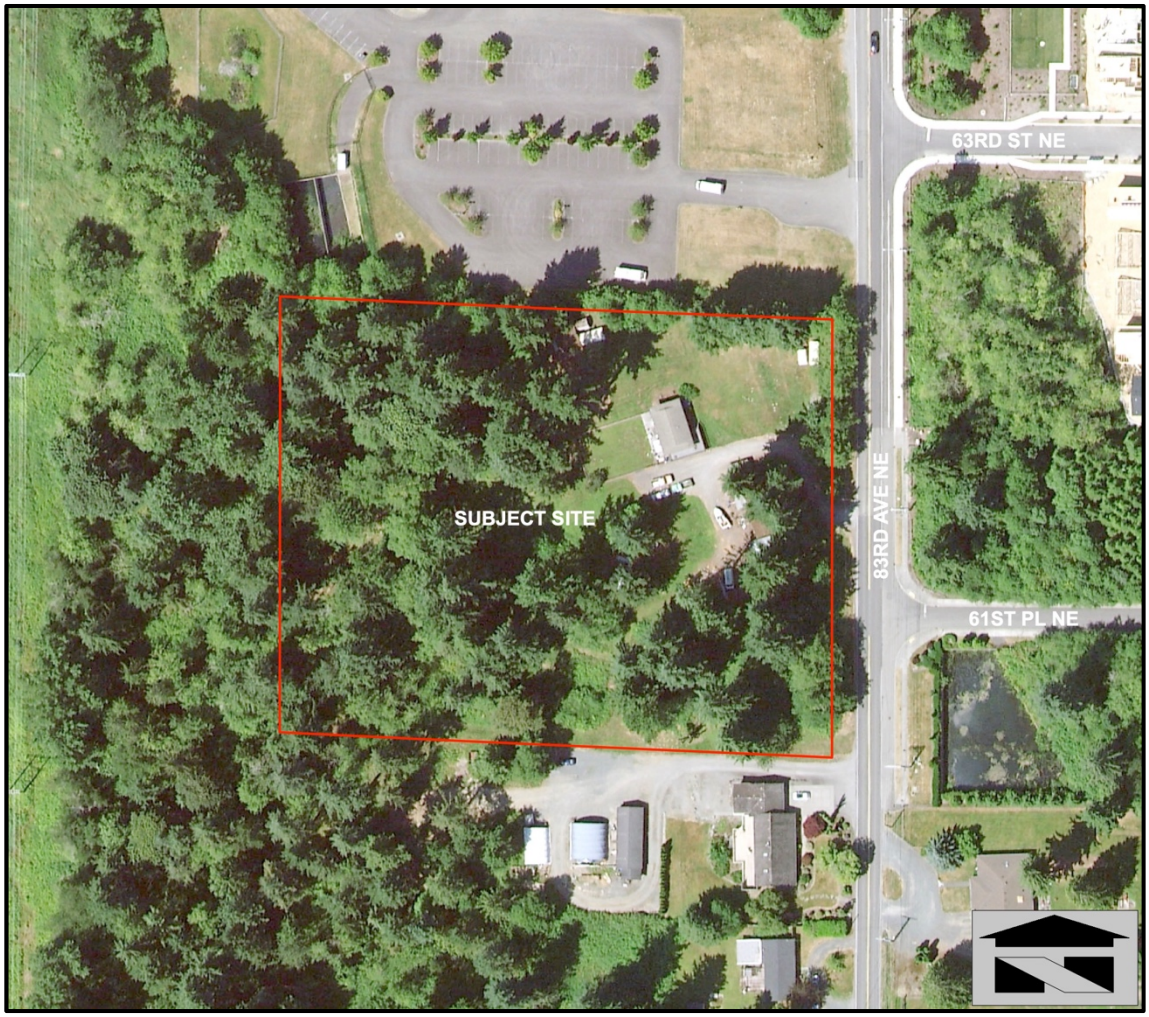


Figure 1 – Aerial view of the subject property and surrounding area.

1.1 SITE DESCRIPTION

The subject property is developed with a single-family residence, several outbuildings, and a gravel driveway/parking area. The site is accessed from the east via 83rd Ave NE. Vegetation is comprised of two distinct communities, including forested areas in the western portion and maintained lawn in the eastern portion of the site. Vegetation within the forested areas consists of Western red cedar (*Thuja plicata*), black cottonwood (*Populus balsamifera*), big leaf maple (*Acer macrophyllum*), Douglas fir (*Pseudotsuga menziesii*), salmonberry (*Rubus spectabilis*), Himalayan

blackberry (*Rubus armeniacus*), osoberry (*Oemleria cerasiformis*), cascara (*Frangula purshiana*), bracken fern (*Pteridium aquilinum*), sword fern (*Polystichum munitum*), lady fern (*Athyrium filix-femina*), creeping buttercup (*Ranunculus repens*), and reed canarygrass (*Phalaris arundinacea*). The area around the residence and lawn consists of mixed grasses (*Agrostis* spp.) with several dispersed trees, including Western red cedar, Douglas fir, red alder (*Alnus rubra*) and Himalayan blackberry near 83rd Ave NE. Topography has a gradual slope downward to the west.

Surrounding land use consists of a church and parking lot to the north, high density residential developments to the west and east, and low-density residential to the south.

WRI identified one on-site wetland (Wetland A) and one off-site stream (Stream A) during the site investigations. The wetland was rated under the *Washington Department of Ecology's Wetland Rating System for Western Washington (2014)* pursuant to Marysville Municipal Code (MMC) 22E.010.060. Wetland A is classified as a Category III wetland. Per MMC 22E.010.100, Category III wetlands receive standard buffers of 75-feet. Stream A is classified as a Type Ns, seasonal, non-fish bearing stream. Per MMC 22E.010.220(1)(a), Type Ns streams receive standard buffers of 50 feet.

1.2 PROJECT DESCRIPTION

The applicant is proposing to demolish the existing structures and construct a 23-lot single-family residential development, with access, utilities, and associated infrastructure. No impacts to critical areas will occur, however, temporary and permanent impacts are proposed to the buffer of Wetland A. To accommodate the proposed development, the applicant is proposing to utilize buffer width averaging and buffer enhancement as mitigation. Full descriptions of buffer impacts, mitigation, and enhancement are provided in Section 6 of this report.

2.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, public resources were reviewed to gather background information on the subject property and the surrounding area regarding critical areas. The following sources were examined:

- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory: This resource does not depict and wetlands on the subject property. A wetland is depicted approximately 200 feet off-site to the northwest.
- USDA/Natural Resources Conservation Service (NRCS) Web Soil Survey: This resource maps the soils underlying the subject property as Tokul gravelly medial loam (0 to 8 percent slopes) and Tokul gravelly medial loam (8 to 15 percent slopes). Neither of these soils is listed as hydric.
- WDFW Priority Habitat and Species (PHS) Interactive Map: This resource does not depict any wetlands or streams on the subject property. A wetland is mapped approximately 200 feet off-site to the northwest.
- Snohomish County Planning and Development Services (PDS) map: This resource does not depict and wetlands or streams on the subject property. A wetland is depicted

approximately 200 feet off-site to the northwest and an untyped stream is depicted approximately 130 feet off-site to the east, east of 83rd Avenue NE.

- WDFW SalmonScape: SalmonScape does not depict any streams on or within 300 feet of the subject property.
- City of Marysville Critical Areas Map: This resource does not depict any wetlands or streams on the subject property. A wetland is mapped approximately 200 feet off-site to the northwest.

3.0 WETLAND AND STREAM DETERMINATION

3.1 DETERMINING THE ORDINARY HIGH WATER MARK METHODOLOGY

The ordinary high-water mark (OHWM) of streams and other waterbodies is determined using the methodology described in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et. al. 2016). Identified streams are classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030, and MMC 22E.010.210.

3.2 WETLAND DETERMINATION METHODOLOGY

Wetland conditions were evaluated and delineated using routine methodology described in the *Corps of Engineers Wetlands Delineation Manual* (*Final Report*; January 1987), except where superseded by the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (*Version 2.0*, referred to as 2010 Regional Supplement). Our findings are consistent with these manuals. The following criteria descriptions were used in the boundary determination:

1.) Examination of the site for hydrophytic vegetation (species present and percent cover);

2.) Examination of the site for hydric soils;

3.) Determining the presence of wetland hydrology

3.2.1 Hydrophytic Vegetation Criteria

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

3.2.2 Soils Criteria and Mapped Description

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils. According to NRCS Web Soil Survey, the soil on the parcel is Norma loam and Alderwood-Urban land complex, 2 to 8 percent slopes.

3.2.3 Hydrology Criteria

The 2010 Regional Supplement defines wetland hydrology as "areas that are inundated (flooded or ponded) or the water table is less than or equal to 12 inches below the soil surface for 14 or more consecutive days during the growing season at a minimum frequency of 5 years in 10." During the early growing season, wetland hydrology determinations are made based on physical observation of surface water, a high-water table, or saturation in the upper 12 inches. Outside of the early growing season, wetland hydrology determinations are made based on physical evidence of recent inundation or saturation (i.e. water marks, surface soil cracks, water-stained leaves).

3.3 BOUNDARY DETERMINATION FINDINGS

One on-site wetland (Wetland A) and one off-site stream (Stream A) were observed during the site investigations. The wetland and stream have been classified under the HGM (Brinson 1993) and Cowardin (Cowardin 1979) classification systems. Pursuant to MMC 22E.010.060, Wetland A has been rated using the *Washington Department of Ecology Wetland Rating System for Western Washington (2014).*

3.3.1 Wetland A

HGM class: Depressional
Cowardin classification: Palustrine, Forested Wetland, Broad-leaved Deciduous, Seasonally Flooded
Wetland Classification: Category III
City of Marysville Standard Buffer: 75 feet

Wetland A is a large, depressional system located along the western property line. A majority of the wetland lies off-site to the west in a utility corridor. Stream A flows south to north within the off-site portion of the wetland. Vegetation observed in Wetland A includes black cottonwood (*Populus balsamifera*; FAC), salmonberry (*Rubus spectabilis*; FAC), Himalayan blackberry (*Rubus armeniacus*; FAC), lady fern (*Athyrium filix-femina*; FAC), creeping buttercup (*Ranunculus repens*; FAC), and reed canarygrass (*Phalaris arundinacea*; FACW). Dominant vegetation within the wetland is rated as facultative (FAC) or wetter and therefore comprises a hydrophytic plant community.

Soils within Wetland A are generally black (10YR 2/1) throughout the upper profile. Although the soil profile does not meet a specific hydric soil indicator, the low chroma is indicative of wetland conditions. Soils within Wetland A were saturated to the surface, and the water table was observed at 3 inches at the time of investigation. These conditions meet the criteria for the Wetland Hydrology Indicators "High Water Table" (A2) and "Saturation" (A3).

Wetland A is classified as a Category III wetland with a habitat score of 5 points. Pursuant to MMC 22E.010.100(4), Category III wetlands receive standard buffers of 75 feet.

3.3.2 Non-wetland Areas

Vegetation in non-wetland areas consists of black cottonwood (*Populus balsamifera;* FAC), Douglas fir (*Pseudotsuga menziesii;* FACU), cascara (*Frangula purshiana;* FACU), salmonberry (*Rubus spectabilis*; FAC), osoberry (*Oemleria cerasiformis*; FACU), bracken fern (*Pteridium aquilinum*; FACU), sword fern (*Polystichum munitum*; FACU), Himalayan blackberry (*Rubus armeniacus*; FAC) and creeping buttercup (*Ranunculus repens*; FAC). Dominant vegetation within the non-wetland areas is rated as facultative upland (FACU) and therefore does not comprise a hydrophytic plant community

Soils in the non-wetland areas are generally dark brown (10YR 3/3) silty loam in the upper six inches. From six to 16 inches below, soils are generally dark yellowish brown (10YR 4/6) sandy loam with five percent dark yellowish brown (10YR 3/6) redoximorphic features. Soils were dry at the time of investigation. Non-wetland soils did not meet any hydric soil or wetland hydrology indicators.

3.3.3 Stream A

Cowardin classification: Intermittent, Streambed, Mud
City of Marysville Standard Buffer: 50 feet

Stream A is a non-fish-bearing seasonal stream located entirely within the boundary of Wetland A. The stream flows from south to north, with a substrate consisting of mud and organic materials. Water was observed flowing within the stream at the time of the February and May 2023 site visits. None of the publicly available resources in Section 2 above map Stream A or hydrological connections to other water bodies. The stream is a Type Ns and receives a standard buffer of 50 feet pursuant to MMC 22E.010.220(1)(a).

4.0 WILDLIFE

Species expected to use the site include eastern cottontail (*Sylvilagus floridanus*), black-tailed deer (*Odocoileus hemionus columbianus*), shrews (*Sorex spp.*), moles (*Scapanus spp.*), bats (*Myotis spp.*), raccoon (*Procyon lotor*), squirrels (*Sciurus carolinensis*, *Tamiasciurus douglasii*), deer mouse (*Peromyscus maniculatus*), Virginia opossum (*Didelphis virginiana*), and coyote (*Canis latrans*). Amphibian species that may utilize the site include: pacific tree frog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), and northwestern salamander (*Ambystoma gracile*). Bird species likely to utilize the site include Dark-eyed Junco (*Junco hyemalis*), American Robin (*Turdus migratorius*), Stellar's Jay (*Cyanocitta stellar*i), and Crow (*Corvus brachyrhynchos*). This list is not meant to be all-inclusive of species that use the site, but is representative of common wildlife in the Marysville area. No threatened or endangered species are known to be associated with this site.

5.0 PROPOSED BUFFER MODIFICATIONS

To accommodate the proposed development, the applicant is proposing to utilize buffer averaging and provide buffer enhancement and restoration as mitigation for permanent and temporary buffer impacts.

Reduction of the buffer through buffer averaging is proposed within the outer 25 percent of the Wetland A buffer, as allowed by MMC 22E.010.100(5). Buffer averaging will reduce 2,947 square feet and add 3,314 square feet of buffer. The buffer addition area will be planted with native vegetation to bring the buffer into compliance with MMC 22E.010.100(3).

Temporary impacts will occur for the installation of utilities and a stormwater dispersion trench. Due to topography and soil conditions, the stormwater dispersion trench is required to be located the toe of slope near the wetland (see drainage report). No impacts will occur within the wetland. To accommodate the utility lines and dispersion trench, 1,490 square of temporary impacts and 40 square feet of permanent impacts is proposed within the buffer. Temporary impacts will be restored with native shrub plantings and permanent impacts will be mitigated at a ratio of 1:1 with 40 square feet of additional buffer. Impacts for the dispersion trench are allowed within the wetland buffer so long as the width is minimized, tree removal is minimized, and additional buffer is provided to create a contiguous and undisturbed buffer per MMC 22E.010.100 (9). Impacts have been minimized to the greatest extent feasible and appropriate mitigation is provided.

Summary of Buffer Impacts and Mitigation

Impact Type	Impact Area (sq. ft.)	Mitigation Type	Mitigation Area (sq. ft.)	Mitigation Ratio
Buffer Reduction	2,947	Buffer Addition	3,314	1.1:1
Temporary Buffer	1,490	Buffer Restoration	1,490	1:1
Permanent Buffer	40	Buffer Addition	40	1:1

Additionally, the buffer of Wetland A is sparsely vegetated, contains invasive species and is fragmented by cleared paths. To bring the buffer into compliance with MMC 22E.010.100(3), the applicant is proposing to enhance 17,322 square feet of degraded buffer area.

5.1 BUFFER AVERAGING

Buffer width averaging is proposed within the outer 25 percent of Wetland A to accommodate the development and utilities. Buffer width averaging requirements are provided in MMC 22E.010.100(5)(a) and (5)(c). Text from the referenced code sections are below in italics with applicant responses following in standard text.

> *(5)(a) Buffer width averaging shall be allowed only where the applicant demonstrates to the community development department that the averaging will not impair or reduce the habitat, water quality purification and enhancement, storm water detention, ground water recharge, shoreline protection and erosion protection and other functions of the wetland and buffer…*
>
> To accommodate the development, buffer reduction will be 2,947 square feet and buffer addition will be 3,314 square feet. The buffer addition area will be enhanced with native species. The enhanced buffer addition area will provide greater water quality, hydrologic, and habitat functions compared to the sparsely vegetated area for buffer reduction. A full description of the functions and values provided by the proposed mitigation is below in Section 9 of this report.

… that lower-intensity land uses would be located adjacent to areas where buffer width is reduced…

Buffer reductions are proposed within the southwestern portion of the site to accommodate three lots, a utility easement and detention pond. The reduced buffer is located adjacent to backyards of the residences where lower-intensity uses will occur.

…and that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging;

A total of 2,947 square feet of buffer reduction and 3,314 square feet of buffer addition are proposed. The total on-site area within the buffer will be slightly larger under the buffer averaging proposal.

(5)(c) Notwithstanding the reductions permitted in subsections (5)(a) and (b) of this section, buffer widths shall not be reduced by more than 25 percent of the required buffer.

The maximum buffer width reduction proposed is 25 percent of the required buffer. The narrowest width of the proposed buffer is 57 feet.

5.2 TEMPORARY BUFFER IMPACTS

The applicant proposes to install utilities and a stormwater dispersion trench within the wetland buffer. Per MMC 22E.010.100(9), utilities may be allowed within wetlands and wetland buffers, so long as there is no alternative location available and there will be no adverse impacts to the wetland. The civil engineer has indicated that the trench cannot be placed further from the wetland due to topography and soil conditions.

To accommodate the utilities and dispersion trench in the buffer, 1,490 square feet of temporary buffer impacts are proposed. All areas of temporary impacts will be restored with native shrub plantings. See Section 6.3 for the buffer restoration planting plan.

5.3 PERMANENT BUFFER IMPACTS

A small amount of permanent impact to the buffer for Wetland A (40 square feet) is unavoidable due to the need required location of a quarry spall stormwater dispersion trench. Per MMC 22E.010.100(10), stormwater management facilities are allowed within the outer 25% of the wetland buffer. Due to the need to locate the dispersion trench downslope of the detention pond, the dispersion trench will be located approximately 14 feet from the wetland at its closest point. While this is not within the outer 25 percent of the final buffer, it is as far from the wetland as possible be given the topography and soil conditions of the site.

6.0 BUFFER ENHANCEMENT AND RESTORATION

Buffer enhancement and restoration will include removing invasive species, such as Himalayan blackberry, from the buffer and installing a diverse array of native species. The following plant lists represent the plants that will be installed for buffer enhancement and restoration. Plant spacing complies with MMC 22E.010.10(3).

6.1 BUFFER ENHANCEMENT PLAN

Pursuant to MMC 22E.010.100(3), where existing buffer area vegetation provides minimal vegetative cover and cannot provide the minimum water quality or habitat cover or in areas where invasive species provide the dominant cover, buffer enhancement shall be provided. The existing buffer is currently degraded due to a network of wide trails fragmenting the buffer and invasive species cover, including Himalayan blackberry. Therefore, buffer enhancement is required within the buffer of Wetland A. To bring the buffer of Wetland A into compliance, 17,322 square feet of buffer will be planted with native vegetation.

Planting Area A is 3,354 square feet, Planting Area B is 16,834 square feet, and Planting Area C is 488 square feet.

Buffer Enhancement Planting Area A (3,354 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	20
Red alder	*Alnus rubra*	1 gallon	10'	20
Salmonberry	*Rubus spectabilis*	1 gallon	5'	30
Snowberry	*Symphoricarpos albus*	1 gallon	5'	30
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	30
Vine maple	*Acer circinatum*	1 gallon	5'	30

Buffer Enhancement Planting Area B (16,834 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	98
Red alder	*Alnus rubra*	1 gallon	10'	98
Salmonberry	*Rubus spectabilis*	1 gallon	5'	146
Snowberry	*Symphoricarpos albus*	1 gallon	5'	146
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	146
Vine maple	*Acer circinatum*	1 gallon	5'	146

Buffer Enhancement Planting Area C (488 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	3
Red alder	*Alnus rubra*	1 gallon	10'	3
Salmonberry	*Rubus spectabilis*	1 gallon	5'	5
Snowberry	*Symphoricarpos albus*	1 gallon	5'	5
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	5
Vine maple	*Acer circinatum*	1 gallon	5'	5

6.2 Buffer Restoration Plan

To mitigate for 1,490 square feet of temporary buffer impacts, the 1,490 square foot buffer impact area will be restored with native shrub plantings. Trees are not proposed within this area to prevent future damage to utilities from root growth.

Restoration Planting (1,490 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Salmonberry	*Rubus spectabilis*	1 gallon	5'	18
Snowberry	*Symphoricarpos albus*	1 gallon	5'	18
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	18
Vine maple	*Acer circinatum*	1 gallon	5'	18

6.3 Fencing and Signage

Pursuant to MMC 22E.010.370, two-rail fencing and signs designating the presence of a critical area will be constructed along the perimeter of the buffer. A fence and sign detail is provided below.

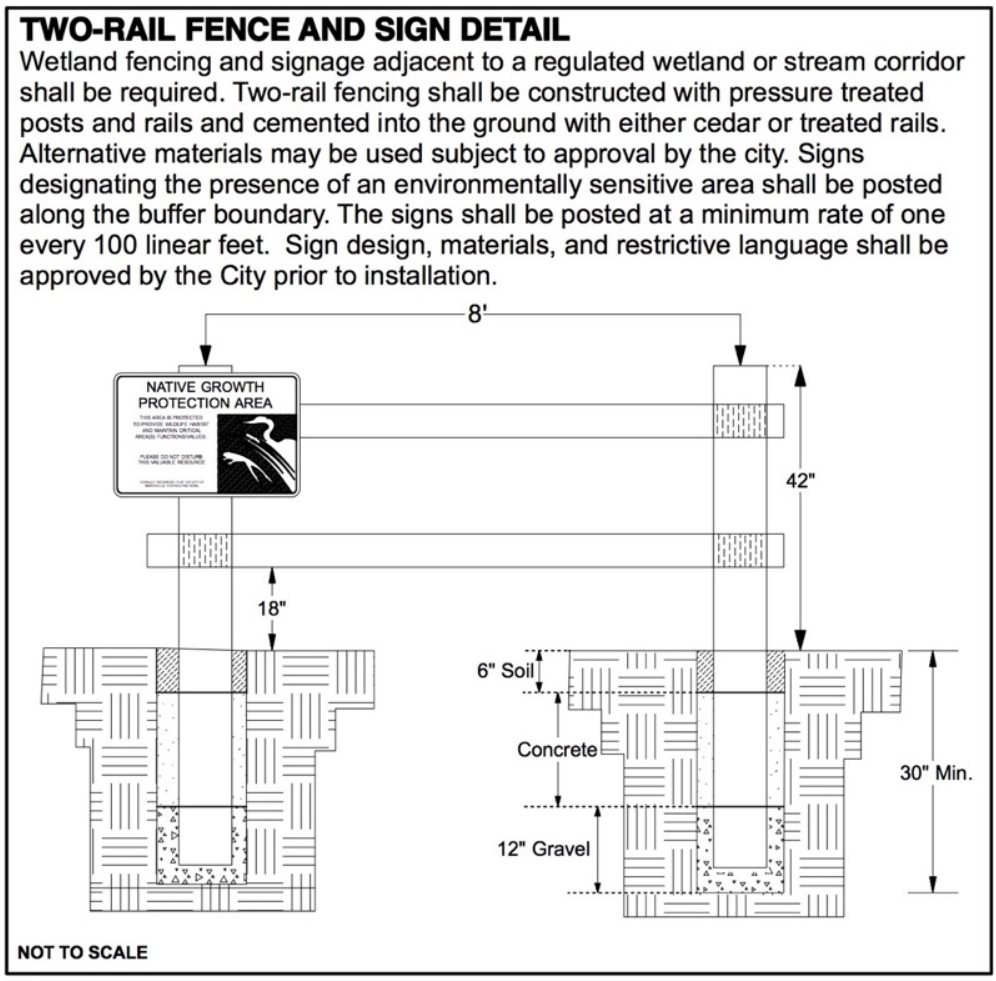


Figure 2 – Two-rail Fence and NGPA Sign Detail.

7.0 WETLAND FUNCTIONS AND VALUES ASSESSMENT

7.1 METHODOLOGY

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the on-site wetland, but is typical for assessments of similar systems common to western Washington.

Functions and Values Components

Wetlands in western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are stormwater storage and flood flow attenuation, water quality improvement, and fish and wildlife habitat. An assessment of these functions for the project site is provided below.

7.2 EXISTING BUFFER CONDITIONS

The existing on-site buffer area is comprised of sparse native forest with a shrub understory. The buffer is fragmented with a network of wide trails and large areas of Himalayan blackberry. The existing buffer conditions provide minimal buffer functions due to fragmented habitat, extensive invasive species cover, and is sparsely vegetated with native shrubs.

7.3 POST-MITIGATION FUNCTIONS AND VALUES

The applicant is proposing buffer modifications including buffer width averaging and buffer enhancement. The buffer enhancement plan includes removing invasive plants and installing native trees and shrubs. The enhanced buffer will increase the structural and species diversity within the buffer and thus the water quality, hydrologic, and habitat functions performed by the buffer will be improved.

Temporary impacts to the buffer of Wetland A for utilities and a stormwater dispersion trench will be revegetated to increase buffer functions in an already partially degraded area due to invasive species. Native shrub species will be planted throughout the disturbed areas, which will return the buffer to its pre-construction condition. Trees are not proposed within the temporary impact area to prevent future damage to utility structures from root growth. Temporary impacts will result in a discountable temporal loss in functions provided by the buffer. Once the restoration plants establish, buffer functions will be fully restored.

Overall, the buffer averaging, buffer enhancement, and buffer restoration plan will improve the functions and values provided by the on-site buffer areas.

8.0 PROJECT MONITORING PROGRAM

8.1 INSPECTION AND REPORTING REQUIREMENTS

1. Initial compliance/as-built report at completion of construction
2. Inspection and brief status report 30 days after planting
3. Inspection and brief status report early in the first growing season
4. Inspection and brief status report and the end of the first growing season
5. Inspection and brief status report early in the second growing season
6. Inspection and brief status report and the end of the second growing season
7. Annual site inspection (once per year in the fall) in years 3-5
8. Annual reports (one report submitted in the fall of each monitored year) for years 3-5

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

Monitoring
Monitoring shall be conducted in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation. The monitoring period is proposed to last for five years, however, if the site meets the Year 5 performance standards in earlier years, the monitoring program can be completed early. If the site does not meet the Year 5 performance standards at the end of Year 5, contingency actions may be necessary, and monitoring may be extended one year at a time until the Year 5 performance standards are met.

Vegetation Monitoring
Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points shall be identified in the field and on the monitoring map in the first monitoring report. Each sampling point or transect shall detail tree, shrub, and herbaceous aerial coverage. During Years 3 through 5, vegetation monitoring shall occur between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Photo points
Photo points shall be established in the buffer enhancement area. Photographs will be taken from these points to visually record the condition of the restoration/enhancement area. Photos shall be taken between May 15 and September 30 (prior to leaf drop), unless otherwise specified. Photo points shall be identified on the monitoring map in the first monitoring report.

Monitoring Report Contents
During Years 3 through 5, monitoring reports shall be submitted by October 31 of each year. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
5. Observed wildlife, including amphibians, avians, and others
6. Assessment of nuisance / exotic biota and recommendations for management
7. Descriptions of any structural repair or replacement (i.e. fencing, signs, etc.)
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

8.2 PROJECT SUCCESS & COMPLIANCE

Criteria for Success
Upon completion of the proposed mitigation project, an inspection by a qualified wetland professional shall be made to determine plan compliance. An as-built report will be supplied to the City of Marysville within thirty (30) days after the completion of planting to show compliance with the mitigation plan. The qualified wetland professional will perform condition monitoring of the plantings and provide reports according to the approved schedule.

Goal
To mitigate the impacts to functions and values from the proposed development.

Objectives
Objective 1: To establish a diverse, native plant community in the buffer that will persist and create an appropriate vegetative matrix.

Objective 2: To have significant native vegetative cover throughout the buffer.

Objective 3: To remove and replace existing invasive species and limit the establishment and spread of those species in the buffer.

Definition of Success
The mitigation project goal will be deemed successful when objectives are met, as evidenced through the observation of set performance standards.

Performance Standards
The objectives will be considered successfully met when the following performance standards are observed throughout the enhancement area:

Performance Standard 1
End of Year 1: at least 90 percent survival of installed species and no more than 5 percent cover by invasive plant species.

Performance Standard 2
End of Year 3: at least 80 percent survival of installed plant species and no more than 10 percent cover by invasive plant species.

Performance Standard 3
End of Year 5: at least 70 percent survival of installed plant species and no more than 10 percent cover by invasive plant species.

In the event that a performance standard is not met by the time specified, maintenance and/or contingency actions shall be implemented promptly to work toward meeting the standard.

*If Year 5 performance standards are met by the end of Year 3 or Year 4, the City may consider the project to be successful and terminate the monitoring period at that time.

8.3 MAINTENANCE

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

Duration and Extent
In order to achieve performance standards, the permittee shall be responsible for maintaining the mitigation area for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, cutting down competing grasses, and any other measures needed to ensure plant survival.

Survival
The permittee shall be responsible for the health of 100 percent of all newly installed plants for one growing season after installation has been accepted by the City of Marysville. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 14 of the following year). For fall installation (if required), the growing season will begin the following spring. The permittee shall replace any plants that are failing, weak, defective in manner of growth, dead, or missing during the first growing season.

Installation Timing for Replacement Plants
Replacement plants shall be installed between November 1 and March 15, unless otherwise determined.

Standards for Replacement Plants
Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by a qualified professional.

Replanting
Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted.

Herbicides / Pesticides
Unless deemed absolutely necessary by the consulting biologist and/or the City, chemical controls shall not be used in the mitigation area, critical areas, or their buffers. Any chemical controls used shall be applied by a licensed applicator following all label instructions.

Irrigation / Watering
Water shall be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above-ground irrigation system shall provide water at a rate of one inch (1") of water twice per week for year one and one inch (1") per week during year two. Adjustments to this schedule may be recommended by the wetland professional during the monitoring period.

General
The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

8.4 CONTINGENCY PLAN

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

8.5 PROJECT NOTES

Pre-Construction Meeting
Mitigation projects are typically more complex to install than can be described in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There shall be a pre-construction meeting on this site between the Permittee, consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections
A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Marysville representative and/or the consulting professional will make these decisions during construction and any changes will be reflected in the As-built report.

8.6 PLANTING NOTES

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

Pre-Planting Meeting
Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to discuss the intent of the project and resolve any questions. During this meeting, a discussion regarding plant spacing and locations of plant species shall occur.

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

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

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

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

Roots
All plants shall be containerized or balled and burlapped (B&B), unless explicitly authorized by the wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage

(some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the wetland professional and/or City staff.

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

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

Flagging
All mitigation plantings shall be clearly flagged with highly visible flagging tape at the time of the installation. Clear identification of mitigation plants will aide in future assessments of performance standards during monitoring visits.

Timing of Planting
Unless otherwise determined by the consulting biologist and City staff, initial planting shall occur between October 15 and March 15. Overall, the earlier plants go into the ground during the dormant period the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

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

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

Planting Pits
Planting pits shall be circular or square with vertical sides, and shall be 6" deeper and 12" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set

plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting soils.

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

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

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

Arrangement and Spacing
The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the wetland professional and/or City staff.

Inspection(s)
A wetland professional shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Mulch
All landscaped areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 to 4 inches of organic compost or certified weed free straw after planting. A layer of woodchips will be placed around the base of each plant in a 3-foot radius and at a depth of 2 to 4 inches. Mulch and woodchips shall not be allowed to contact plant stems in order to avoid plant decay and rot.

9.0 PERFORMANCE AND MAINTENANCE BONDING

Performance and/or maintenance bonds, or other assurance device, shall be provided to the City of Marysville, in an amount to be determined by the City. The following is an estimate of the costs to install the mitigation measures.

One-gallon plants	1,038 x $15.00/plant, installed	$15,570.00
Split rail fencing	$10/foot x 416 feet	$4,160.00
Critical area signage	$30/sign x 5 signs	$150.00
Mulch	$50.00/CY x 30.10 CY	$1,505.10
Monitoring	$2,000.00/year x 5 years	$10,000.00
Maintenance	$2,500.00/year x 5 years	$12,500.00
Total Estimated Costs		**$43,885.10**

10.0 USE OF THIS REPORT

This Critical Area Study and Buffer Mitigation Plan is supplied to Robinett Brothers LLC as a means of determining on-site wetland conditions, as required by the City of Marysville during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

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

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

Wetland Resources, Inc.



Shaun Sweeney
Associate Ecologist

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APPENDIX A:
WETLAND DETERMINATION DATA FORMS

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

Project/Site: WRI#23040 83RD Ave NE City/County: Marysville, Snohomish Sampling Date: 5/17/2023

Applicant/Owner: Marty Robinett with Robinett Brothers LLC State: WA Sampling Point: S1

Investigator(s): SS Section, Township, Range: Sec.26, Twp.30, Rge5

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none Slope (%): ~1%

Subregion (LRR): LRR A Lat: 48.058754 Long: -122.121958 Datum: NAD83

Soil Map Unit Name: Tokul gravelly medial loam, 0 to 8 percent slopes NWI classification: PEM1C

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? Yes ☑ No ☐ Hydric Soil Present? Yes ☑ No ☐ Wetland Hydrology Present? Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5^m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	45	Y	FAC
2. *Acer macrophyllum	10	-	FACU
3.			
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3^m)			
1. Rubus spectabilis	50	Y	FAC
2. *Oemleria cerasiformis	20	-	FACU
3. Rubus armeniacus	15	Y	FAC
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: 1^m)			
1. Athyrium filix-femina	15	Y	FAC
2. Ranunculus repens	10	Y	FAC
3. Phalaris arundinacea	5	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 1^m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

* Species rooted outside of the wetland.

SOIL

Sampling Point: S1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					SiSaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators 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:

Although the soil profile does not meet a hydric soil indicator, the low chroma is indicative of wetland conditions.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ 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)

Secondary Indicators (2 or more required)

- ☐ 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): 3 inches

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): suface

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: WRI#23040 83RD Ave NE City/County: Marysville, Snohomish Sampling Date: 5/17/2023

Applicant/Owner: Marty Robinett with Robinett Brothers LLC State: WA Sampling Point: S2

Investigator(s): SS Section, Township, Range: Sec.26, Twp.30, Rge5

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR A Lat: 48.051703 Long: -122.121204 Datum: NAD83

Soil Map Unit Name: Tokul gravelly medial loam, 0 to 8 percent slopes NWI classification: None

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?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5^m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	40	Y	FACU
2. Populus balsamifera	35	Y	FAC
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3^m)			
1. Frangula purshiana	45	Y	FAC
2. Rubus spectibilis	30	Y	FAC
3. Oemleria cerasoformis	15	N	FACU
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: 1^m)			
1. Rubus armeniacus	15	Y	FAC
2. Pteridium aquilinum	10	Y	FACU
3. Polystichum munitum	5	N	FACU
4. Ranunculus repens	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: 1^m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: S2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					SiLo	
6-16	10YR 4/6	95	10YR 3/6	5	C	M	SiLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators 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:

Soils were dry at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ 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)

Secondary Indicators (2 or more required)

- ☐ 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): 0

Water Table Present? Yes ☐ No ☑ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): 0

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

APPENDIX B:
DEPARTMENT OF ECOLOGY WETLAND RATING FORMS AND FIGURES

Wetland name or number **A**

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2/24/2023

Rated by JL Trained by Ecology? ✔ Yes ___No Date of training 9/2014

HGM Class used for rating DEPRESSIONAL Wetland has multiple HGM classes?___Y ✔ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map Snohomish County

OVERALL WETLAND CATEGORY III (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

___✔___**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H [M] L	H M [L]	H [M] L	
Landscape Potential	[H] M L	[H] M L	H M [L]	
Value	[H] M L	H [M] L	H [M] L	**TOTAL**
Score Based on Ratings	**8**	**6**	**5**	**19**

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number **A**

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	A1
Hydroperiods	D 1.4, H 1.2	A1
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	A1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	A1
Map of the contributing basin	D 4.3, D 5.3	A2
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	A2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	A3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	A4

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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 *(can be added to another figure)*	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 (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	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	

Wetland name or number **A**___

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is 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.

Wetland name or number **A**

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.*

Wetland name or number **A**

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. Characteristics of surface water outflows from the wetland: ☐ Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☑ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	**2**
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 [No = 0]	**0**
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): ☐ Wetland has persistent, ungrazed, plants > 95% of area points = 5 ☑ Wetland has persistent, ungrazed, plants > ½ 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	**3**
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* ☐ Area seasonally ponded is > ½ total area of wetland points = 4 ☑ Area seasonally ponded is > ¼ total area of wetland points = 2 ☐ Area seasonally ponded is < ¼ total area of wetland points = 0	**2**
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ___ **12-16 = H** ✔ **6-11 = M** ___ **0-5 = 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: ✔ **3 or 4 = H** ___ **1 or 2 = M** ___ **0 = 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 (*answer YES if there is a TMDL for the basin in which the unit is found*)? [Yes = 2] No = 0	**2**
Total for D 3 Add the points in the boxes above	**3**

Rating of Value If score is: ✔ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

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
- ☑ 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

2

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
- ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5
- ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3
- ☐ 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

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.*

- ☐ The area of the basin is less than 10 times the area of the unit points = 5
- ☑ The area of the basin is 10 to 100 times the area of the unit points = 3
- ☐ The area of the basin is more than 100 times the area of the unit points = 0
- ☐ Entire wetland is in the Flats class points = 5

3

Total for D 4 — Add the points in the boxes above — **5**

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** ✔ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland 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	**1**
Total for D 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ✔ **3 = H** ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

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

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.*
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):

- ☐ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2
- ☑ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1
- ☐ Flooding from groundwater is an issue in the sub-basin. points = 1
- ☐ 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
- ☐ There are no problems with flooding downstream of the wetland. points = 0

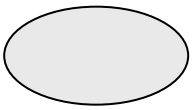
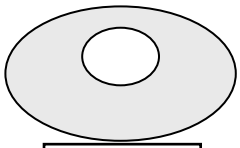
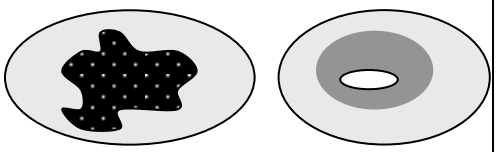
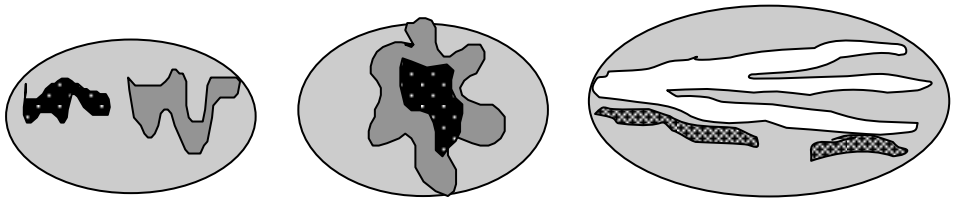
1

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: ___ **2-4 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
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.* ____Aquatic bed ___✔_Emergent ___✔_Scrub-shrub (areas where shrubs have > 30% cover) ___✔_Forested (areas where trees have > 30% cover) *If the unit has a Forested class, check if:* ___✔_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 4 structures or more: points = 4 3 structures: points = 2 2 structures: points = 1 1 structure: points = 0	**4**
H 1.2. Hydroperiods 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*). ____Permanently flooded or inundated ___✔_Seasonally flooded or inundated ____Occasionally flooded or inundated ___✔_Saturated only ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** ____**Freshwater tidal wetland** 4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 type present: points = 0 **2 points** **2 points**	**1**
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *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*** If you counted: > 19 species 5 - 19 species < 5 species points = 2 points = 1 points = 0	**1**
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	**1**

Wetland name or number **A**

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ✔ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ✔ Standing snags (dbh > 4 in) within the wetland ✔ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ___ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**3**
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If score is: ___ **15-18 = H** ✔ **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 0 **+** [(% moderate and low intensity land uses)/2] 4 **=** 4 % If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ✔ < 10% of 1 km Polygon points = 0	**0**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 12 **+** [(% moderate and low intensity land uses)/2] 15 **=** 27 % ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ✔ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	**1**
H 2.3. Land use intensity in 1 km Polygon: If ✔ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	**-2**
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** ✔ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
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.* Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ✔ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☐ Site does not meet any of the criteria above points = 0	**1**

Rating of Value If score is: ___ **2 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

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).*

☐ **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.

Wetland name or number **A**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** 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? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ 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 *Spartina*, see page 25) ☐ 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. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. 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? Yes **– Go to SC 2.2** No **– Go to SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a 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 Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a 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? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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? Yes – Go to **SC 3.3** 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 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? Yes – Go to **SC 3.3** No = **Is not a bog** 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? Yes = **Is a Category I bog** No – Go to **SC 3.4** **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. 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? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

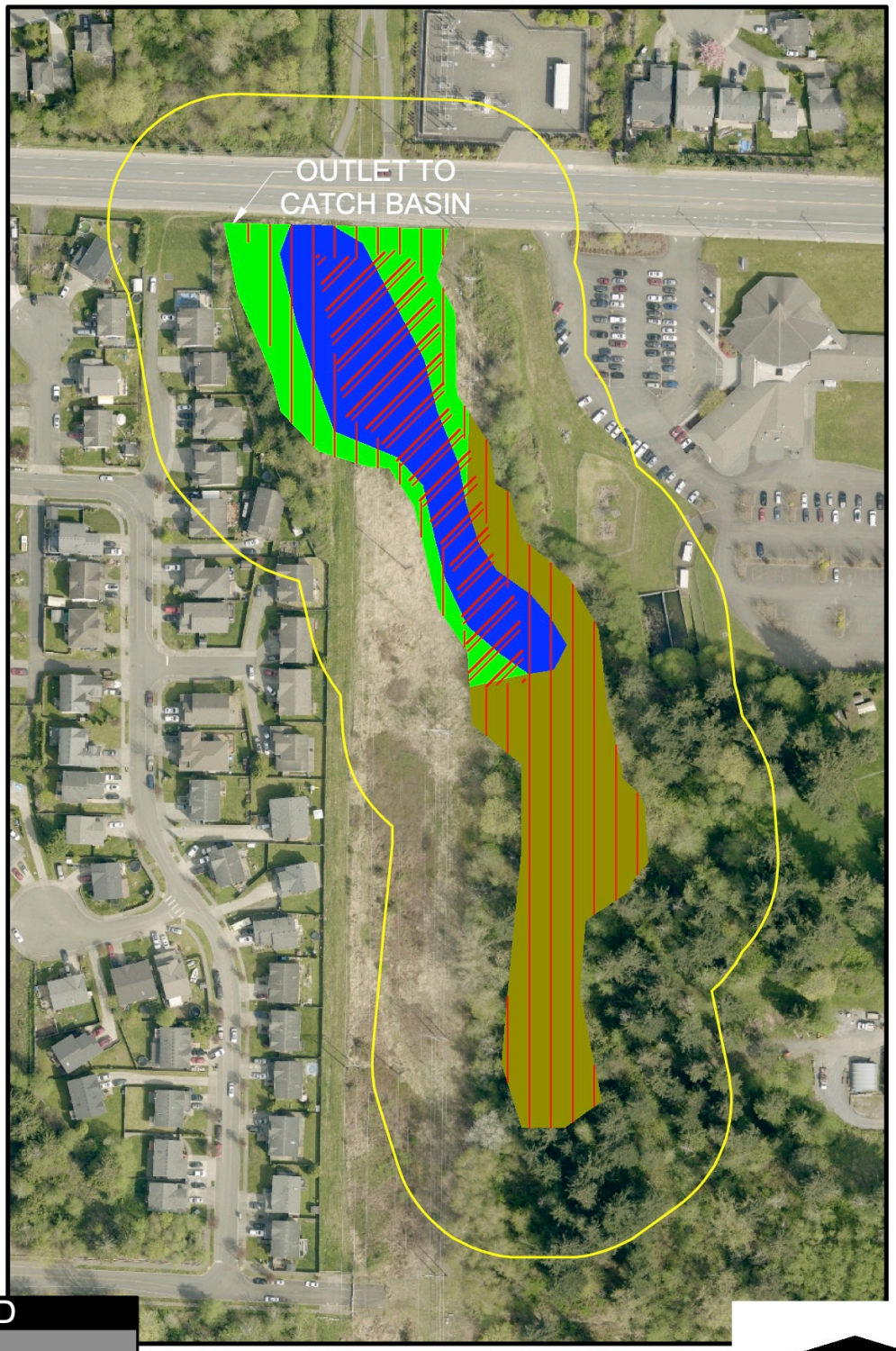
Wetland name or number **A**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **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. ☐ **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). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ 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 *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** 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)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**N/A**

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ROBINETT BROS - CHAPEL HILL

WETLAND RATING FIGURE 1 - WETLAND A



LEGEND

- SCRUB-SHRUB
- EMERGENT VEGETATION
- FORESTED VEGETATION
- SATURATED ONLY
- SEASONALLY FLOODED
- 150' FROM WL BOUNDARY

Scale 1" = 200'

0 200 400

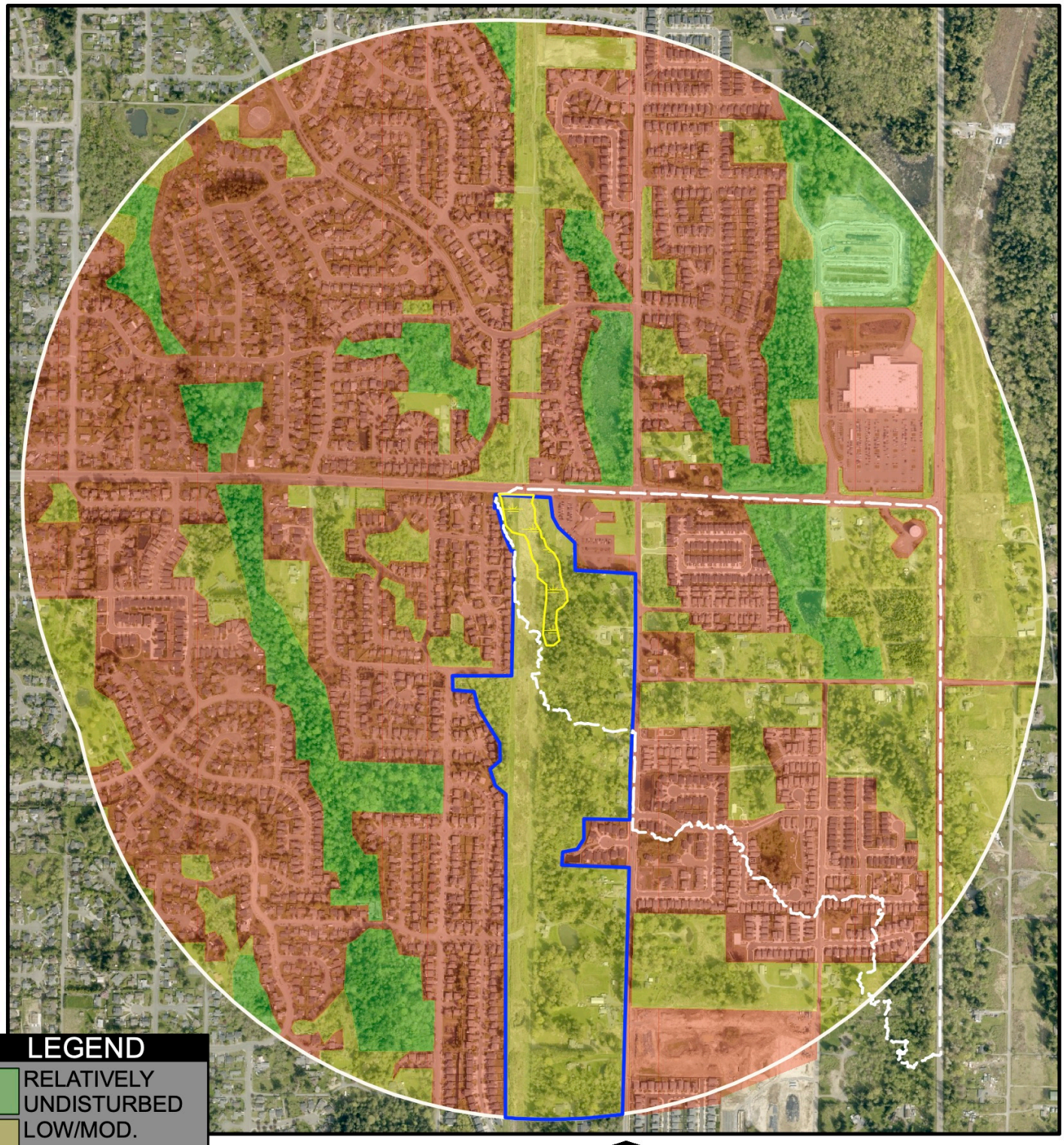
Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

WETLAND RATING
Wetland A

Figure A-1
WRI Job #230
Rated by:

ROBINETT BROS - CHAPEL HILL

WETLAND RATING FIGURE 2 - WETLAND A



Scale 1" = 1,000'

0 1,000 2,000

CONTRIBUTING BASIN AREA RELATIVE TO WETLAND UNIT IS 43:1

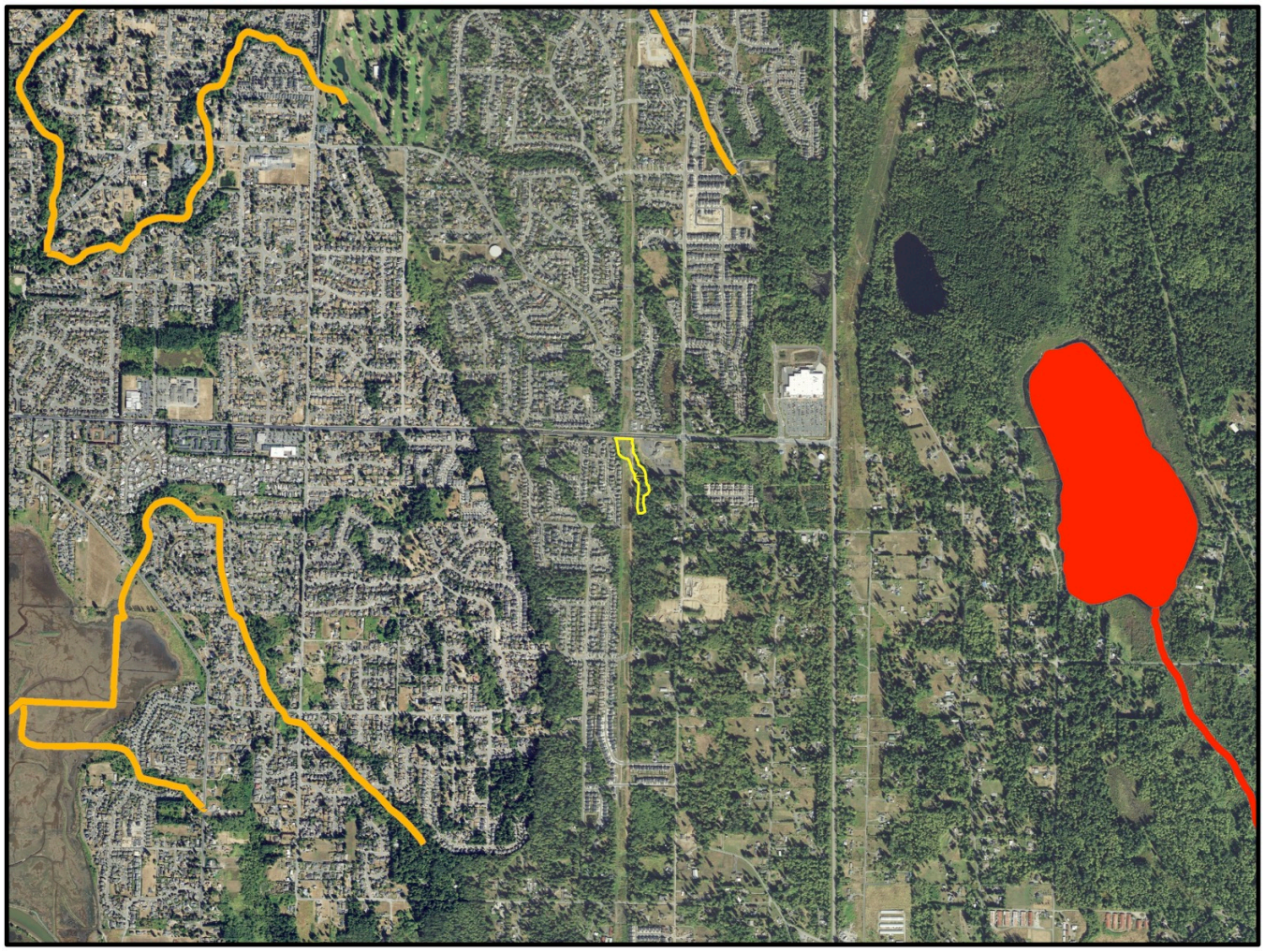
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WETLAND RATING
Wetland A

Figure A-2
WRI Job #230
Rated by:

ROBINETT BROS - CHAPEL HILL

WETLAND RATING FIGURE 3 - WETLAND A



LEGEND

WETLAND

AQUATIC RESOURCES ON THE 303(d) LIST

Scale 1" = 2,500'

0 2,500 5,000

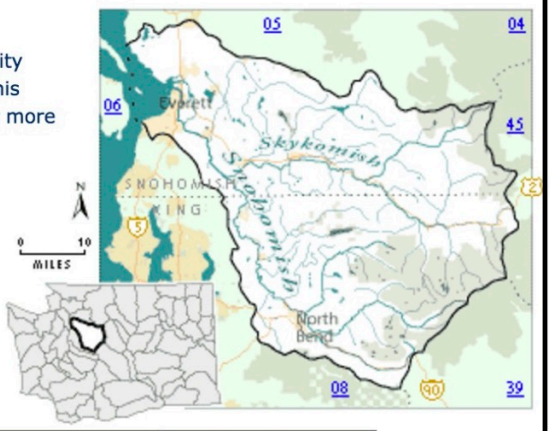
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WETLAND RATING
Wetland A

Figure A-3
WRI Job #230
Rated by:

WRIA 7: Snohomish

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- King
- Snohomish

Waterbody Name	Pollutant(s)	Status**	TMDL Lead
Lake Loma	Total Phosphorus	Straight to implementation project under development	Tricia Shoblom 425-649-7288
Snohomish River	French Creek / Pilchuck River • Dissolved Oxygen • Temperature	Under development	Ralph Svrjcek 425-649-7165
	Dioxin	EPA approved	Ralph Svrjcek 425-649-7165
	Estuary • Ammonia • BOD	EPA approved	Ralph Svrjcek 425-649-7165
	Tributaries • Fecal Coliform Tributaries: • Allen Creek • Quilceda Creek • French Creek • Woods Creek • Pilchuck River • Marshlands (Wood Creek) {2}	EPA approved	Ralph Svrjcek 425-649-7165
	Snoqualmie River • Ammonia-N • BOD (5-day) • Fecal Coliform Temperature	EPA approved EPA approved Has an implementation plan	Ralph Svrjcek 425-649-7165

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

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WETLAND RATING
Wetland A

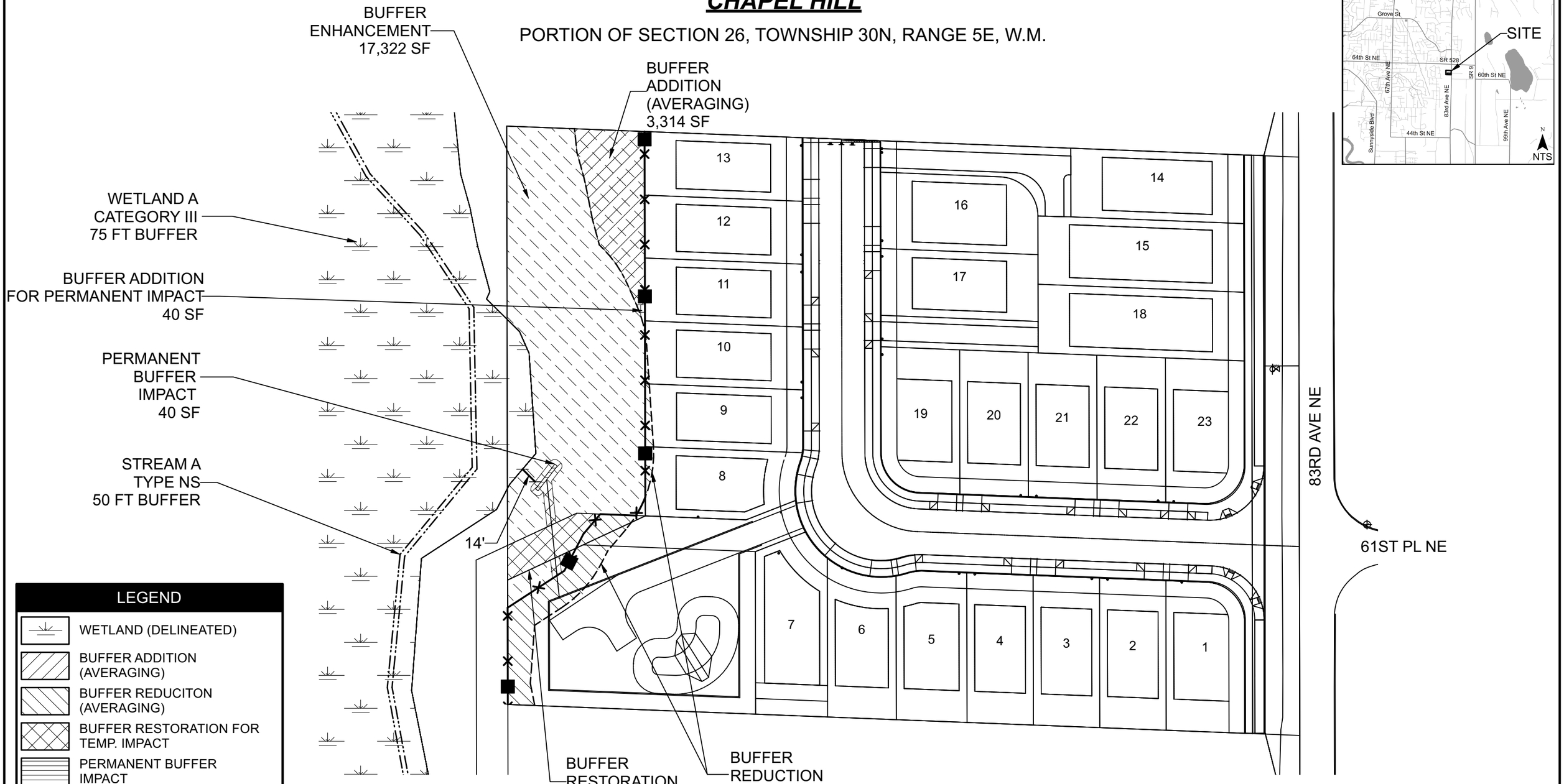
Figure A-4
WRI Job #230
Rated by:

APPENDIX C:
CRITICAL AREA STUDY AND MITIGATION MAPS (1-2/2)

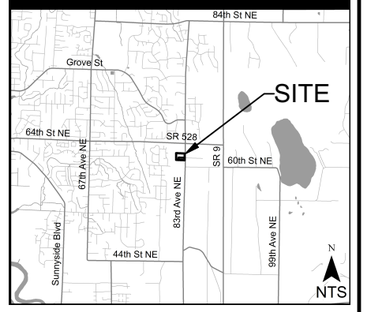
CRITICAL AREAS STUDY AND BUFFER MITIGATION MAP

CHAPEL HILL

PORTION OF SECTION 26, TOWNSHIP 30N, RANGE 5E, W.M.



VICINITY MAP



LEGEND

- WETLAND (DELINEATED)
- BUFFER ADDITION (AVERAGING)
- BUFFER REDUCITON (AVERAGING)
- BUFFER RESTORATION FOR TEMP. IMPACT
- PERMANENT BUFFER IMPACT
- BUFFER ADDITION FOR PERMANENT IMPACT
- BUFFER ENHANCEMENT
- STREAM OHWM (ESTIMATED)
- STANDARD BUFFER
- FENCE AND SIGNAGE

Scale 1" = 60'

0 30 60 90 120

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Email: mailbox@wetlandresources.com

CRITICAL AREA STUDY AND BUFFER MITIGATION MAP
CHAPEL HILL
Marysville, WA

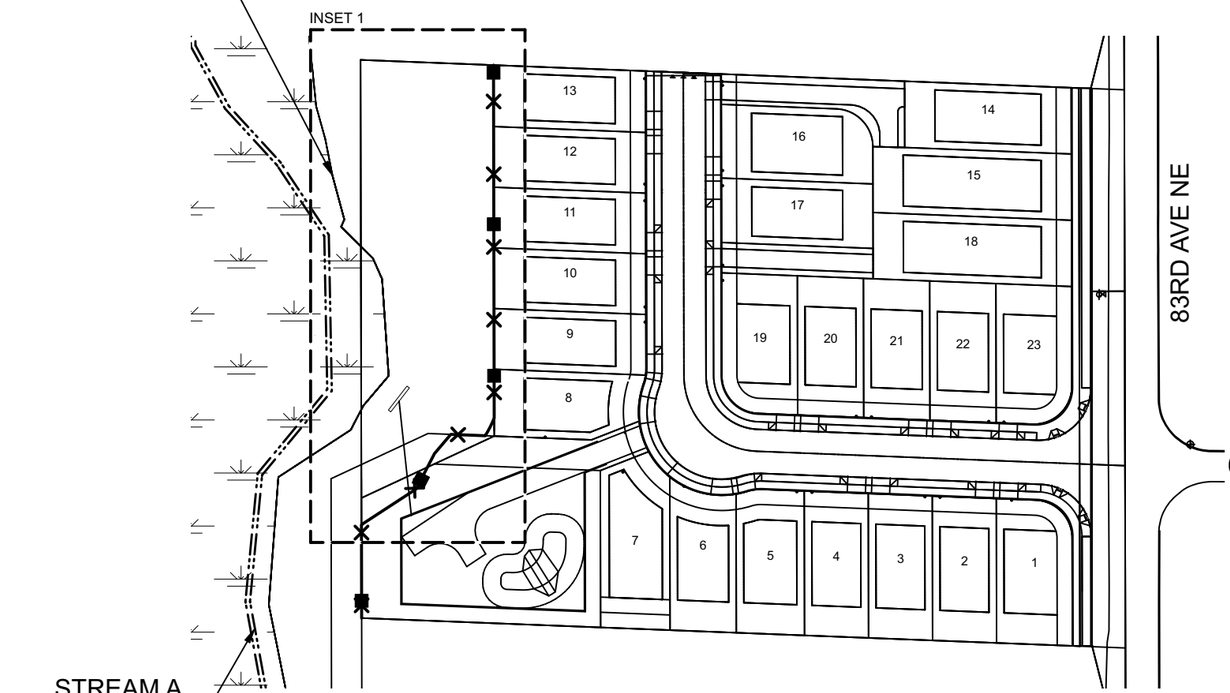
Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

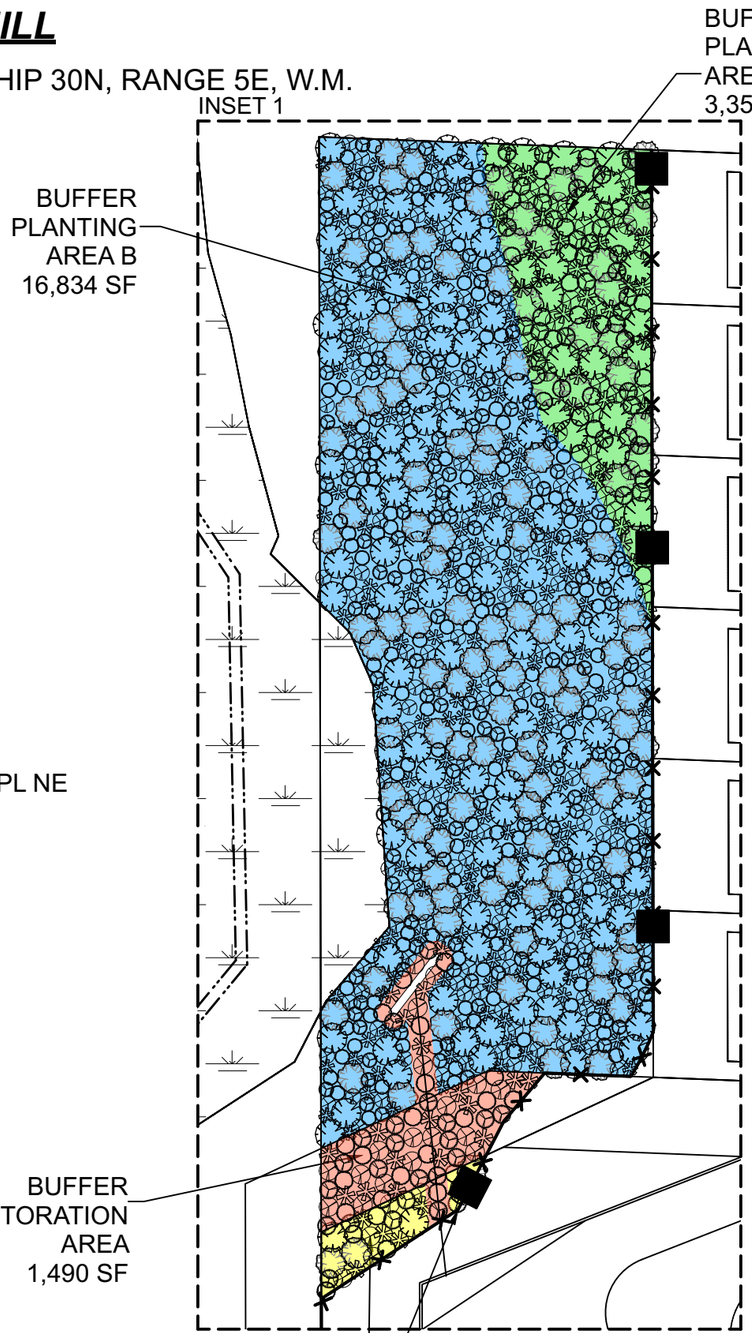
Sheet 1/2
WRI #: 23040
Drawn by:SS
Date: 11/15/202

BUFFER MITIGATION PLANTING PLAN

CHAPEL HILL

PORTION OF SECTION 26, TOWNSHIP 30N, RANGE 5E, W.M.





Scale 1" = 100'

0 50 100 150 200

Inset Scale 1" = 40'

0 20 40 60 80

LEGEND
WETLAND (DELINEATED)
STREAM (ESTIMATED)
BUFFER ENHANCEMENT AREA A
BUFFER ENHANCEMENT AREA B
BUFFER ENHANCEMENT AREA C
BUFFER RESTORATION AREA
NGPA FENCE AND SIGNAGE

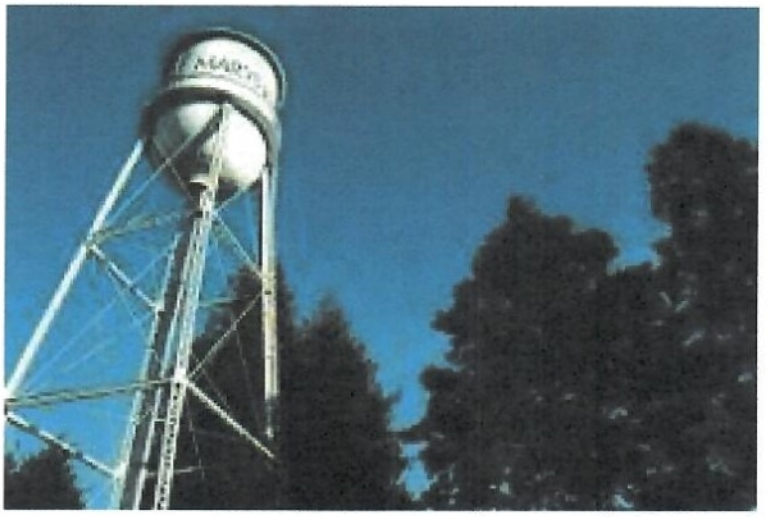
INEST LEGEND
BIG LEAF MAPLE
WESTERN RED CEDAR
SALMONBERRY
SNOWBERRY
OSOBERRY
VINE MAPLE

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BUFFER MITIGATION PLANTING PLAN
CHAPEL HILL
Marysville, WA

Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

Sheet 2/2
WRI #: 23040
Drawn by:SS
Date: 11/15/202

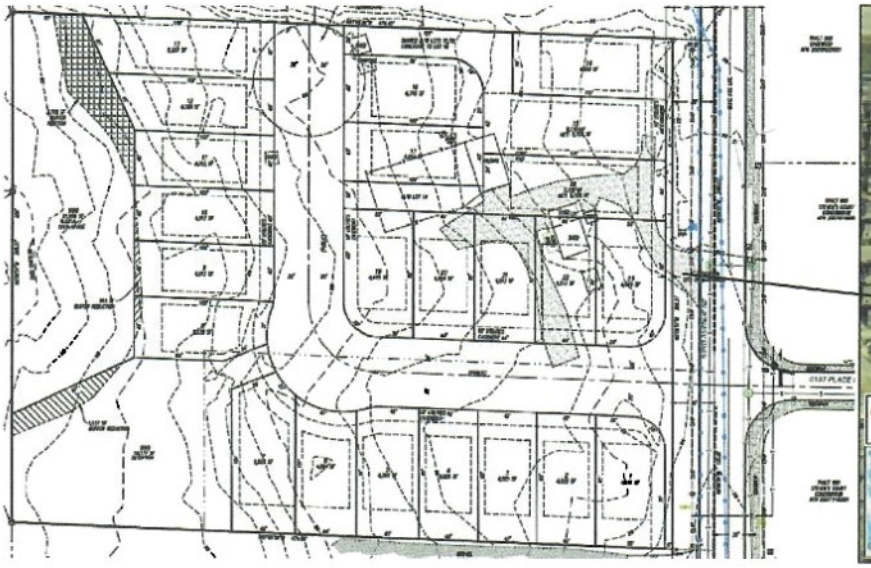




Marysville

CHAPEL HILL PLAT
TRANSPORTATION MEMORANDUM

August 14, 2023





Jake Traffic Engineering, Inc.
Mark J. Jacobs, PE (OR and WA), PTOE, President
2614 39th Ave. SW – Seattle, WA 98116 – 2503
Tel. 206.762.1978 - Cell 206.799.5692
E-mail jaketraffic@comcast.net



CITY OF Marysville WASHINGTON

JTE . Jake Traffic Engineering, Inc. .

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President
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August 14, 2023

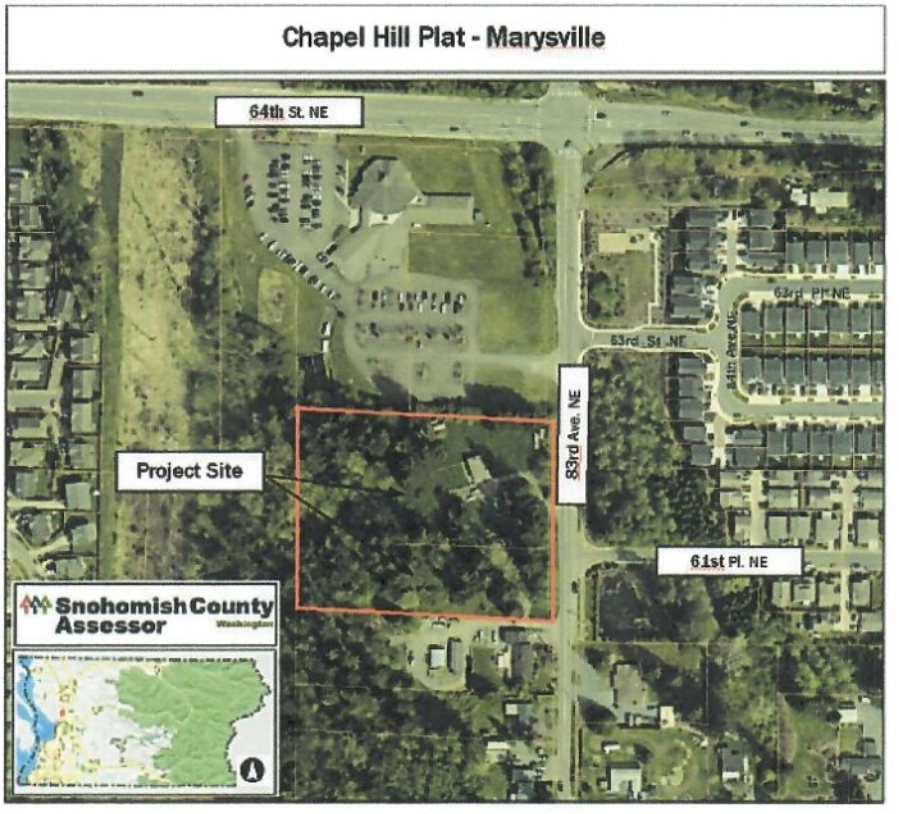
ROBINETT BROTHERS, LLC
Attn: Marty Robinett
2825 Colby Ave. Suite 304
Everett, WA 98201

Re: Chapel Hill Plat – Marysville
Transportation Memorandum

Dear Mr. Robinett,

I have prepared this Transportation Memorandum for the proposed 23-lot residential plat (22-net new). The site is located at 6114 83rd Ave. NE, Marysville, WA 98270 on Snohomish County Parcel #'s 300526-004-037-00 and 300526-004-043-00. The project site is currently developed with one SFDU that will be removed from the site.

An aerial view of the project site obtained from Snohomish County SCOPI is shown below:



The City was provided a Traffic Scoping e-mail on 08.03.2023 for the project and a request for City traffic distribution data that was provided the same day. I have prepared this Transportation Memorandum based on past City experience that required Traffic Documentation to include trip generation, distrIbution and identify the likely Traffic Impact Fee. The site access is on 83rd Ave. NE aligned with 61st Place Northeast.

The site is currently developed with a SFDU that would be removed to make way for the subject project. Attached is a copy of the Site Plan prepared by Land Resolutions dated 07.25.2023. The plan shows the 23 lot residential plat, open space, internal street with a temporary turnaround and access on 83rd Ave. NE aligned with 61st Place Northeast.

SITE TRAFFIC GENERATION AND DISTRIBUTION

Definitions

A vehicle trip is defined as a single or one direction vehicle movement with either the origin or destination (exiting or entering) inside the proposed development.

Traffic generated by development projects consists of the following types:

Pass-By Trips:	Trips made as intermediate stops on the way from an origin to a primary trip destination.
Diverted Link Trips:	Trips attracted from the traffic volume on a roadway within the vicinity of the generator but which require a diversion from that roadway to another roadway in order to gain access to the site.
Captured Trips:	Site trips shared by more than one land use in a multi-use development.
Primary (New) Trips:	Trips made for the specific purpose of using the services of the project.

Trip Generation

The trip generation for the project is calculated using trip rates from the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, for the Single-Family Detached Housing (ITE Land Use Codes 210). All site trips made by all vehicles for all purposes, including commuter, visitor, and service and delivery vehicle trips are included in the trip generation values.

Using the aforementioned LUC, Table 1 below depicts the site traffic generation.

TABLE 1 - VEHICULAR TRIP GENERATION
CHAPEL HILL PLAT - MARYSVILLE
TTRANSPORTATION MEMORANDUM

Time Period	Size (X)	TG Rate	Enter %	Enter Trips	Exit %	Exit Trips	Total (T)	Pass-by %*	Pass-by Trips	Net Total
Proposed: Single-Family Detached Housing - General Urban/Suburban (ITE LUC 210; 22 - net new units)										
Weekday	22	9.43	50%	104	50%	104	207	-	--	-
AM peak hour	22	0.7	26%	4	74%	11	15	-	--	-
PM peak hour	22	0.94	63%	13	37%	8	21	-	--	-

Where X = number of units or sf and T = Trips
* - Pass-by rates per ITE, local Agency data and Traffic Engineering Experience, residential trips are typically considered new thus for analysis no pass-by to account for service/delivery type trips is taken
Trip rates per the Institute of Transportation Engineers Trip Generation Manual 11th Edition
Note: Due to rounding some values may not add up

The proposed project is projected to generate about 21 net new PM peak hour trips with 13 entering and eight exiting.

Trip Distribution

I obtained City distribution data from the City for Whiskey Ridge North and 87th Avenue. The site's orientation is such that the City's noted to refine the data to better reflect the site's location between the two zones. Below are the relevant portions of the City distribution data for the two Zones.

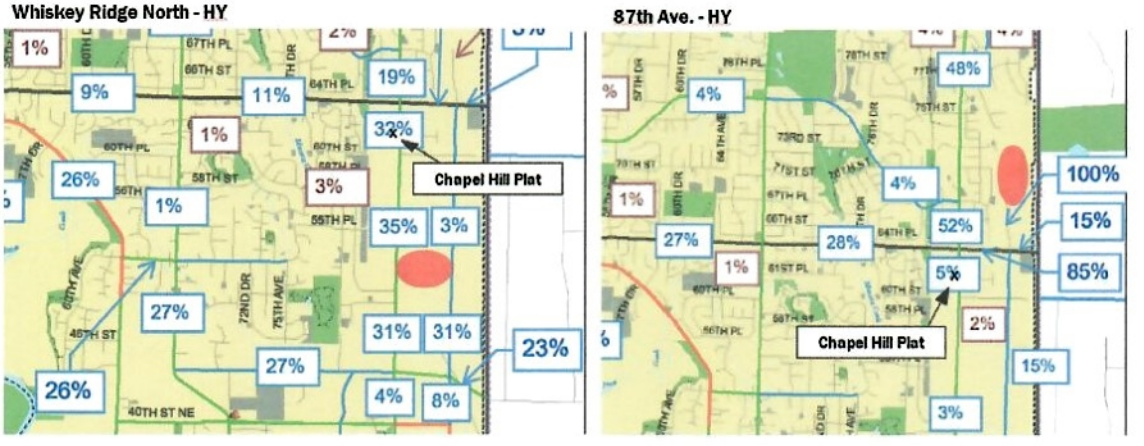


Figure 1 provides the projected Trip Distribution using City distribution for Whiskey Ridge North and 87th Ave.; rounded to five percent. The City's distribution data for both the Existing and Horizon street grid is generally consistent for both the corridors; the horizon year for the Whiskey Ridge North is slightly refined with the added street connection to SR – 9 in particular the extension of 44th St. NE to the east. This new connection is projected to re-route traffic currently using E. Sunnyside School Road. In addition to the City information, the characteristics of the road/street network, existing traffic volume patterns, the location of

likely trip origins and destinations (residential, schools, employment, shopping, social and recreational opportunities) are factored.

ACCESS/OPERATIONAL INSPECTION

Table 1 in Traffic Impact Analysis Guidelines July 20, 2020 identifies the use of a 25 PM peak hour site traffic impact threshold to study an intersection; typically noted as classified arterial intersections.

TABLE 1: INTERSECTION ANALYSIS IMPACT THRESHOLDS

SR529/State Avenue/Smokey Point Blvd. Corridor		Threshold for intersection Analysis/LOS Criteria
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	E (mitigated)
State Route 528 (4th Street/64th Street NE) and State Route 531 (172nd St NE)		
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	E (mitigated)
All other intersections of two arterial/arterial or functionally classified streets		
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	D

The net PM peak hour site traffic generation is 21 PM peak hour trips that are below the City's threshold for study.

Eighty Third Avenue NE is a 2-lane local Minor Arterial street with a posted speed limit of 35 MPH. The City of Marysville 2015 Transportation Element dated June 2015 was inspected. This document identifies the corridor SR -528 to 40th St. NE for future widening (project #109) to 2/3 lanes and sidewalks.

Site access would be via street intersection with 83rd Ave NE aligned with 61st Pl. NE to the east. Below are street view photographs obtained from Google Earth looking to the north and south at the access, respectively.





Presuming vegetation is properly maintained and no signage is located in the sight triangle good sight lines exist at the site access on 83rd Avenue Northeast.

AGENCY TRAFFIC IMPACT MITIGATION REQUIREMENTS

City of Marysville

The City of Marysville has a Traffic Impact Fee program. The City's TIF per the February 3, 2021 schedule, per February 23, 2023 Fee Schedule, are:

TRAFFIC (Title 22D.030 MMC)	
Residential (per PM peak hour trip)	$6,300.00
Commercial (per PM Peak Hour Trip)	$2,220.00

The appropriate TIF, per the schedule current at the time of building permit would be required.

I note that the City has an identified improvement for 83rd Ave. NE (#109) in the City's Comprehensive Plan. The cost of street improvements to 83rd Ave. NE may be creditable against the TIF per RCW 82.02.060, see below (pertinent section highlighted):

RCW 82.02.060

Impact fees—Local ordinances—Required provisions—Exemptions.

**** CHANGE IN 2023 *** (SEE 5258-S2.SL) ****

The local ordinance by which impact fees are imposed:

(1) Shall include a schedule of impact fees which shall be adopted for each type of development activity that is subject to impact fees, specifying the amount of the impact fee to be imposed for each type of system improvement. The schedule shall be based upon a formula or other method of calculating such impact fees. In determining proportionate share, the formula or other method of calculating impact fees shall incorporate, among other things, the following:

(a) The cost of public facilities necessitated by new development;

(b) An adjustment to the cost of the public facilities for past or future payments made or reasonably anticipated to be made by new development to pay for particular system improvements in the form of user fees, debt service payments, taxes, or other payments earmarked for or proratable to the particular system improvement;

(c) The availability of other means of funding public facility improvements;

(d) The cost of existing public facilities improvements; and

(e) The methods by which public facilities improvements were financed;

(2) May provide an exemption for low-income housing, and other development activities with broad public purposes, including development of an early learning facility, from these impact fees, provided that the impact fees for such development activity shall be paid from public funds other than impact fee accounts;

(3)(a) May not impose an impact fee on development activities of an early learning facility greater than that imposed on commercial retail or commercial office development activities that generate a similar number, volume, type, and duration of vehicle trips;

(b) When a facility or development has more than one use, the limitations in this subsection (3) or the exemption applicable to an early learning facility in subsections (2) and (4) of this section only apply to that portion that is developed as an early learning facility. The impact fee assessed on an early learning facility in such a development or facility may not exceed the least of the impact fees assessed on comparable businesses in the facility or development;

(4) May provide an exemption from impact fees for low-income housing or for early learning facilities. Local governments that grant exemptions for low-income housing or for early learning facilities under this subsection (4) may either: Grant a partial exemption of not more than eighty percent of impact fees, in which case there is no explicit requirement to pay the exempted portion of the fee from public funds other than impact fee accounts; or provide a full waiver, in which case the remaining percentage of the exempted fee must be paid from public funds other than impact fee accounts, except as provided in (b) of this subsection. These exemptions are subject to the following requirements:

(a) An exemption for low-income housing granted under subsection (2) of this section or this subsection (4) must be conditioned upon requiring the developer to record a covenant that, except as provided otherwise by this subsection, prohibits using the property for any purpose other than for low-income housing. At a minimum, the covenant must address price restrictions and household income limits for the low-income housing, and that if the property is converted to a use other than for low-income housing, the property owner must pay the applicable impact fees in effect at the time of conversion;

(b) An exemption for early learning facilities granted under subsection (2) of this section or this subsection (4) may be a full waiver without an explicit requirement to pay the exempted portion of the fee from public funds other than impact fee accounts if the local government requires the developer to record a covenant that requires that at least 25 percent of the children and families using the early learning facility qualify for state subsidized child care, including early childhood education and assistance under chapter 43.216 RCW, and that provides that if the property is converted to a use other than for an early learning facility, the property owner must pay the applicable impact fees in effect at the time of conversion, and that also provides that if at no point during a calendar year does the early learning facility achieve the required percentage of children and families qualified for state subsidized child care using the early learning facility, the property owner must pay 20 percent of the impact fee that would have been imposed on the development had there not been an exemption within 90 days of the local government notifying the property owner of the breach, and any balance remaining thereafter shall be a lien on the property; and

(c) Covenants required by (a) and (b) of this subsection must be recorded with the applicable county auditor or recording officer. A local government granting an exemption under subsection (2) of this section or this subsection (4) for low-income housing or an early learning facility may not collect revenue lost through granting an exemption by increasing impact fees unrelated to the exemption. A school district who receives school impact fees must approve any exemption under subsection (2) of this section or this subsection (4);

(5) Shall provide a credit for the value of any dedication of land for, improvement to, or new construction of any system improvements provided by the developer, to facilities that

are identified in the capital facilities plan and that are required by the county, city, or town as a condition of approving the development activity;

(6) Shall allow the county, city, or town imposing the impact fees to adjust the standard impact fee at the time the fee is imposed to consider unusual circumstances in specific cases to ensure that impact fees are imposed fairly;

(7) Shall include a provision for calculating the amount of the fee to be imposed on a particular development that permits consideration of studies and data submitted by the developer to adjust the amount of the fee;

(8) Shall establish one or more reasonable service areas within which it shall calculate and impose impact fees for various land use categories per unit of development; and

(9) May provide for the imposition of an impact fee for system improvement costs previously incurred by a county, city, or town to the extent that new growth and development will be served by the previously constructed improvements provided such fee shall not be imposed to make up for any system improvement deficiencies.

For purposes of this section, "low-income housing" means housing with a monthly housing expense, that is no greater than thirty percent of eighty percent of the median family income adjusted for family size, for the county where the project is located, as reported by the United States department of housing and urban development.

For the purposes of this section, "early learning facility" has the same meaning as in RCW 43.31.565.

[2021 c 72 § 1; 2012 c 200 § 1; 1990 1st ex.s. c 17 § 44.]

NOTES:

Severability—Part, section headings not law—1990 1st ex.s. c 17: See RCW 36.70A.900 and 36.70A.901.

Snohomish County

An interlocal agreement between the City of Marysville and the County exists regarding traffic mitigation. I have prepared the Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Marysville, attached. The County has two mitigation options, one based on a percent of the County fee and two payment based on a Comprehensive Traffic Study.

Option A. The site is located in County Zone CI-MA-5 that indicates a 15 and 10% contribution rate to the County TIF program for residential and commercial projects, respectively.

Option B. Comprehensive traffic study is to pay proportionate share to County Road Improvement projects is chosen. Per this option no impact fee to the County should be required and is detailed next.

Section 3(b) of the County/City worksheet requires the distribution of site Generated AM and PM peak hour trips down to 3-directional peak hour trips. The Key Intersections in the site area are shown in the following map below:



No County Key I/S's are projected to be affected by three directional peak hour trips.

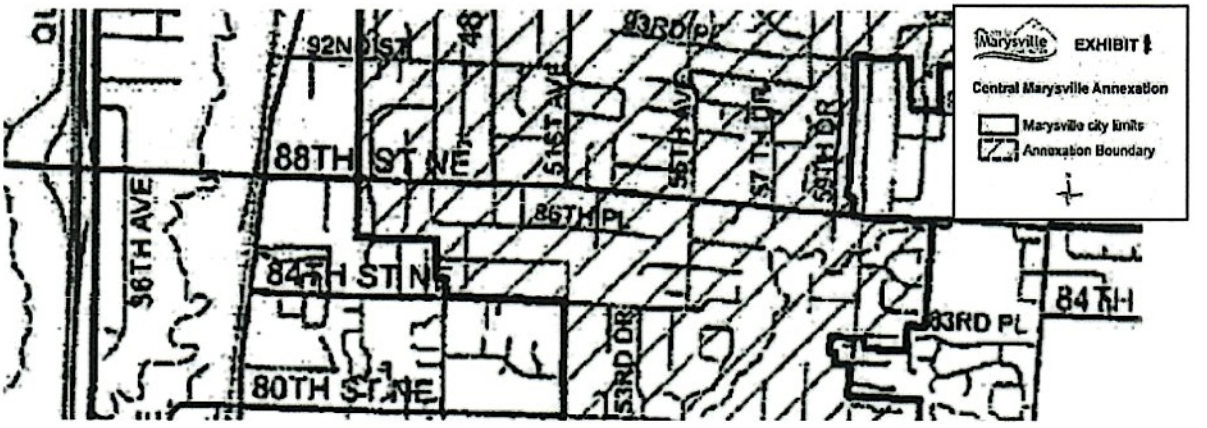
The County has two mitigation options, one based on a percent of the County fee and two payment based on a Comprehensive Traffic Study. Option one is a proportionate payment determined by percentage to County Impact Fee program. Option two Comprehensive Traffic Study is chosen. Per the County/City worksheet the proportionate share payment to County projects is based on PM peak hour trips affecting County planned improvements identified in the Transportation Needs Report.

There are three County projects noted in TSA 'A'

TNR Appendix D: Impact Fee Cost Basis

Road Name	Limits	Column 1 Project Cost ($1,000s)	Column 2 CD %	Source of Cost Estimate	Project Type	TNR ID##
TSA A						
67 Ave NE / 152 St NE		$5,394	100%	TNR Cost Model	Major Intersection	INT-007
88 St NE	Marysville C/L to Marysville C/L	$2,855	100%	Marysville Interlocal Agreement	Major Widening	W-017
140 St NE / 23 Ave NE		$3,498	100%	2015 TE Costs	Major Intersection	INT-008
Subtotal TSA A			**$11,747**			

Review of the TNR the 88th St. NE is the section annexed into the City via Ordinance #2792 that is generally between 44th Ave. NE and 59th Dr. NE; see below section of Exhibit 1:



The Chapel Hill Plat project traffic would not affect any of the County projects noted in TSA; thus no Traffic Mitigation payment should be required.

Attached to this report is a Snohomish County Worksheet for the project.

WSDOT

I am not aware of an Interlocal Agreement between the City and WSDOT.

SUMMARY AND RECOMMENDATIONS

I have prepared this Transportation Memorandum for the 23-lot residential plat (22-net new). The site is located at 6114 83rd Ave. NE, Marysville, WA 98270 on Snohomish County Parcel #'s 300526-004-037-00 and 300526-004-043-00. The project site is currently developed with one SFDU that will be removed from the site. The City was provided a Technical e-mail on 08.03.2023 for the project.

This Memorandum documents the Site Traffic Generation and Distribution, inspects the Site Access and ascertains the Traffic Impact Fee to Marysville. In addition, I have added documents regarding the City's Interlocal Agreement with Snohomish County. Per County Option B no payment of a TIF to the County should be required.

Based on my analysis I recommend that the project be allowed to move forward with the following transportation mitigation measures:

- Construct the site additions as noted on the Site Plans.
- Install a 'Stop" sign on 61st Pl. NE per appropriate standards on its approach to 83rd Avenue Northeast.
- Payment of the City TIF; a credit against this fee may be applicable for street improvements to 83rd Ave. NE an identified City street improvement project, per RCW 82.02.060

Please contact me at 206.762.1978 or email us at jaketraffic@comcast.net if you have any questions.

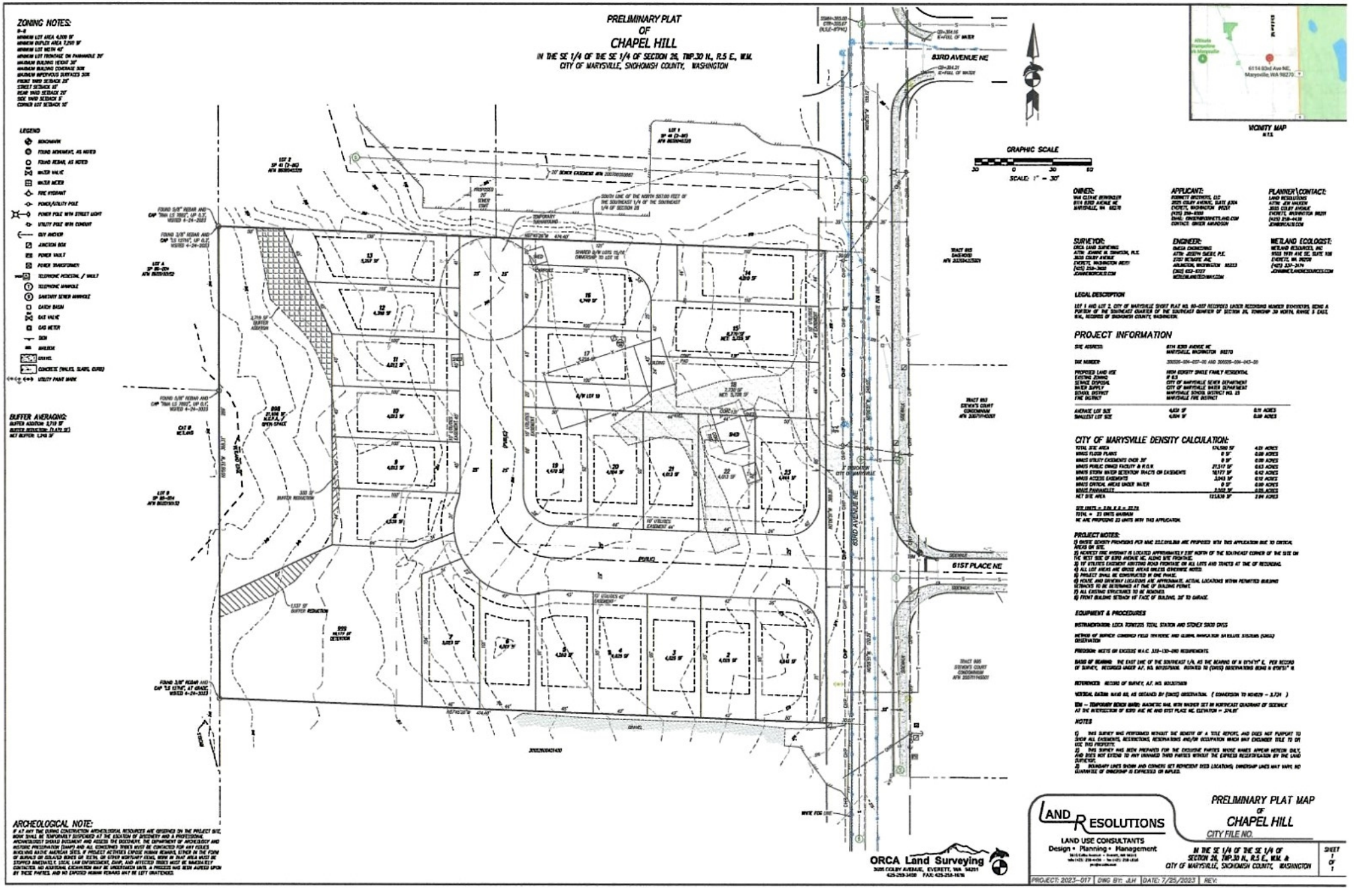


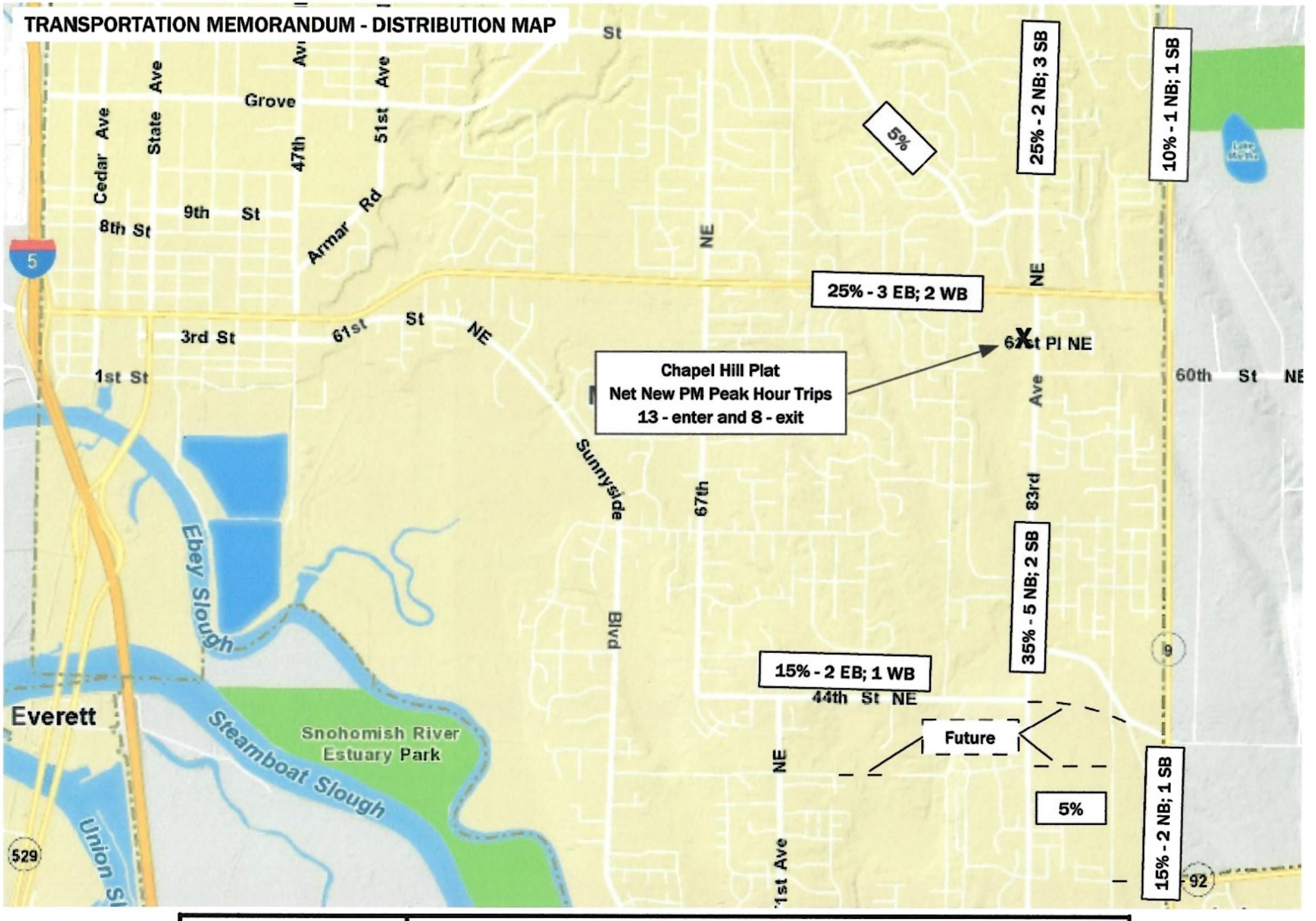
Very truly yours,

Mark J. Jacobs, PE, PTOE, President
JAKE TRAFFIC ENGINEERING, INC.

08.14.2023

MJJ: mjj


PRELIMINARY PLAT
OF
CHAPEL HILL
IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON
ZONING NOTES:
LEGEND
BUFFER AVERAGING:
ARCHEOLOGICAL NOTE:
83RD AVENUE NE
61ST PLACE NE
GRAPHIC SCALE
SCALE: 1" = 30'
VICINITY MAP
OWNER:
APPLICANT:
PLANNER\CONTACT:
SURVEYOR:
ENGINEER:
WETLAND ECOLOGIST:
LEGAL DESCRIPTION
PROJECT INFORMATION
CITY OF MARYSVILLE DENSITY CALCULATION:
PROJECT NOTES:
EQUIPMENT & PROCEDURES
NOTES
ORCA Land Surveying
LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
PRELIMINARY PLAT MAP
OF
CHAPEL HILL
CITY FILE NO.
IN THE SE 1/4 OF THE SE 1/4 OF
SECTION 26, TWP.30 N., R.5 E., W.M. &
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON
SHEET
1
OF
1
PROJECT: 2023-017
DWG BY: JJH
DATE: 7/25/2023
REV:



JTE, Inc. FIGURE 1 Reprint in Color Only	CHAPEL HILL PLAT - MARYSVILLE TRANSPORTATION MEMORANDUM
	SITE GENERATED PM PEAK HOUR TRAFFIC VOLUME AND DISTRIBUTION (Existing & Future Street Grid)

APPENDIX

From: Jesse Hannahs [mailto:jhannahs@marysvillewa.gov]
Sent: Thursday, August 03, 2023 9:04 AM
To: Mark J Jacobs, PE, PTO
Subject: RE: [External!]2023.039 - Chapel Hill - Traffic Memorandum - East Marysville Distribution Maps

Distribution for subject area with be compromise of two attached areas.

Jesse L. Hannahs, P.E.
Traffic Engineering Manager
80 Columbia Ave
jhannahs@marysvillewa.gov
360-363-8287

From: Mark J Jacobs, PE, PTO <JakeTraffic@comcast.net>
Sent: Thursday, August 3, 2023 8:51 AM
To: Jesse Hannahs <jhannahs@marysvillewa.gov>
Subject: [External!]2023.039 - Chapel Hill - Traffic Memorandum - East Marysville Distribution Maps

External Email Warning! Use caution before clicking links or opening attachments.

Jesse

Based on past City experience I am conducting a Traffic Memorandum to include:

- TG
- Distribution per City data
- Identify ILA data, aka Snohomish County if applicable
- Inspect the site access
- Ascertain the City TIF
- Prepare, sign and submit the Traffic Memorandum to the team for submittal to Marysville

Please provide me the City distribution maps for east Marysville.

Contact me with any questions.

Thank you

Mark

Mark J Jacobs, PE. PTOE
JAKE TRAFFIC ENGINEERING, INC
2614 39th Ave. SW
Seattle, WA 98116 – 2503
306.762.1978 o
206.799.5692 c

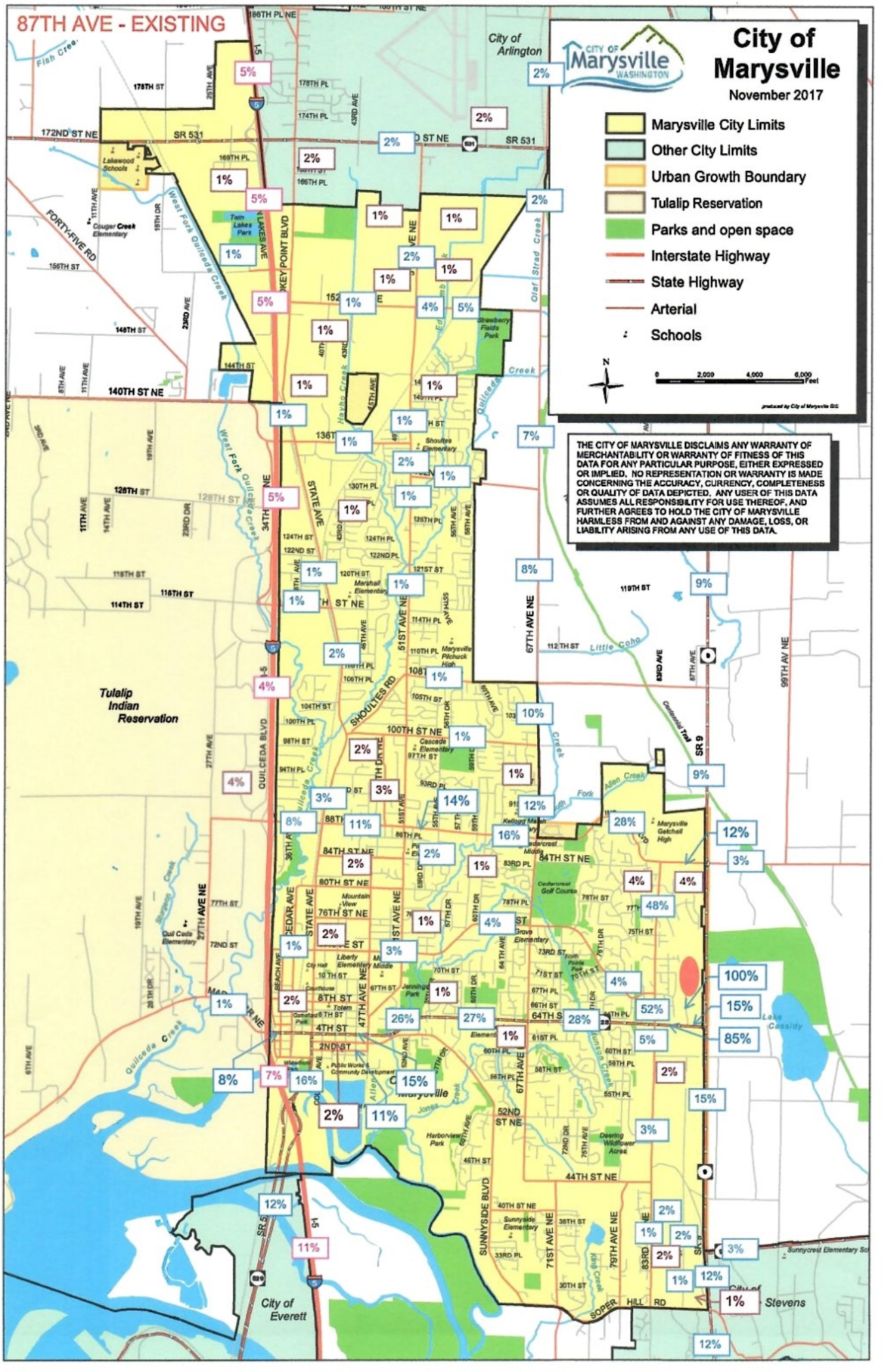
From: Jen Haugen [mailto:jen@orcalsi.com]
Sent: Wednesday, July 26, 2023 11:14 AM
To: Mark J Jacobs, PE, PTO
Cc: Ry McDuffy; Marty Robinett
Subject: RE: Marysville Plat - Chapel Hill

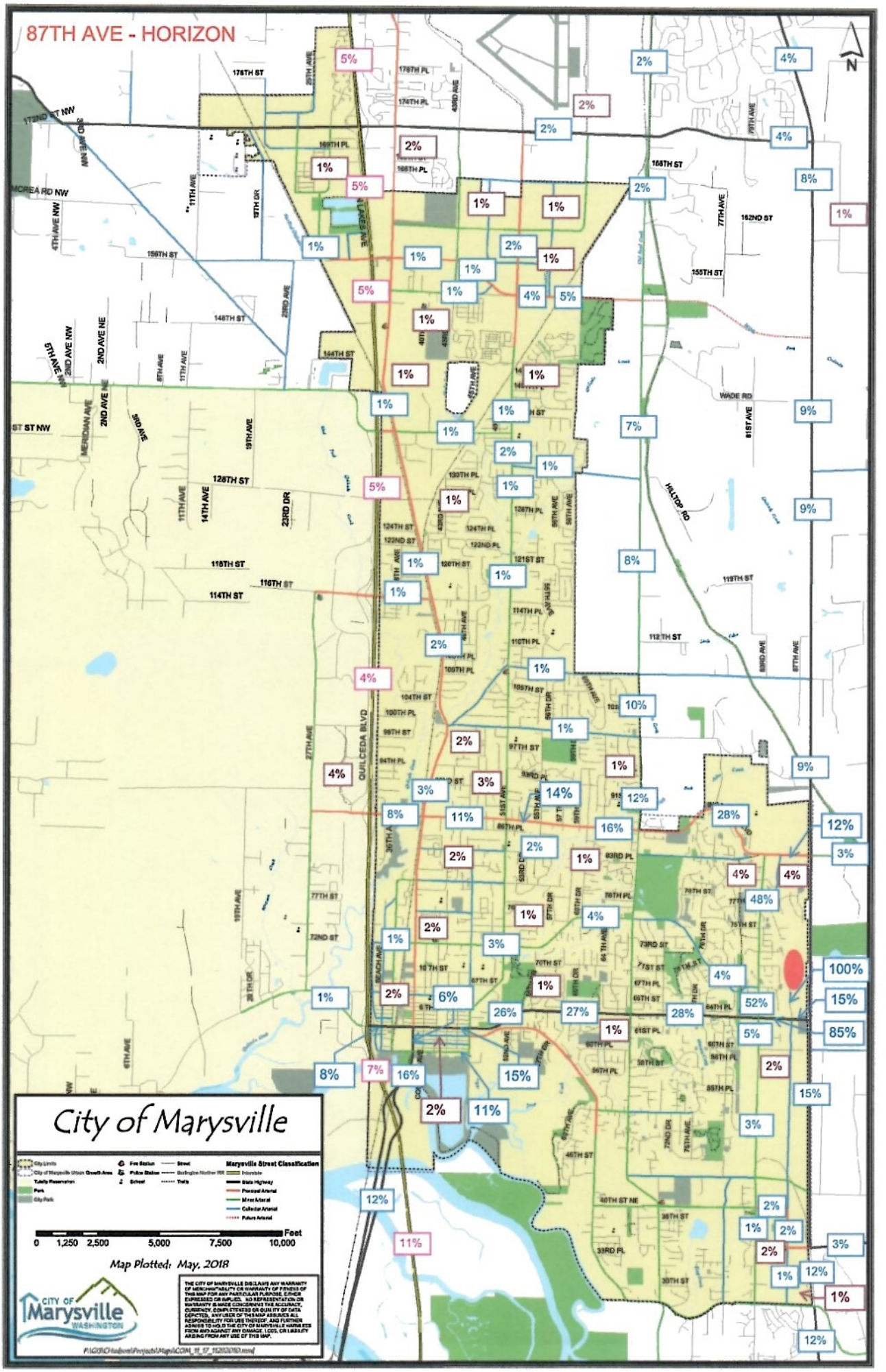
Thank you, Mark.

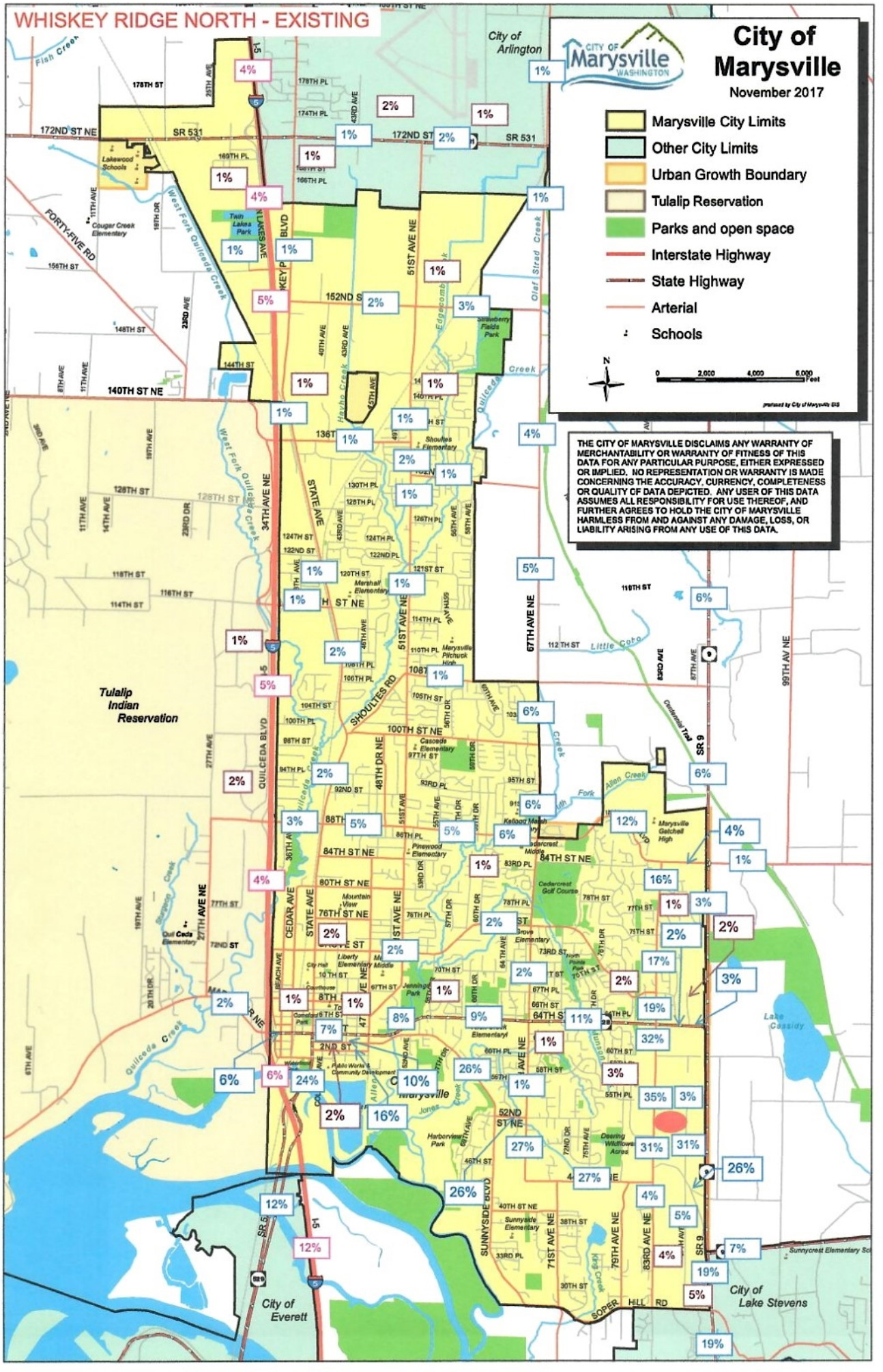
Chapel Hill - a 23 lot subdivision located in City of Marysville jurisdiction is attached. There is one existing home on site.

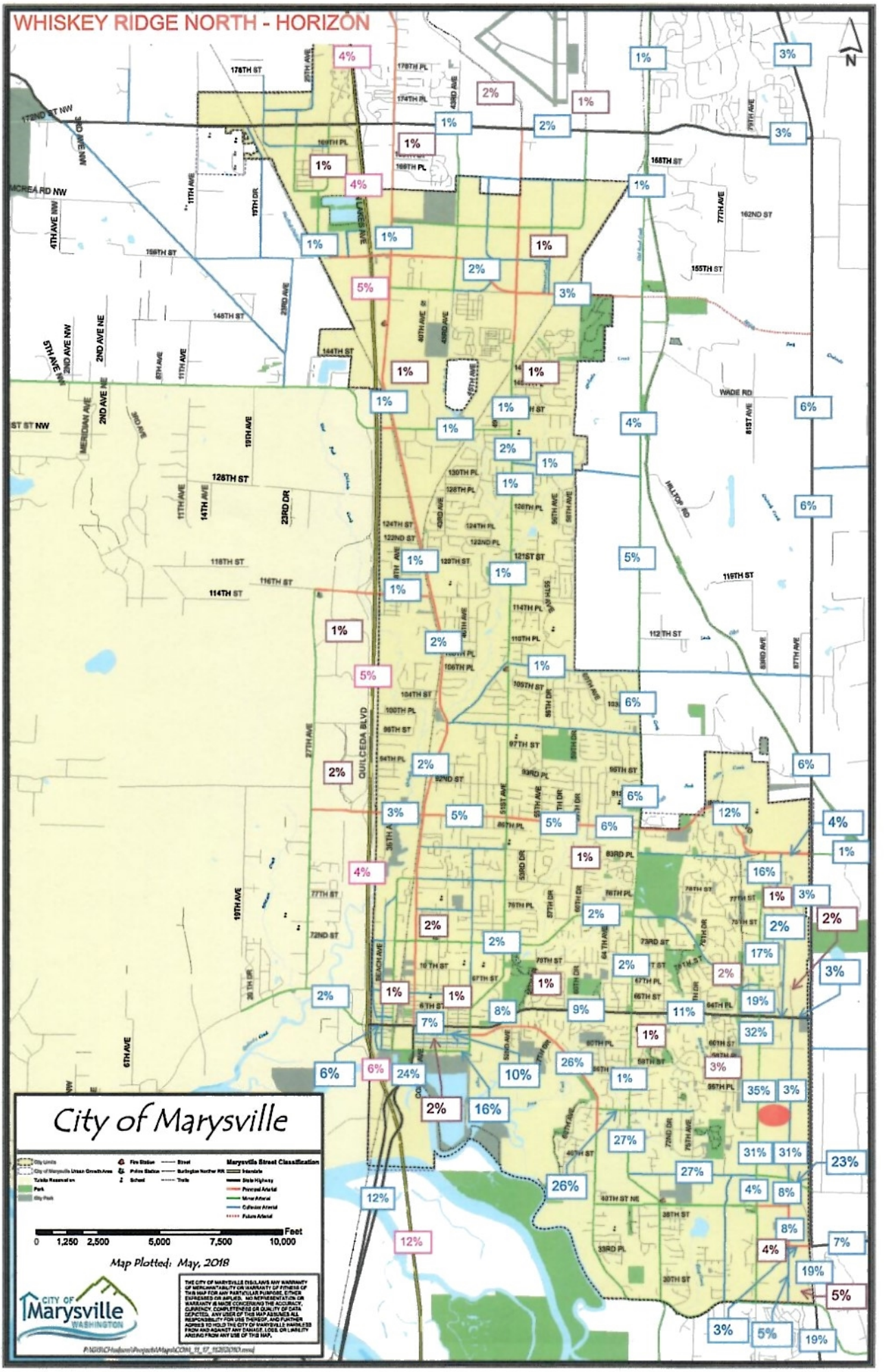
We appreciate you taking the time to bid on this one.

Jen Haugen | *Planner*
Land Resolutions
3605 Colby Avenue | Everett, WA 98201
425-258-4438 | jen@orcalsi.com


87TH AVE - EXISTING
City of Marysville
November 2017
Marysville City Limits
Other City Limits
Urban Growth Boundary
Tulalip Reservation
Parks and open space
Interstate Highway
State Highway
Arterial
Schools
THE CITY OF MARYSVILLE DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS OF THIS DATA FOR ANY PARTICULAR PURPOSE, EITHER EXPRESSED OR IMPLIED. NO REPRESENTATION OR WARRANTY IS MADE CONCERNING THE ACCURACY, CURRENCY, COMPLETENESS OR QUALITY OF DATA DEPICTED. ANY USER OF THIS DATA ASSUMES ALL RESPONSIBILITY FOR USE THEREOF, AND FURTHER AGREES TO HOLD THE CITY OF MARYSVILLE HARMLESS FROM AND AGAINST ANY DAMAGE, LOSS, OR LIABILITY ARISING FROM ANY USE OF THIS DATA.
City of Arlington
Tulalip Indian Reservation
City of Everett
Stevens
140TH ST NE
172ND ST NE
SR 531
SR 9
I-5
67TH AVE NE
51ST AVE NE
47TH AVE NE
STATE AVE
SHOULTES RD
QUILCEDA BLVD
SUNNYSIDE BLVD
SOPER HILL RD
100TH ST NE
84TH ST NE
52ND ST NE
44TH ST NE
8TH ST
4TH ST
2ND ST
Marysville Pilchuck High
Marysville Getchell High
Cascade Elementary
Shoultes Elementary
Marshall Elementary
Tulalip Heights Elementary
Liberty Elementary
Grove Elementary
Sunnyside Elementary
Sunnycrest Elementary
Quil Ceda Elementary
Cedarcrest Golf Course
Lake Cassidy
Quilceda Creek
Allen Creek
Jones Creek
Little Coho Creek
Strawberry Fields Park
Harborview Park
Jennings Park
Deering Wildflower Acres
Lakewood Schools
Cougar Creek Elementary
Twin Lakes Park
Totem Park
Public Works & Community Development
City Hall
Courthouse
Mountain View Middle
Kellogg Marsh
Cedarcrest Middle
North Pointe Park
Olaf Strad Creek
Ebey Slough
West Fork Quilceda Creek
Fish Creek
Burgess Creek
Ebey Creek
Haxton Creek
Allen Creek
Centennial Trail
99TH AV NE
Lake Cassidy


87TH AVE - HORIZON
City of Marysville
Marysville Street Classification
Feet
0 1,250 2,500 5,000 7,500 10,000
Map Platted: May, 2018
CITY OF Marysville WASHINGTON


WHISKEY RIDGE NORTH - EXISTING
City of Marysville
November 2017
Marysville City Limits
Other City Limits
Urban Growth Boundary
Tulalip Reservation
Parks and open space
Interstate Highway
State Highway
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Schools
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City of Arlington
Tulalip Indian Reservation
City of Everett
City of Lake Stevens
Fish Creek
West Fork Quilceda Creek
Quilceda Creek
Allen Creek
Little Cobo
Edgecomb Creek
Olof Strad Creek
Hayho Creek
Burgess Creek
Jones Creek
Kelly Creek
Lake Cassidy
172ND ST NE
SR 531
140TH ST NE
136TH ST NE
128TH ST
116TH ST
100TH ST NE
84TH ST NE
80TH ST NE
76TH ST NE
67TH AVE NE
51ST AVE NE
43RD AVE
34TH AVE NE
27TH AVE NE
STATE AVE
CEDAR AVE
SHOULTES RD
QUILCEDA BLVD
SUNNYSIDE BLVD
SOPER HILL RD
SR 9
I-5


WHISKEY RIDGE NORTH - HORIZON
N
City of Marysville
Marysville Street Classification
Interstate
State Highway
Principal Arterial
Minor Arterial
Collector Arterial
Future Arterial
Feet
0 1,250 2,500 5,000 7,500 10,000
Map Plotted: May, 2018
CITY OF Marysville WASHINGTON
THE CITY OF MARYSVILLE DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS OF THIS MAP FOR ANY PARTICULAR PURPOSE, EITHER EXPRESSED OR IMPLIED. NO REPRESENTATION OR WARRANTY IS MADE CONCERNING THE ACCURACY, CURRENCY, COMPLETENESS OR QUALITY OF DATA DEPICTED. ANY USER OF THIS MAP ASSUMES ALL RESPONSIBILITY FOR USE THEREOF, AND FURTHER AGREES TO HOLD THE CITY OF MARYSVILLE HARMLESS FROM AND AGAINST ANY DAMAGE, LOSS, OR LIABILITY ARISING FROM ANY USE OF THIS MAP.

Traffic Mitigation Offer to Snohomish County

The applicant completes part one and submits it to the City with a completed county traffic worksheet. The City completes part two and sends it to the County. The County completes part three and sends it back to the City.

Part One to be completed by Applicant

Basic Development Information

Name of City in which development is located	Marysville
Name of Proposed Development	Chapel Hill Plat
County Project File Number (if known)	
Name of Applicant	Robinett Brothers, LLC Marty Robinett
Address of Applicant	2835 Colby Ave; Suite #304 Everett, WA 98201

Proportionate Share Calculation: *Choose Option A or B*

☐ Option A: Based on a percentage of the County's adopted impact fee (attach traffic worksheet.)

1. The applicable percentage of the County's fee: _____%
2. Net New Average Daily Traffic: _____ ADT
3. The adopted County impact fee for this development: _____$/ADT
4. Total Proportionate Share Amount: $_____

☒ Option B: Based on a comprehensive traffic study (attach traffic worksheet and traffic study)

_____ No road improvements are impacted. Hence, proportionate share amount is zero ($0).

_____ The following road improvements are impacted. The calculation of proportionate shares is summarized below.

List by Names/Description the Impacted County Projects (attach other pages if necessary)	County Project ID#	PHTs Impacting Project	Capacity Cost per PHT	Proportionate Share Obligation per Impacted Project
1.				
2. NONE				
3.				
4. Total Proportionate Share Amount (sum of obligations for each impacted project)				$ 0.00

☒ **Trip Distribution and Assignment if required**

If required, attach AM and PM peak-hour trip distribution and assignment. Attach traffic worksheet showing whether or not AM and PM peak-hour trip distribution is required and include a traffic study.

☒ **Mitigation of Other Impacts if required**

Mitigation of Impacts on Level of Service

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

Mitigation of Impacts on Inadequate Road Conditions

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

Mitigation for Impacts on Access or Circulation

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

☒ **Written Offer**

The Applicant hereby voluntarily agrees to pay the total proportionate share amount shown above for impacts of the proposed development on the capacity of Snohomish County roads and provide mitigation of all other impacts as indicated above and described in attached documents.

BY: _____ Date: _____

Signature by Authorized Official of Applicant or Authorized Representative

Print Name and Title _____

Instructions to Applicant. Submit this Offer, a completed county traffic worksheet, and any other attachments to the City with your initial application.

Part Two: To be completed by the City

Receipt of Written Offer and attachments by City and routing to County

Name of Proposed Development

City Project File Number

Date Received

City Staffer Assigned to Project

Address

Phone

Instructions to City. Send this offer and all attachments to Contact.pwCMS@snoco.org

Received by:

_____ Date: _____ _____

Initialed by City Staffer Print Name and Title

Part Three: To be completed by City

Receipt of Offer and attachments by Snohomish County and routing back to City

Name of Proposed Development

City Project File Number

Received by:

_____ Date: _____ _____

Initialed by County Staffer Print Name and Title

City Mitigation Request to County

The City of _____ has reviewed the traffic study worksheet and mitigation offer submitted by the applicant and has determined as follows:

☐ The City requests that the County impose the mitigation offered above as a condition of approval for the Development. The City agrees to accept changes in the mitigation payment amount shown above resulting from TDM or lot-yield adjustments approved by the County.

☐ The City requests that the County require additional supplemental information to adequately evaluate the proposed development's impacts.

☐ The information requested is shown in the notes below.

By:

_____ Date: _____ _____

Signature by Authorized City Staffer Print Name and Title

Routing Back to City

Instructions to County Send this offer and all attachments to the City Staffer shown in Part Two above.

Sent by:

_____ Date: _____ _____

Initialed by City Staffer Print Name and Title

Notes

Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Marysville

Snohomish County government, through an interlocal agreement (ILA) with the City of Marysville, may request traffic mitigation measures from any new development in the city that impacts roads in the unincorporated county. The City will impose the requested mitigation to the extent that the City determines that the mitigation is reasonably related to the impacts of the development. To determine the impacts, and to determine reasonable mitigation measures, the City of Marysville requires a traffic study from any development in the city that may have impacts on county roads. This 'traffic study' may be as simple as completing sections one and two of the county traffic worksheet below, or having a professional traffic engineer conduct a formal traffic study consistent with the requirements in section three below.

- If a development generates less than ten peak-hour trips and the applicant chooses Option A for mitigation payment (standard payment by percent of county impact fee), then the applicant will generally only have to fill out the first two sections of this traffic worksheet and complete a mitigation offer (see section four).
- However, if a development generates more than ten peak-hour trips, or if the applicant chooses Option B for mitigation payment (comprehensive impact analysis), then the applicant will have to fill out the first section of this worksheet, complete a separate traffic study consistent with the requirements in section three, and complete a mitigation offer (see Section Four).
- Applicants should submit all documents *to the City* as part of their initial submittal.
- Traffic study requirements for impacts on county roads are based on the County's traffic mitigation ordinance (Chapter 30.66B) and the city/county ILA. At the end of this document find references to the county contacts and county web site (sources for may of the documents related to traffic mitigation).
- Following review of the documents submitted, the County may request supplemental information and analysis as necessary to determine the impacts of the development in accordance with the city/county ILA. The City will require the proposed development to submit the supplemental information and analysis to the extent that the City determines that it is necessary to determine the impacts of the development.

Section One (1) Worksheet General Information

1. Name of Proposed Development _____

   City Development File Number (if known)_____

2. Name, Address and Phone Number of Applicant_____

   _____

   _____

3. Development Site Address_____

   _____

4. Is it a residential or commercial development?_____

5. Description of Development (size and specific type)_____

   _____

6. How many new vehicle trips are expected to be generated by the proposed development? (For many common types of developments this information can be provided by the city or the county. For more complex developments trip generation may have to be determined under section three below)

   _____ AM Peak Hour_____ PM Peak Hour_____ Average Daily Trips (ADT)

7. Proportionate Share Impact Mitigation: All applicants have two options in determining the amount of their traffic mitigation payment:

   _____ For determining the amount based on a percentage of the county fee go to section two.

   _____ For determining the amount based on a comprehensive traffic study go to section three.

Section Two (2) Proportionate Share Determined by Percentage of County Impact Fee

2(a) Calculation of Payment Amount

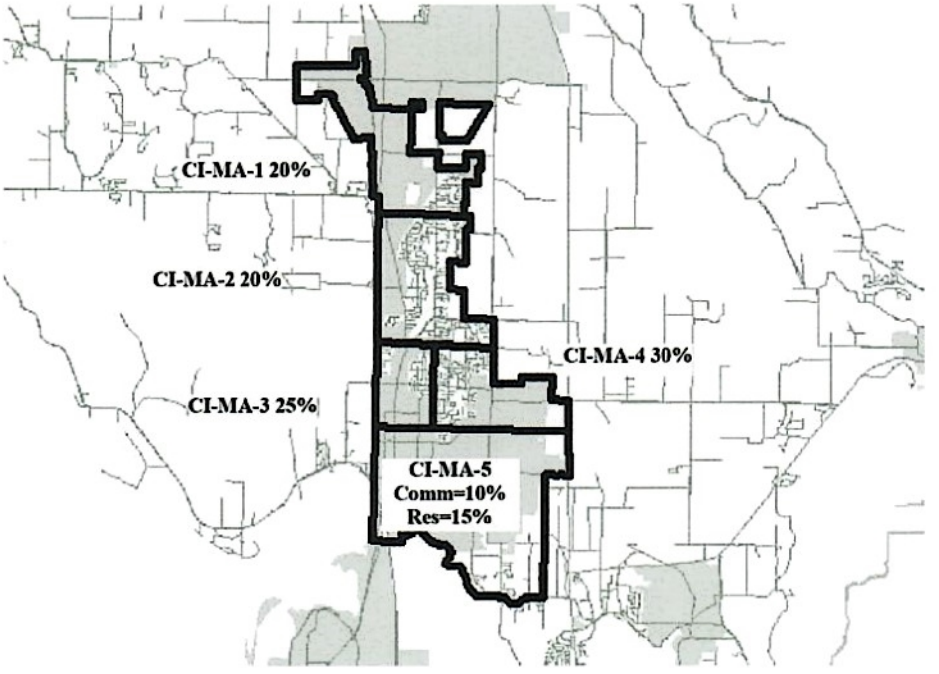
1. Standard default estimated percentage of trips impacting the City streets based on subareas (See below) _____%

or

2. Other Percentage: (Note: See author's qualifications in section three below.) Estimated percentage of trips impacting county roads from attached trip distribution: _____%

Sub-Area ID #	* City Subarea Description	Residential Developments	Commercial Developments
CI-MA-1	North of 136th ST SE.	20%	20%
CI-MA-2	North of 100th ST NE and South of 136th ST SE.	20%	20%
CI-MA-3	North of 76th ST NE, South of 100th ST SE, and West of 51st AV NE.	25%	25%
CI-MA-4	North of 76th ST NE, South of 100th ST SE, and East of 51st AV NE.	30%	30%
CI-MA-5	South of 76th ST NE.	15%	10%

* Note: Boundaries are either street centerlines or imaginary extensions of street centerlines in places where the actual streets do not exist.



3. Development New Average Daily Trip Generation (ADT)_____

4. Type of Development (Residential or Commercial)_____

5. County Commercial Fee Rate $_____ 6. County Residential Fee Rate $_____

(Note: Consistent with county code and the ILA, developments pay the rate in effect at the time of their submittal. As of 07/13/11 the rates were $39 for commercial developments and $46 for residential developments. Through ordinance, the County Council can change these rates at any time, so consult with the County or look at Snohomish County Code 30.66B.330 to find the latest fee rates.)

7. Calculation of Proportionate Share Impact Mitigation

_____	×	_____	×	_____	=	$_____
#1 or #2 above: % of trips		#3 above: ADT		#5 or #6 above: Fee Rate		proportionate share mitigating payment

2(b) Determining whether or not an additional traffic study is necessary

Will the development generate more than 10 peak-hour trips *or* are there other impacts that need to be addressed (e.g., level of service, safety, or access and circulation)

_____ No. Skip section three and go to section four.

_____ Yes. Read the introduction to section three and skip to section 3(b).

Section Three (3) Traffic Study Requirements

Introduction: This section outlines requirements for traffic studies for impacts on County roads. If an applicant chooses (or is required) to complete a traffic study, then it should be submitted along with this worksheet and a mitigation offer. (Note on Author's Qualifications: A traffic study under this section must be conducted by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and, preferably, membership in the institute of transportation engineers. For individuals/firms not on the City's approved list, the developer will provide, with the traffic study, the credentials of the individual or firm performing the traffic study certifying compliance with these qualifications.)

3(a) Proportionate share impact mitigation based on comprehensive traffic study

1. Development's Trip Generation and Distribution. Determine the PM peak-hour trip generation and distribution for the development consistent with Section 3(b) below.
2. Impacted Improvements. Determine which of the road sections with planned improvements in the county's impact fee cost basis (Transportation Needs Report Appendix D) are impacted by three or more development-generated *directional* PM peak hour trips (PM PHT).
3. Current Counts. For each impacted improvement, provide current traffic counts to determine the PM PHT.
4. Reserve Capacity. Determine "reserve capacity" for each impacted improvement by subtracting the current PM PHT from the maximum service volume (MSV) for the existing facility. Reserve capacity is set to zero if current PM PHT exceeds the MSV. For MSVs see County DPW Rule 4224.
5. New Capacity. New capacity is the incremental increase in PHT that could be accommodated with the planned improvement. Determine the new capacity of each impacted improvement by subtracting the current MSV from the future MSV after the improvement.
6. Chargeable Capacity. For each impacted improvement, add the reserve capacity to the new capacity.
7. Final Adjusted Cost. Find the cost of each impacted improvement and make any adjustments used by the County for tax credits (see Transportation Needs Report Appendix D).
8. Capacity Cost per Peak-Hour Trip. For each impacted improvement, determine the capacity cost per PM PHT by dividing the final adjusted improvement cost by the chargeable capacity.
9. Traffic Impacts. From step one above, take the *total* number of PM PHT (in both directions) impacting each planned improvement.
10. Proportionate Share. For each impacted improvement, determine the proportionate share impact mitigation by multiplying the capacity cost per peak-hour trip by the number of PM PHT impacting the improvement.

3(b) Trip Generation and AM and PM Peak Hour Trip Distribution and Assignment

Calculate AM, PM and Daily trip generation consistent with the ITE Trip Generation Handbook and Snohomish County Public Works Rule 4220. Determine the trip distribution and assignments consistent with the County's document titled "Format for Trip Distributions"(available at County web site, see below).

- Within the developments transportation service area (TSA) the distributions will be carried out to each key intersection at which the approach or departure volumes on any leg have three (3) or more peak hour trips. Get the most current list of key intersections on the web site described below. Trips should be distributed onto the road system as it is expected to be in six years.
- The distribution should be a schematic map showing the broad distributions of trips in terms of percentages on different roads. Show all City boundaries.
- The assignment should be a schematic map with the impacted key intersections identified by ID# and turning movements for each shown in separate diagrams on the same page or on different pages. The assignment should also be presented in tabular form listing each intersection by intersection ID#, and the number of trips at each movement.

3(c) Additional Analysis for Developments Generating More Than Fifty (50) Peak Hour Trips

For large developments (i.e., those generating more than 50 peak-hour trips), the County may request mitigation for impacts on the level of service of County roads, documented safety locations (the County calls such locations "inadequate road conditions" or "IRCs"), and access or circulation. The traffic study requirements below are intended to disclose impacts. Based on this information the County may request through the City that the applicant provide additional information showing possible mitigation measures. If any off-site improvements were needed for mitigation the County would work with the applicant to determine requirements for right-of-way, construction plans, right-of-way use permits, construction/maintenance bonds, and other issues.

Impacts on Level of Service (LOS) of County Arterials

Contact Snohomish County Public Works for the most current list of arterial units in arrears and critical arterial units. Identify any arterial units in arrears or critical arterial units impacted by three or more directional peak-hour trips.

Impacts on Inadequate Road Conditions

Contact Snohomish County Public Works for a list of the current IRCs. Identify any IRCs impacted by three or more peak-hour trips. Note: Unlike LOS impacts in which at least three or more peak hour trips have to be added in one direction to require disclosure (e.g., 3 westbound), for IRCs, any three peak hour trips added to IRC locations are considered an impact for which disclosure is necessary (e.g., 2 westbound plus 1 eastbound).

Impacts on Access or Circulation

The County may request improvements to existing roads to provide safe and efficient access and/or circulation. In some instances, the County may request provisions for future County roads identified in the Comprehensive Plan or in Small Area Transportation Studies. If so, the County will request specific additional information through the City.

Section Four (4) Traffic Mitigation Offer to Snohomish County

The applicant should complete a traffic mitigation offer to Snohomish County that summarizes the mitigation identified in the county traffic worksheet and any additional traffic study. This will facilitate timely review of the development and processing of the application. The form to use for the mitigation offer is titled "Traffic Mitigation Offer to Snohomish County." This form is typically provided to all applicants along with this traffic study checklist. In addition, copies are available from the county contacts or the Snohomish County web site shown below.

Additional Information

County Web Site

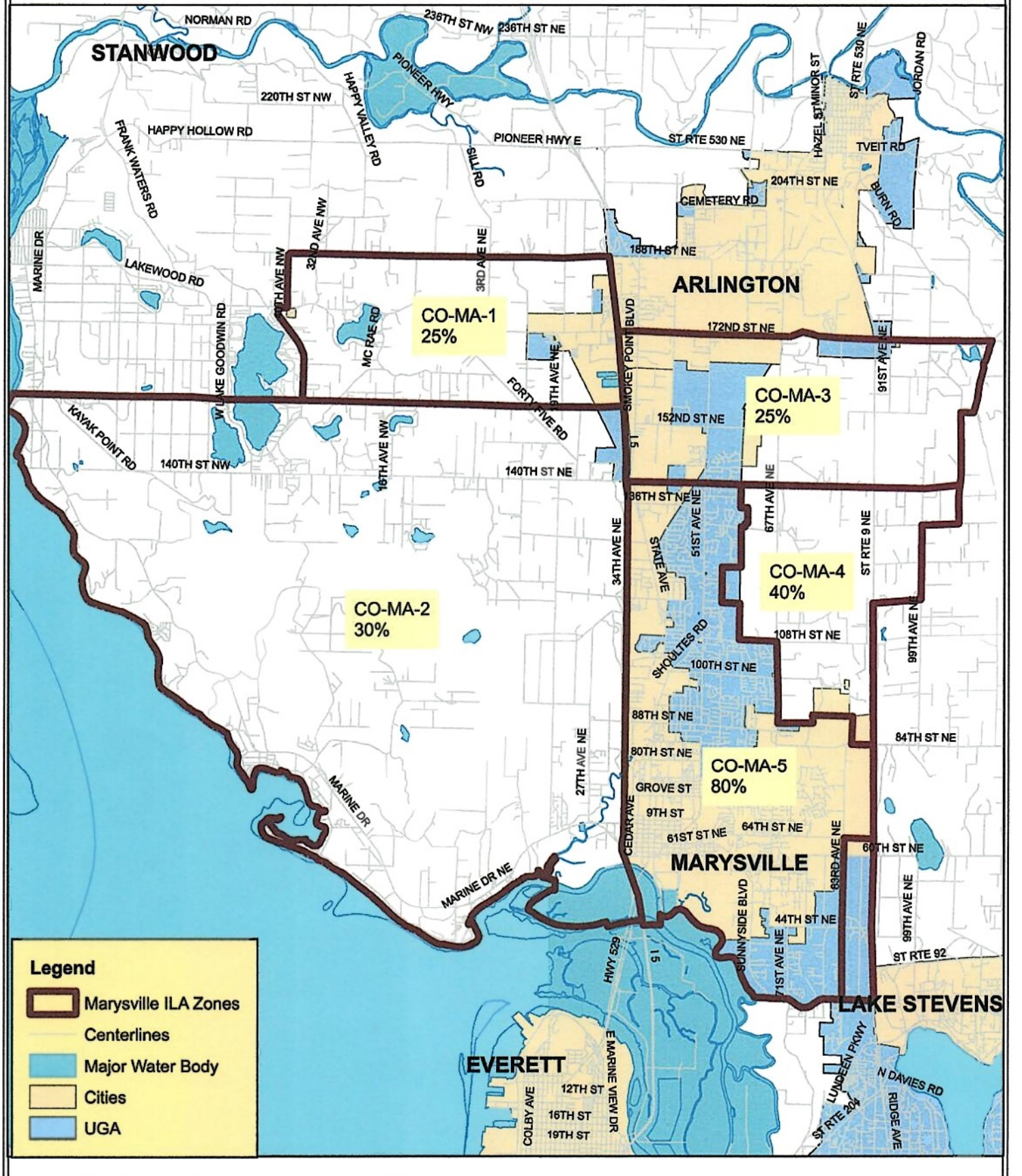
Snohomish County Public Works has a web site with many documents related to traffic studies and mitigation requirements for developers. From the Snohomish County Home Page go to:

Departments/Public Works/Divisions/TES/ProgramPlanning/3066B

County Contacts

- Elbert Esparza, Snohomish County DPW Traffic, 3000 Rockefeller M/S 607, Everett WA 98201, (425) 388-3184, elbert.esparza@snoco.org

Marysville ILA Zone Map



Cobalt Geosciences, LLC
P.O. Box 1792
North Bend, WA 98045

September 15, 2023

Robinett Brothers, LLC
C/O Jen Haugen
jen@orcalsi.com

RE: Geotechnical Investigation
Chapel Hill Project
6114 83rd Avenue NE
Marysville, Washington

In accordance with your authorization, Cobalt Geosciences, LLC has prepared this report to discuss the results of our geotechnical evaluation at the referenced site.

The purpose of our evaluation was to provide recommendations for stormwater management, grading, and earthwork.

Site Description

The site is located at 6114 83rd Avenue NE in Marysville, Washington (Figure 1). The property consists of two parcels (No.'s 30052600404300 and 30052600403700) with a total area of about 4 acres.

The northeast portion of the property is currently developed with a single-family residence, accessory buildings, and driveway. Lawn areas with sparse trees and bushes surround the residence and extend to the east, west, and south. The remainder of the site is vegetated with grasses, understory, ivy, ferns, blackberry vines, and variable diameter trees.

The site slopes downward from east to west at magnitudes of 5 to 15 percent and relief of about 30 feet. There is a mapped wetland near the west property line and in areas further west off site. The site is bordered to the west by undeveloped land, to the south by a residential and/or commercial property, to the north by parking lot areas, and to the east by 83rd Avenue NE.

The proposed development includes subdivision of the property along with construction of up to 23 new lots, stormwater infrastructure, utilities, roadways, and landscaped areas. Site grading will include cuts and fills of 3 feet or less and foundation loads will be light to moderate. Stormwater will be managed using shallow infiltration systems and/or detention. Figure 1 shows the site and planned lot layout.

Area Geology

The site lies within the Puget Lowland. The lowland is part of a regional north-south trending trough that extends from southwestern British Columbia to near Eugene, Oregon. North of Olympia, Washington, this lowland is glacially carved, with a depositional and erosional history including at least four separate glacial advances/retreats.

The Puget Lowland is bounded to the west by the Olympic Mountains and to the east by the Cascade Range. The lowland is filled with glacial and non-glacial sediments consisting of interbedded gravel, sand, silt, till, and peat lenses.

The Geologic Map of Washington – Northwest Quadrant, indicates that the site is underlain by Vashon Glacial Till.

Vashon Glacial Till is typically characterized by an unsorted, non-stratified mixture of clay, silt, sand, gravel, cobbles and boulders in variable quantities. These materials are typically dense and relatively impermeable. The poor sorting reflects the mixing of the materials as these sediments were overridden and incorporated by the glacial ice.

Soil & Groundwater Conditions

As part of our evaluation, we excavated five test pits within the property areas, where accessible.

The explorations encountered approximately 6 inches of vegetation and topsoil underlain by approximately 3 to 4.5 feet of loose to medium dense, silty-fine to medium grained sand with gravel (Weathered Glacial Till). These materials were underlain by dense to very dense, silty-fine to medium grained sand with gravel (Glacial Till), which continued to the termination depths of the explorations.

Groundwater was not encountered in the test pits during the exploration work; however, the soils were mottled at the contact between weathered and unweathered glacial till. We anticipate that perched groundwater will develop on the denser till during a typical wet season, likely 3 to 8 feet below site elevations. Groundwater is likely to be at shallower depths in the western portions of the property.

Water table elevations often fluctuate over time. The groundwater level will depend on a variety of factors that may include seasonal precipitation, irrigation, land use, climatic conditions and soil permeability. Water levels at the time of the field investigation may be different from those encountered during the construction phase of the project.

Erosion Hazard

The Natural Resources Conservation Services (NRCS) maps for Snohomish County indicate that the site is underlain by Tokul gravelly medial loam (0-8 and 8-15 percent slopes). These soils have a "Slight" to "Moderate" erosion potential in a disturbed state, respectively.

It is our opinion that soil erosion potential at this project site can be reduced through landscaping and surface water runoff control. Typically, erosion of exposed soils will be most noticeable during periods of rainfall and may be controlled by the use of normal temporary erosion control measures, such as silt fences, hay bales, mulching, control ditches and diversion trenches. The typical wet weather season, with regard to site grading, is from October 1st to April 31st. Erosion control measures should be in place before the onset of wet weather.

Seismic Hazard

The overall subsurface profile corresponds to a Site Class *D* as defined by Table 1613.5.2 of the International Building Code (IBC). A Site Class *D* applies to an overall profile consisting of medium dense to very dense soils within the upper 100 feet.

We referenced the U.S. Geological Survey (USGS) Earthquake Hazards Program Website to obtain values for S_S, S_1, F_a, and F_v. The USGS website includes the most updated published data on seismic conditions. The following tables provide seismic parameters from the USGS web site with referenced parameters from ASCE 7-16.

Seismic Design Parameters (ASCE 7-16)

Site Class	Spectral Acceleration at 0.2 sec. (g)	Spectral Acceleration at 1.0 sec. (g)	Site Coefficients		Design Spectral Response Parameters		Design PGA
			F_a	F_v	S_{DS}	S_{D1}	
D	1.089	0.387	1.065	Null	0.773	Null	0.463

Additional seismic considerations include liquefaction potential and amplification of ground motions by soft/loose soil deposits. The liquefaction potential is highest for loose sand with a high groundwater table.

The site has a very low risk of liquefaction. For items listed as "Null" see Section 11.4.8 of the ASCE.

Conclusions and Recommendations

General

The site is underlain by weathered to unweathered glacial till. The soils generally become denser with depth. There are likely minor areas of fill around the residence associated with the original grading and foundation placement.

The proposed residential structures may be supported on shallow foundation systems bearing on medium dense or firmer native soils or on structural fill placed on the native soils. Local overexcavation of fill and loose weathered native soils may be necessary depending on the proposed elevations and locations of the new footings.

Infiltration is not feasible in the denser glacial till soils. These soils are nearly impermeable below the weathered zone and we note mottled soils at shallow depths. We anticipate that most of the runoff will be routed into one or more detention vaults. Local permeable pavements, dispersion systems, and rain gardens may be feasible depending on their locations and elevations.

Site Preparation

Trees, shrubs and other vegetation should be removed prior to stripping of surficial organic-rich soil and fill. Based on observations from the site investigation program, it is anticipated that the stripping depth will be 6 to 18 inches. Deeper excavations will be necessary below any larger trees and in any areas underlain by undocumented fill.

The native soils consist of silty-sand with gravel. Most of the native soils may be used as structural fill provided they achieve compaction requirements and are within 3 percent of the optimum moisture. Some of these soils may only be suitable for use as fill during the summer months, as they will be above the optimum moisture levels in their current state. These soils are variably moisture sensitive and may degrade during periods of wet weather and under equipment traffic.

Imported structural fill should consist of a sand and gravel mixture with a maximum grain size of 3 inches and less than 5 percent fines (material passing the U.S. Standard No. 200 Sieve). Structural fill should be placed in maximum lift thicknesses of 12 inches and should be compacted to a minimum of 95 percent of the modified proctor maximum dry density, as determined by the ASTM D 1557 test method.

Temporary Excavations

Temporary excavations should be sloped no steeper than 1.5H:1V (Horizontal:Vertical) in loose native soils, 1H:1V in medium dense native soils and 3/4H:1V in dense to very dense native soils. If an excavation is subject to heavy vibration or surcharge loads, we recommend that the excavations be sloped no steeper than 2H:1V, where room permits.

Temporary cuts should be in accordance with the Washington Administrative Code (WAC) Part N, Excavation, Trenching, and Shoring. Temporary slopes should be visually inspected daily by a qualified person during construction activities and the inspections should be documented in daily reports. The contractor is responsible for maintaining the stability of the temporary cut slopes and reducing slope erosion during construction.

Temporary cut slopes should be covered with visqueen to help reduce erosion during wet weather, and the slopes should be closely monitored until the permanent retaining systems or slope configurations are complete. Materials should not be stored or equipment operated within 10 feet of the top of any temporary cut slope.

Soil conditions may not be completely known from the geotechnical investigation. In the case of temporary cuts, the existing soil conditions may not be completely revealed until the excavation work exposes the soil. Typically, as excavation work progresses the maximum inclination of temporary slopes will need to be re-evaluated by the geotechnical engineer so that supplemental recommendations can be made. Soil and groundwater conditions can be highly variable. Scheduling for soil work will need to be adjustable, to deal with unanticipated conditions, so that the project can proceed and required deadlines can be met.

If any variations or undesirable conditions are encountered during construction, we should be notified so that supplemental recommendations can be made. If room constraints or groundwater conditions do not permit temporary slopes to be cut to the maximum angles allowed by the WAC, temporary shoring systems may be required. The contractor should be responsible for developing temporary shoring systems, if needed. We recommend that Cobalt Geosciences and the project structural engineer review temporary shoring designs prior to installation, to verify the suitability of the proposed systems.

Foundation Design

The proposed structures may be supported on shallow spread footing foundation systems bearing on undisturbed medium dense or firmer native soils or on properly compacted structural fill placed on the suitable native soils. Any undocumented fill and/or loose native soils should be removed and replaced with structural fill below foundation elements. Structural fill below footings should consist of clean angular rock 5/8 to 4 inches in size. We should verify soil conditions during foundation excavation work.

For shallow foundation support, we recommend widths of at least 16 for continuous wall footings supporting the proposed structure. Provided that the footings are supported as recommended above, a net allowable bearing pressure of 3,000 pounds per square foot (psf) may be used for

design. Detention vaults set at least 5 feet below grade may be designed with a bearing pressure of 5,000 psf.

A 1/3 increase in the above value may be used for short duration loads, such as those imposed by wind and seismic events. Structural fill placed on bearing, native subgrade should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Footing excavations should be inspected to verify that the foundations will bear on suitable material.

Exterior footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower.

If constructed as recommended, the total foundation settlement is not expected to exceed 1 inch. Differential settlement, along a 25-foot exterior wall footing, or between adjoining column footings, should be less than ½ inch. This translates to an angular distortion of 0.002. Most settlement is expected to occur during construction, as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. All footing excavations should be observed by a qualified geotechnical consultant.

Resistance to lateral footing displacement can be determined using an allowable friction factor of 0.40 acting between the base of foundations and the supporting subgrades. Lateral resistance for footings can also be developed using an allowable equivalent fluid passive pressure of 225 pounds per cubic foot (pcf) acting against the appropriate vertical footing faces (neglect the upper 12 inches below grade in exterior areas). The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance.

Care should be taken to prevent wetting or drying of the bearing materials during construction. Any extremely wet or dry materials, or any loose or disturbed materials at the bottom of the footing excavations, should be removed prior to placing concrete. The potential for wetting or drying of the bearing materials can be reduced by pouring concrete as soon as possible after completing the footing excavation and evaluating the bearing surface by the geotechnical engineer or his representative.

Concrete Retaining Walls

The following table, titled **Wall Design Criteria**, presents the recommended soil related design parameters for retaining walls with a level backslope. Contact Cobalt if an alternate retaining wall system is used. This has been included for below grade vaults, if proposed.

Wall Design Criteria	
"At-rest" Conditions (Lateral Earth Pressure – EFD^{+})	55 pcf (Equivalent Fluid Density)
"Active" Conditions (Lateral Earth Pressure – EFD^{+})	35 pcf (Equivalent Fluid Density)
Seismic Increase for "At-rest" Conditions (Lateral Earth Pressure)	12H* (Uniform Distribution)
Seismic Increase for "Active" Conditions (Lateral Earth Pressure)	6H* (Uniform Distribution)
Passive Earth Pressure on Low Side of Wall (Allowable, includes F.S. = 1.5)	Neglect upper 2 feet, then 300 pcf EFD^{+}

Soil-Footing Coefficient of Sliding Friction (Allowable; includes F.S. = 1.5)	0.40

*H is the height of the wall; Increase based on one in 500 year seismic event (10 percent probability of being exceeded in 50 years),
+EFD – Equivalent Fluid Density

The stated lateral earth pressures do not include the effects of hydrostatic pressure generated by water accumulation behind the retaining walls. Uniform horizontal lateral active and at-rest pressures on the retaining walls from vertical surcharges behind the wall may be calculated using active and at-rest lateral earth pressure coefficients of 0.3 and 0.5, respectively. A soil unit weight of 125 pcf may be used to calculate vertical earth surcharges.

To reduce the potential for the buildup of water pressure against the walls, continuous footing drains (with cleanouts) should be provided at the bases of the walls. The footing drains should consist of a minimum 4-inch diameter perforated pipe, sloped to drain, with perforations placed down and enveloped by a minimum 6 inches of pea gravel in all directions.

The backfill adjacent to and extending a lateral distance behind the walls at least 2 feet should consist of free-draining granular material. All free draining backfill should contain less than 3 percent fines (passing the U.S. Standard No. 200 Sieve) based upon the fraction passing the U.S. Standard No. 4 Sieve with at least 30 percent of the material being retained on the U.S. Standard No. 4 Sieve. The primary purpose of the free-draining material is the reduction of hydrostatic pressure. Some potential for the moisture to contact the back face of the wall may exist, even with treatment, which may require that more extensive waterproofing be specified for walls, which require interior moisture sensitive finishes.

We recommend that the backfill be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. In place density tests should be performed to verify adequate compaction. Soil compactors place transient surcharges on the backfill. Consequently, only light hand operated equipment is recommended within 3 feet of walls so that excessive stress is not imposed on the walls.

Stormwater Management Feasibility

The site is underlain by a layer of weathered glacial till over dense glacial till. The dense glacial till acts as an aquitard, reducing vertical infiltration of stormwater to near zero. Additionally, there are areas of perched interflow at shallow depths along with mottled soils. There is limited clearance above the aquitard or groundwater table for most shallow stormwater management systems.

We performed an in situ Pilot Infiltration Test in TP-3 at a depth of 4 feet below grade. The design infiltration rate was determined by applying correction factors to the observed infiltration rate as prescribed in Volume III, Section 3.3.6 of the DOE. The observed rate must be reduced through appropriate correction factors for site variability (CF_V), uncertainty of test method (CF_T), and degree of influent control (CF_M) to prevent siltation and bio-buildup.

It should be noted that construction traffic or other disturbance to the target infiltration area could compact the soil, which may decrease the effective infiltration rates. The correction factors and resulting design infiltration rate are also shown in the table below.

Test Pit Number	Sample Depth (ft)	Observed Infiltration Rate (in/hr)	Correction Factors			Design Infiltration Rate (in/hr)
			CF_V	CF_T	CF_M	
TP-3	4	0.25	0.9	0.5	0.9	0.10

Widespread infiltration is not feasible based on the soil and groundwater conditions. The above factored rate is below the threshold for infiltration feasibility (0.3 inches per hour), per the Department of Ecology guidelines.

We anticipate the use of one or more detention systems with overflow to an approved conveyance. Local permeable pavements, dispersion devices, and/or rain gardens may be feasible depending on their locations and elevations. We can provide additional recommendations upon request.

We should be provided with final plans for review to determine if the intent of our recommendations has been incorporated or if additional modifications are needed.

Slab-on-Grade

We recommend that the upper 18 inches of the native soils within slab areas be re-compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method).

Often, a vapor barrier is considered below concrete slab areas. However, the usage of a vapor barrier could result in curling of the concrete slab at joints. Floor covers sensitive to moisture typically requires the usage of a vapor barrier. A materials or structural engineer should be consulted regarding the detailing of the vapor barrier below concrete slabs. Exterior slabs typically do not utilize vapor barriers.

The American Concrete Institutes ACI 360R-06 Design of Slabs on Grade and ACI 302.1R-04 Guide for Concrete Floor and Slab Construction are recommended references for vapor barrier selection and floor slab detailing.

Slabs on grade may be designed using a coefficient of subgrade reaction of 210 pounds per cubic inch (pci) assuming the slab-on-grade base course is underlain by structural fill placed and compacted as outlined above. A 4- to 6-inch-thick capillary break layer should be placed over the prepared subgrade. This material should consist of pea gravel or 5/8 inch clean angular rock.

A perimeter drainage system is recommended unless interior slab areas are elevated a minimum of 12 inches above adjacent exterior grades. If installed, a perimeter drainage system should consist of a 4-inch diameter perforated drain pipe surrounded by a minimum 6 inches of drain rock wrapped in a non-woven geosynthetic filter fabric to reduce migration of soil particles into the drainage system. The perimeter drainage system should discharge by gravity flow to a suitable stormwater system.

Exterior grades surrounding buildings should be sloped at a minimum of one percent to facilitate surface water flow away from the building and preferably with a relatively impermeable surface cover immediately adjacent to the building.

Erosion and Sediment Control

Erosion and sediment control (ESC) is used to reduce the transportation of eroded sediment to wetlands, streams, lakes, drainage systems, and adjacent properties. Erosion and sediment control measures should be implemented, and these measures should be in general accordance with local regulations. At a minimum, the following basic recommendations should be incorporated into the design of the erosion and sediment control features for the site:

- Schedule the soil, foundation, utility, and other work requiring excavation or the disturbance of the site soils, to take place during the dry season (generally May through September). However, provided precautions are taken using Best Management Practices (BMP's), grading activities can be completed during the wet season (generally October through April).
- All site work should be completed and stabilized as quickly as possible.
- Additional perimeter erosion and sediment control features may be required to reduce the possibility of sediment entering the surface water. This may include additional silt fences, silt fences with a higher Apparent Opening Size (AOS), construction of a berm, or other filtration systems.
- Any runoff generated by dewatering discharge should be treated through construction of a sediment trap if there is sufficient space. If space is limited other filtration methods will need to be incorporated.

Utilities

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards, by a contractor experienced in such work. The contractor is responsible for the safety of open trenches. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

In general, silty soils were encountered at shallow depths in the explorations at this site. These soils have low cohesion and density and will have a tendency to cave or slough in excavations. Shoring or sloping back trench sidewalls is required within these soils in excavations greater than 4 feet deep.

All utility trench backfill should consist of imported structural fill or suitable on site soils. Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The upper 5 feet of utility trench backfill placed in pavement areas should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Below 5 feet, utility trench backfill in pavement areas should be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with the pipe manufacturer's recommendations.

The contractor is responsible for removing all water-sensitive soils from the trenches regardless of the backfill location and compaction requirements. Depending on the depth and location of the proposed utilities, we anticipate the need to re-compact existing fill soils below the utility structures and pipes. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction procedures.

Pavements

The near surface subgrade soils generally consist of silty sand with gravel. These soils are rated as good for pavement subgrade material (depending on silt content and moisture conditions). We estimate that the subgrade will have a California Bearing Ratio (CBR) value of 10 and a modulus of subgrade reaction value of k = 200 pci, provided the subgrade is prepared in general accordance with our recommendations.

We recommend that at a minimum, 12 inches of the existing subgrade material be moisture conditioned (as necessary) and re-compacted to prepare for the construction of pavement sections. Deeper levels of recompaction or overexcavation and replacement may be necessary in areas where fill and/or very poor (soft/loose) soils are present. Any fill should be removed.

The subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. In place density tests should be performed to verify proper moisture content and adequate compaction.

The recommended flexible and rigid pavement sections are based on design CBR and modulus of subgrade reaction (k) values that are achieved, only following proper subgrade preparation. It should be noted that subgrade soils that have relatively high silt contents will likely be highly sensitive to moisture conditions. The subgrade strength and performance characteristics of a silty subgrade material may be dramatically reduced if this material becomes wet.

Based on our knowledge of the proposed project, we expect the traffic to range from light duty (passenger automobiles) to heavy duty (delivery trucks). The following tables show the recommended pavement sections for light duty and heavy duty use.

ASPHALTIC CONCRETE (FLEXIBLE) PAVEMENT

LIGHT DUTY

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
2.5 in.	6.0 in.	12.0 in.

HEAVY DUTY

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
3.5 in.	6.0 in.	12.0 in.

PORTLAND CEMENT CONCRETE (RIGID) PAVEMENT

Min. PCC Depth	Aggregate Base*	Compacted Subgrade* **
6.0 in.	6.0 in.	12.0 in.

** 95% compaction based on ASTM Test Method D1557*

*** A proof roll may be performed in lieu of in place density tests*

The asphaltic concrete depth in the flexible pavement tables should be a surface course type asphalt, such as Washington Department of Transportation (WSDOT) ½ inch HMA. The rigid pavement design is based on a Portland Cement Concrete (PCC) mix that has a 28 day compressive strength of 4,000 pounds per square inch (psi). The design is also based on a concrete flexural strength or modulus of rupture of 550 psi.

CONSTRUCTION FIELD REVIEWS

Cobalt Geosciences should be retained to provide part time field review during construction in order to verify that the soil conditions encountered are consistent with our design assumptions and that the intent of our recommendations is being met. This will require field and engineering review to:

- Monitor and test structural fill placement and soil compaction
- Observe bearing capacity at foundation locations if proposed
- Observe slab-on-grade preparation if utilized
- Verify infiltration system soil conditions if utilized
- Observe proofrolls of parking lot areas
- Monitor foundation drainage placement if proposed
- Observe excavation stability

Geotechnical design services should also be anticipated during the subsequent final design phase to support the structural design and address specific issues arising during this phase. Field and engineering review services will also be required during the construction phase in order to provide a Final Letter for the project.

CLOSURE

This report was prepared for the exclusive use of Robinett Brothers, LLC and their appointed consultants. Any use of this report or the material contained herein by third parties, or for other than the intended purpose, should first be approved in writing by Cobalt Geosciences, LLC.

The recommendations contained in this report are based on assumed continuity of soils with those of our test holes and assumed structural loads. Cobalt Geosciences should be provided with final architectural and civil drawings when they become available in order that we may review our design recommendations and advise of any revisions, if necessary.

Use of this report is subject to the Statement of General Conditions provided in Appendix A. It is the responsibility of Robinett Brothers, LLC who is identified as “the Client” within the Statement of General Conditions, and its agents to review the conditions and to notify Cobalt Geosciences should any of these not be satisfied.

Sincerely,

Cobalt Geosciences, LLC





9/15/2023
Phil Haberman, PE, LG, LEG
Principal

Statement of General Conditions

USE OF THIS REPORT: This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Cobalt Geosciences and the Client. Any use which a third party makes of this report is the responsibility of such third party.

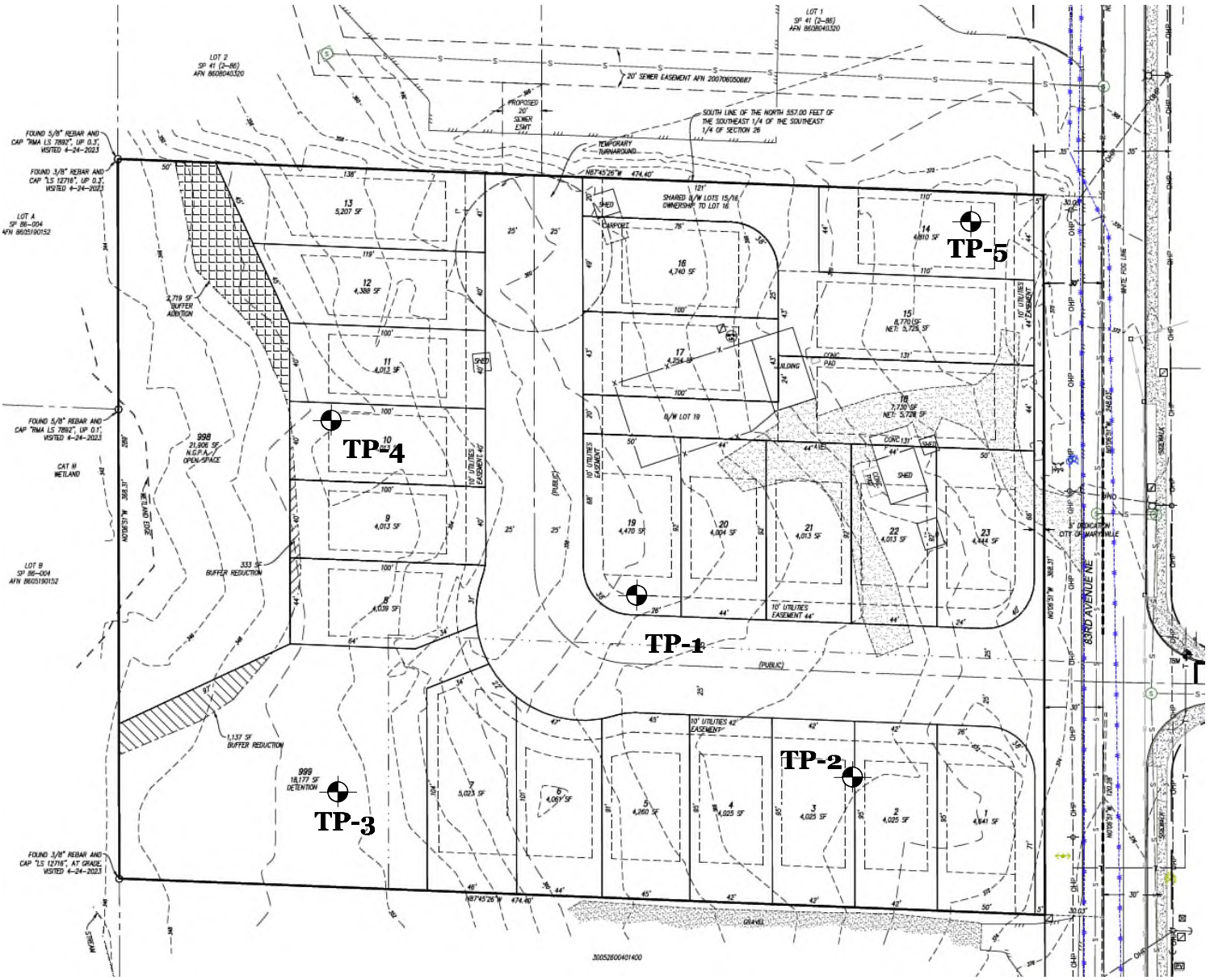
BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Cobalt Geosciences present understanding of the site specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Cobalt Geosciences is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Cobalt Geosciences at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Cobalt Geosciences must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Cobalt Geosciences will not be responsible to any party for damages incurred as a result of failing to notify Cobalt Geosciences that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Cobalt Geosciences, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Cobalt Geosciences cannot be responsible for site work carried out without being present.

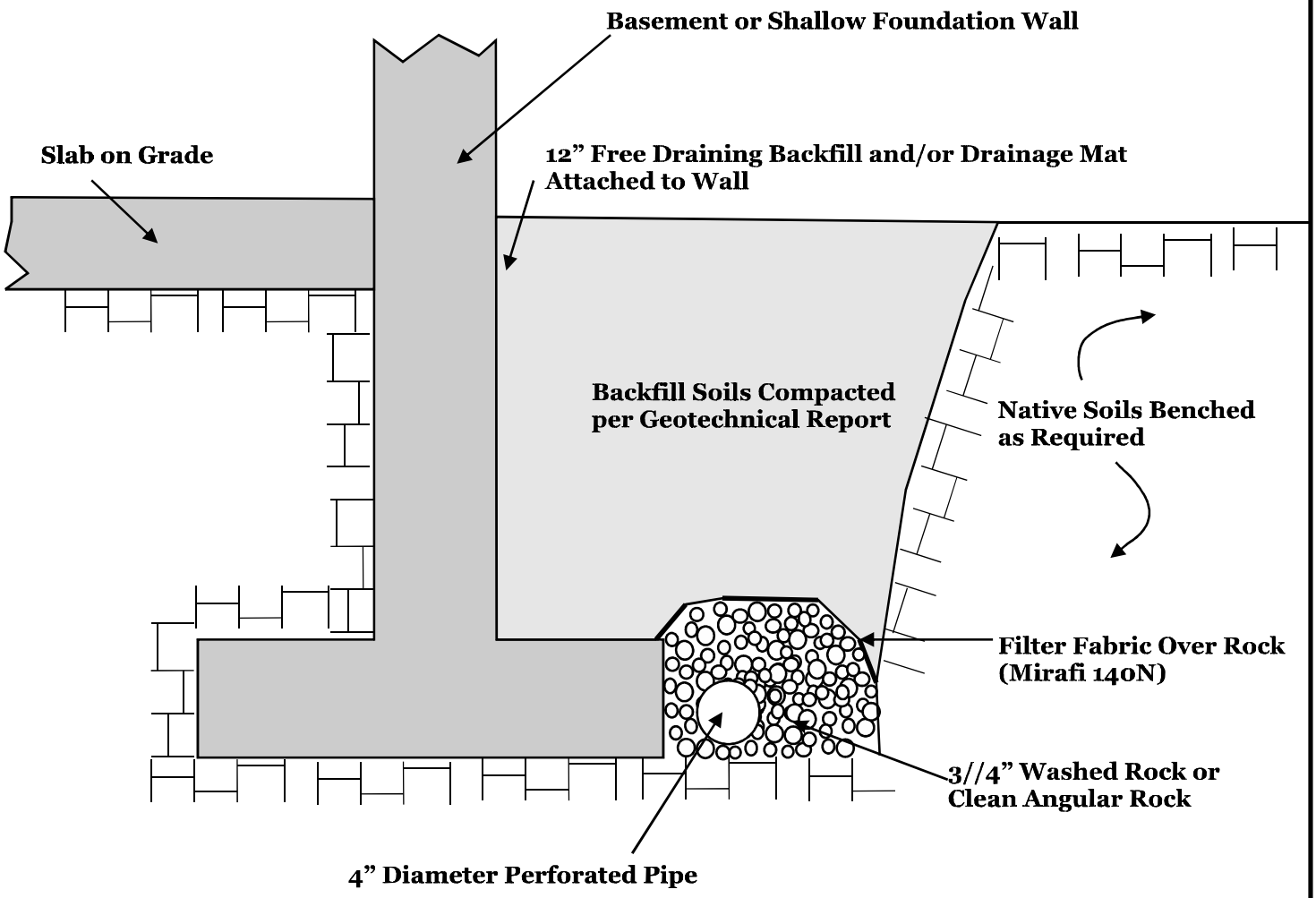


Provided Site Plan
Not to Scale

N

TP-1 **Approximate Test Pit Location**

COBALT GEOSCIENCES	Proposed Development 6114 83rd Avenue NE Marysville, Washington	**SITE MAP** **FIGURE 1**	Cobalt Geosciences, LLC P.O. Box 82243 Kenmore, WA 98028 (206) 331-1097 www.cobaltgeo.com cobaltgeo@gmail.com



Not to Scale

COBALT GEOSCIENCES	**Typical Foundation Drain Detail**	**Attachment**	Cobalt Geosciences, LLC PO Box 1792 North Bend, WA 98045 (206) 331-1097 www.cobaltgeo.com phil@cobaltgeo.com

Unified Soil Classification System (USCS)

MAJOR DIVISIONS			SYMBOL	TYPICAL DESCRIPTION
COARSE GRAINED SOILS (more than 50% retained on No. 200 sieve)	Gravels (more than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines (more than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (50% or more of coarse fraction passes the No. 4 sieve)	Clean Sands (less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
			SP	Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines (more than 12% fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (50% or more passes the No. 200 sieve)	Silts and Clays (liquid limit less than 50)	Inorganic	ML	Inorganic silts of low to medium plasticity, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
		Organic	OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays (liquid limit 50 or more)	Inorganic	MH	Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH	Inorganic clays of medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT	Peat, humus, swamp soils with high organic content (ASTM D4427)

Classification of Soil Constituents

MAJOR constituents compose more than 50 percent, by weight, of the soil. Major constituents are capitalized (i.e., SAND).

Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (i.e., slightly silty SAND).

Trace constituents compose 0 to 5 percent of the soil (i.e., slightly silty SAND, trace gravel).

Grain Size Definitions

Description	Sieve Number and/or Size
Fines	<#200 (0.08 mm)
Sand	
-Fine	#200 to #40 (0.08 to 0.4 mm)
-Medium	#40 to #10 (0.4 to 2 mm)
-Coarse	#10 to #4 (2 to 5 mm)
Gravel	
-Fine	#4 to 3/4 inch (5 to 19 mm)
-Coarse	3/4 to 3 inches (19 to 76 mm)
Cobbles	3 to 12 inches (75 to 305 mm)
Boulders	>12 inches (305 mm)

Relative Density (Coarse Grained Soils)

N, SPT, Blows/FT	Relative Density
0 - 4	Very loose
4 - 10	Loose
10 - 30	Medium dense
30 - 50	Dense
Over 50	Very dense

Consistency (Fine Grained Soils)

N, SPT, Blows/FT	Relative Consistency
Under 2	Very soft
2 - 4	Soft
4 - 8	Medium stiff
8 - 15	Stiff
15 - 30	Very stiff
Over 30	Hard

Moisture Content Definitions

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

COBALT GEOSCIENCES
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Soil Classification Chart

Figure C1

Test Pit TP-1

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description	Groundwater	Moisture Content (%) Plastic Limit – Liquid Limit; DCP Equivalent N-Value 0 10 20 30 40 50
				Topsoil/Grass		
1			SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)		
2						
3						
4	■					
5						
6	■		SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)		
7						
8						
				End of Test Pit 8'		
9						
10						

COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

Cobalt Geosciences, LLC
P.O. Box 82243
Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Test Pit TP-2

Date: August 2023	Depth: 5'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description
				Topsoil/Grass
1	■		SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)
2				
3				
4	■		SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)
5				
6				End of Test Pit 5'
7				
8				
9				
10				

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

DCP Equivalent N-Value
0 10 20 30 40 50

COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

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Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Test Pit TP-3

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description	Groundwater	Moisture Content (%) Plastic Limit – Liquid Limit; DCP Equivalent N-Value 0 10 20 30 40 50
				Topsoil/Grass		
1			SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)		
2						
3						
4	■					
5			SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)		
6	■					
7						
8						
9				End of Test Pit 8'		
10						

COBALT GEOSCIENCES

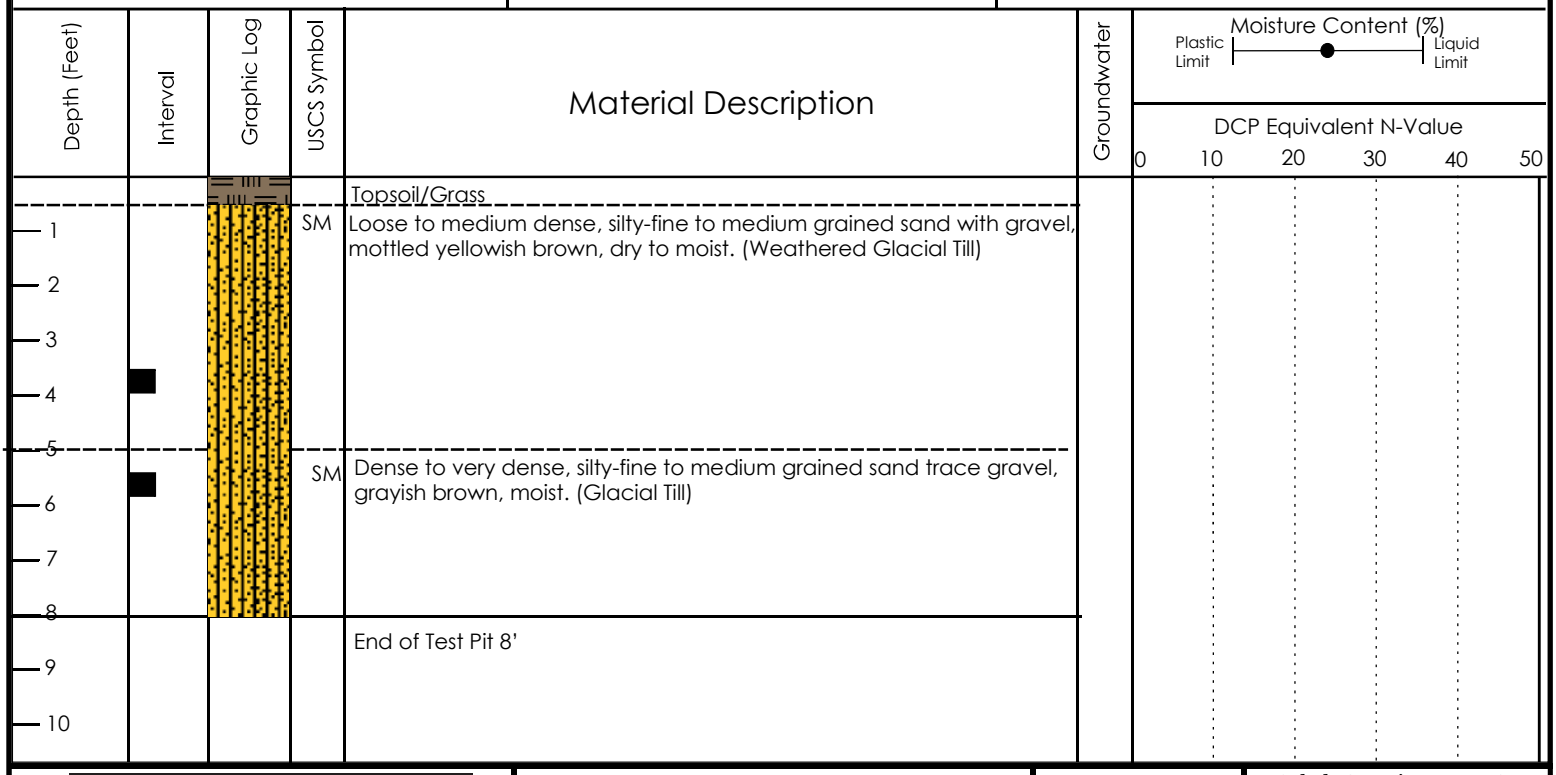
Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

Cobalt Geosciences, LLC
P.O. Box 82243
Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Test Pit TP-4

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC



Cobalt Geosciences, LLC
P.O. Box 82243
Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Test Pit TP-5

Date: August 2023	Depth: 5'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description	Groundwater	Moisture Content (%) Plastic Limit / Liquid Limit; DCP Equivalent N-Value 0 10 20 30 40 50
				Topsoil/Grass		
1	■		SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)		
2						
3						
4	■		SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)		
5						
				End of Test Pit 5'		
6						
7						
8						
9						
10						

COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

Cobalt Geosciences, LLC
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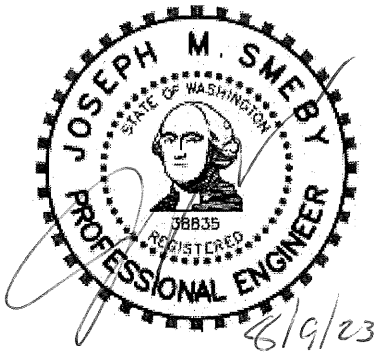
Drainage Report
Chapel Hill Plat

PFN: 23-

for

Robinett Brothers, LLC
2825 Colby Ave, Suite 304
Everett, WA 98201
425.259.9000

SITE LOCATION:
6114 83rd Ave NE
Marysville, WA 98270



Prepared by:
Joseph M. Smeby, P.E.

Job No: 23-0436
Preliminary: August 2023

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1. INTRODUCTION

This document is intended to provide the preliminary engineering information necessary to support the 23-lot preliminary plat for this project which includes the development of a 4.01-acre parcel with the majority of the site being designed for disturbance including frontage improvements to 83rd Ave NE, and an internal road as required by the City. This project will include 23 new lots, public roads, and private access.

The proposed improvements for this project will require the construction of a public road, stormwater facilities and other utilities. All new impervious and pervious surfaces from the on-site improvements will be collected and conveyed to the proposed detention system. Frontage improvements to the west side of 83rd Ave NE along with the internal public road will also be constructed as part of this project. The runoff from the new internal road, and the west half of the 83rd frontage will be directed to the new stormwater system. The drainage system has also been designed to mitigate for all of the new driveways, roof, patios/walks, etc on each of the 23 new lots.

The site soils have been preliminarily evaluated based on the original septic soil logs for this parcel. The soils were found to be Silty sandy loam to 24" with mottled sandy clay loam and hard pan at 32".

The site is located at 6114 83rd Ave NE, in the City of Marysville, and in Section 26, Township 30N, Range 5E, Willamette Meridian. See Figure 1 - Vicinity Map.

A. DRAINAGE INFORMATION SUMMARY FORM

Project: **Chapel Hill Plat**
PFN:

Engineer: **Omega Engineering, Inc.**
2707 Wetmore Ave
Everett, WA 98201
Attention: Joseph Smeby, P.E.

Total site area: **4.01 acres**
Offsite area: **0.07 acres**
Project area: **3.59 acres**

Applicant: **Robinett Brothers, LLC**
2825 Colby Ave, Suite 304
Everett, WA 98201
Attention: Ginger Amundson

New Lots: 23

Drainage Basin Information	**Basin A**
On-site Developed Area	3.52 acres
Off-site Improved Area	0.07 acres
Types of storage proposed on site	Detention Pond
Approximate total storage volume	62,304 cf
Soil Types	Type C Soils
Basin Data	
Existing Basin	
2-year	0.130 cfs
50-year	0.440 cfs
Developed Basin (Pond Discharge)	
2-year	0.066 cfs
50-year	0.172 cfs

2. EXISTING SITE CONDITIONS

The site is located at 6114 83rd Ave NE, in the City of Marysville, and in Section 26, Township 30N, Range 5E, Willamette Meridian. See Figure 1 - Vicinity Map.

Land use around the site is primarily single-family homes, church or vacant. The parcel associated with this project currently contains trees, grasses, and brush with an existing SFR, detached garage and driveway on the east half of the site. The City requires frontage improvements along 83rd Ave NE which will consist of a widened road section, curb, planter strip and sidewalk. In addition, a new public road will be used to access the site. The public road will provide a future connection to the existing parcel to the north, if the church property ever gets further developed. The new road sections conform to the City of Marysville Street Standards.

The existing developable site is rectangular in shape made up of two parcels. The grades on the site are moderate with the steepest slopes approximately 6%. The vegetation found on the existing property consists of some deciduous and evergreen trees, grass/lawn and brush.

A site visit was conducted on July 6, 2023. The weather was clear with temperatures in the 70's. No surface water was observed on this site.

The soil hydrologic types for this site have been identified as Type C from the Snohomish County Soil Survey Map, see figure 4. These soils, Tokul gravely sandy loam, is typically consists of sandy loam over hardpan at approximately 30". This soil type is identified as a Till soil (Type C/D) in the 2021 DOE Manual. Based on the soil logs for this project the site does not have infiltration capacity due to the shallow mottling at 24" and hardpan at 32". Refer to the septic soil logs in Appendix B.

This project proposes to build 23 new SFRs. Approximately 65% of this project will be impervious surface with the remaining area to be landscaped or retained critical area buffer.

3. DEVELOPED SITE CONDITIONS

This development proposes to cover the site with 65% impervious surfaces (70% impervious coverage on each lot). The runoff from these surfaces will be collected and conveyed to a stormwater pond for detention and treatment. Based on the site soil logs, infiltration is not feasible due to the shallow hardpan layer and seasonal higher water table.

For the frontage improvements on 83rd the road will be widened to a 22' half width with 6' planter and 6' sidewalk. The internal road/access will be constructed per the City of Marysville road standards.

Based on the findings in the soil logs, no infiltration will be used for this project. However, perforated stubout connections, sheet flow dispersion (where feasible) and soil amendments will be utilized for on-site LID BMPs prior to the runoff entering the detention pond.

4. OFFSITE ANALYSIS

DEFINE STUDY AREA:

From observations made during the field visit, and the topographic survey, only the west side of the 83rd Ave NE R/W drains onto this property and it does not appear that any runoff enters this site from the north or south. Runoff from this parcel drains west and is collected by the existing wetland/stream system beneath the powerlines. The wetland drains to the north beneath the power lines and appears to pass beneath the 64th St NW roadway and then continues north passing beneath 79th Dr NE and then turning northwest and then west. Once the downstream system reaches 67th St NE the channel is more defined.

The downstream was concluded at this point which is more than ¼ mile from the site.

REVIEW AVAILABLE INFORMATION:

The City GIS Map was reviewed to identify the adjacent wetland system to the west of the property.

FIELD INSPECTION:

This site slopes to the west and all runoff from the project is intercepted by the existing off-site wetland system. No indications of high flows or erosion issues were noticed at the time of the field visit.

DESCRIPTION OF DRAINAGE SYSTEM AND ANY EXISTING OR PREDICTED PROBLEMS:

The downstream systems for this project appear in moderate to good condition. The systems consist of native critical areas, culverts and an engineered pipe/CB conveyance system. Since this project will provide flow control assuming a forested existing condition and the current site is 50% pasture/lawn and some impervious surfaces, the runoff flow rates and durations will be significantly lower than the current runoff conditions for the site.

5. STORMWATER CONTROL PLAN

A. Site Hydrology Analysis

Pre-Developed Site Hydrology

The existing site drains to the west with 83rd Ave NE blocking any additional flows from the east from entering the property. This site only receives runoff from the west half of the 83rd Ave NE R/W and rainfall. The existing site mostly consists of pasture/grass, brush and some trees with buildings and gravel driveways.

Developed Site Hydrology

For the developed site hydrology, all the new impervious and pervious surfaces will be collected and treated/detained on-site.

The single detention system will discharge to the west via a level spreader within the existing wetland buffer on-site.

B. PERFORMANCE STANDARDS

The proposed water quality and detention systems designed for the new improvements proposed for this project have been sized using the WWMH2012 software as required in the DOE 2019 manual.

C. FLOW CONTROL SYSTEM

The future fully developed site drainage design will utilize a combined detention/water quality pond to meet both the water quality and flow control requirements. The following provides the input information for WWHM2012 along with the required pond size for this project. The following table summarizes the land cover and areas tributary to the pond.

DEVELOPED BASINS				
	Impervious area (sf)	Impervious area (ac)	Pervious area (sf)	Pervious area (ac)
Lawn	0	0	42,680	0.98
Roof	67,950	1.56	0	0
Driveway	9,580	0.22	0	0
On-Site Roads	30,500	0.70	0	0
83rd Frontage	3,050	0.07	0	0
Total	111,080	2.55	42,680	0.98

As noted previously, for the frontage improvements on 83rd Ave NE will be partly collected with additional existing road surfaces collected for treatment and flow control to provide an equivalent area equal to the new surfaces within the R/W.

Appendix A contains WWHM2012 printouts for all the different calculations necessary for this design. There will be the flow control calcs, the water quality sizing and conveyance calcs along with the wetland protection calculations.

D. WATER QUALITY SYSTEM

The project soil log evaluation has determined that the on-site soils are infeasible for infiltration. Therefore, the developed site has been analyzed using the WWHM2012 software for the required water quality treatment volume. For this analysis the water quality pond minimum required treatment volume is 4,750 cf. This will be provided in a combined wet/detention pond in the same facility through the addition of a 4-foot deep dead storage layer in the pond cells. Other water quality options that could be included in a future design for this project are stormfilter (Contech), bayfilter, etc. These would require separate sizing since they are flow based designs rather than the volume based design for the combined detention/water quality pond.

E. CONVEYANCE SYSTEM ANALYSIS

The peak flows were analyzed for the developed site to the pond using the same analysis for WQ above. Without the detention pond included in the model the peak 100-year flow rate to the pond is 8.46 cfs. However, since there are multiple pipes entering the pond, no one pipe system will be required to convey the full 4.12 cfs. The full conveyance analysis for each pipe system to the pond will be provided as part of the construction review for this project in the future.

6. SWPPP NARRATIVE

The intent of this section is to provide the information necessary to support the engineering plans to implement a design that will; reduce, eliminate, or prevent the discharge of stormwater pollutants, meet or exceed the water quality and sediment management standards for the City and State, and prevent adverse impacts to the receiving waters for this project. Note: this narrative is intended to support the SWPPP that is included with the Drainage Plans also a part of this submittal package to the city.

A. SITE GRADING/EROSION CONTROL RISK ASSESSMENT

Area proposed to be cleared/worked:	3.53 acres
Average slope for the site:	6% (Area of Disturbance Only)
Erosion Hazard of Soil	Moderate
Critical Areas downslope	Yes
Site is upstream of an ESA Stream	Yes

Based on the above information and the fact that significant areas of vegetation can be retained along the perimeter of the area of disturbance, and that if site conditions warrant, additional BMP's can be implemented as corrective measures the Risk Category for this site is **Moderate Risk.**

B. SWPPP Minimum Elements

1: Preserve Vegetation and Mark Clearing Limits
The first step in the construction process is for the contractor to flag or fence the limits of clearing/disturbance prior to any other construction activity. The engineering plans locate and provide the square footages for the areas of grading, clearing, impervious surfaces and un-disturbed areas on the proposed site. Existing vegetation can be preserved around the perimeter of the site during the initial construction phases on this project. Approximately 90% of the entire site will be cleared or disturbed for this project.

2: Establish Construction Access
The SWPPP calls for the proposed construction entrance to be installed as the second step after the staking of clearing limits. At this time winter work is expected during the wet season.

3: Control Flow Rates
The site will be graded, and initially a temporary sediment pond will be constructed to manage the runoff from the site until the detention pond is completed which will manage the site runoff through the remainder of the project.

4: Install Sediment Controls
This site SWPPP proposes to construct/maintain gravel entrances, vegetative buffer, silt fencing or a brush barrier if necessary. The construction of these features should be completed before the clearing and grading of the site. Mulch will also be used on the exposed soil as necessary to limit erosion.

5: Stabilize Soils
The "Construction Sequence" calls for the stabilization of soils that remain unworked for certain lengths of time based on the time of year. Stabilization techniques may include but not limited to mulching, plastic sheeting or hydroseeding, notes have been added to the plan regarding protection for the stockpile area if necessary. Stockpile areas have been identified on the SWPPP and are setback a minimum of 25-feet from any down slope property line.

6: Protect Slopes
All disturbed slopes on site during construction are required to be protected with mulch or other means as specified in the construction sequence. No concentrated runoff or significant amounts of sheet flow will be directed to new cut or fill slopes during construction.

7: Protect Drain Inlets
All existing catch basins adjacent to this project and immediately downstream will be protected with inlet protection. All new catch basins will also be installed with inlet protection and any culvert will be protected with a check dam installed upstream of the inlet.

8: Stabilize Channels and Outlets
All new/temporary or existing channels/outlets will be protected with check dams and rock pads as appropriate.

9: Control Pollutants
No outside chemicals are expected to be necessary for the construction of this project. All vehicles working on and around the site would need to meet the State requirements for emissions. Vehicle fueling locations will be used to limit the potential impacts from any spills and concrete washout areas will also be provided well away from the detention pond.

10: Control DeWatering
DeWatering will be necessary during construction of this project. However, the existing vegetation retained on site would be available to spread any water from construction for filtration and disposal. In addition, the detention pond will be able to mitigate the flows from dewatering as well.

11: Maintain BMPs
The construction supervisor will be responsible for maintaining all BMPs during construction and working with the City to relocate or add BMPs as necessary as site conditions change.

12: Manage the Project
It will be the responsibility of the Contractor and Developer to manage this project and coordinate with the City Inspector and Engineer.

Inspection and Monitoring:
Site inspections shall be done by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have skills to first assess the site conditions and construction activities that could impact the quality of stormwater, and second assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP:
The construction SWPPP shall be retained on-site or within reasonable access to the site.
The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven days following inspection.

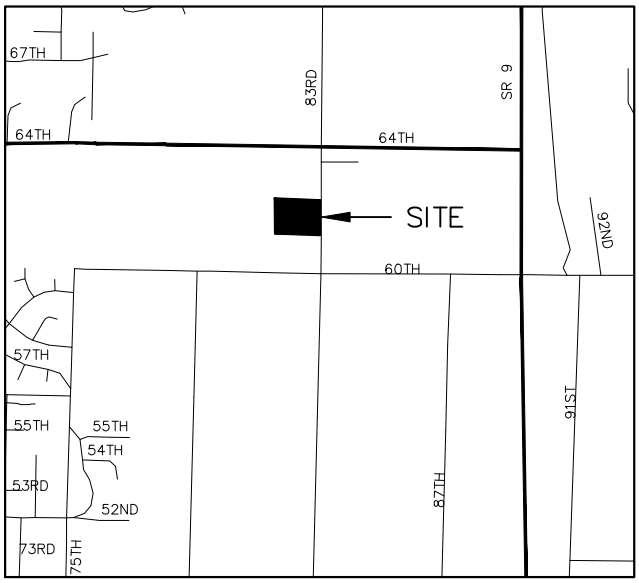
13: Protect On-Site Stormwater Management BMPs for Runoff from Hard Surfaces
The use of on-site management BMPs for this project will allow for the installation of the perforated stubout connections and sheet flow dispersion of driveways at the time of building permit.

The project detention/water quality facility will be constructed as part of the plat improvements and will be in place prior to SFR construction. Finally, soil amendments will be required for all final graded areas of the plat prior to construction approval with individual lots requiring soil amendments prior to building permit occupancy.

7. PROJECT OVERVIEW

This project proposes to construct 23 new SFRs on the site. In addition, a public road will be required along with utilities to serve/mitigate the proposed improvements. Approximately 3.53 acres of the site will be developed/disturbed under this project. All the new impervious and pervious surfaces will be treated and detained in a combined detention/water quality pond. The existing ground cover of trees, pasture/grass and brush will be converted to landscaping and impervious surfaces because of this project.

The site grades for this project range from 3-12%. Site grading will be necessary to create roads and lot building pads for the future project. Sewer and water mains will be extended onto the site from the west and east to serve the project. All existing drainfields will be abandoned per DOE specs and no wells were found on this site.



VICINITY MAP

SCALE 1" = 2000'

FIG. 1

OMEGA
ENGINEERING, INC.
2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

VICINITY MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 2000'	1 OF 1

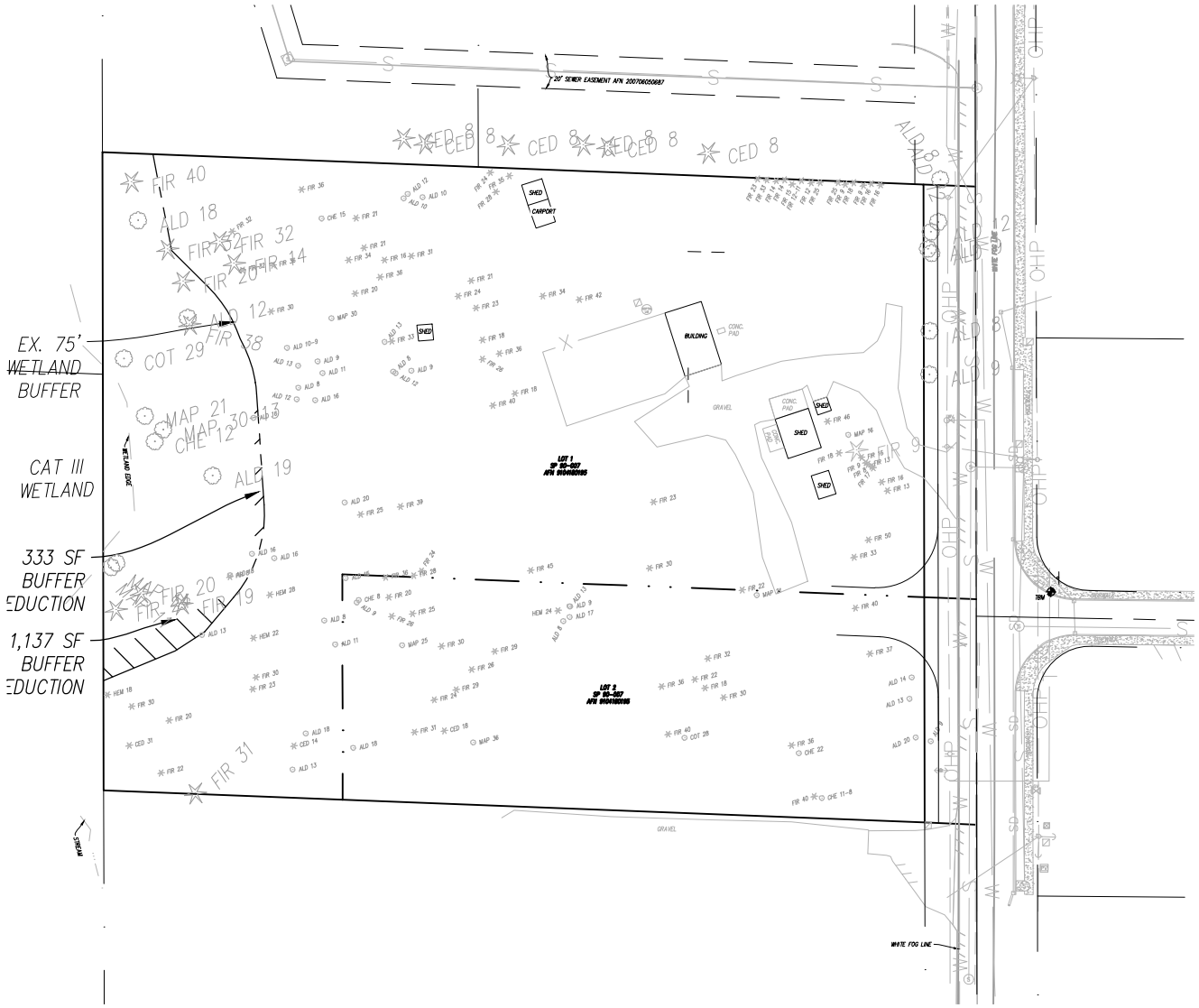


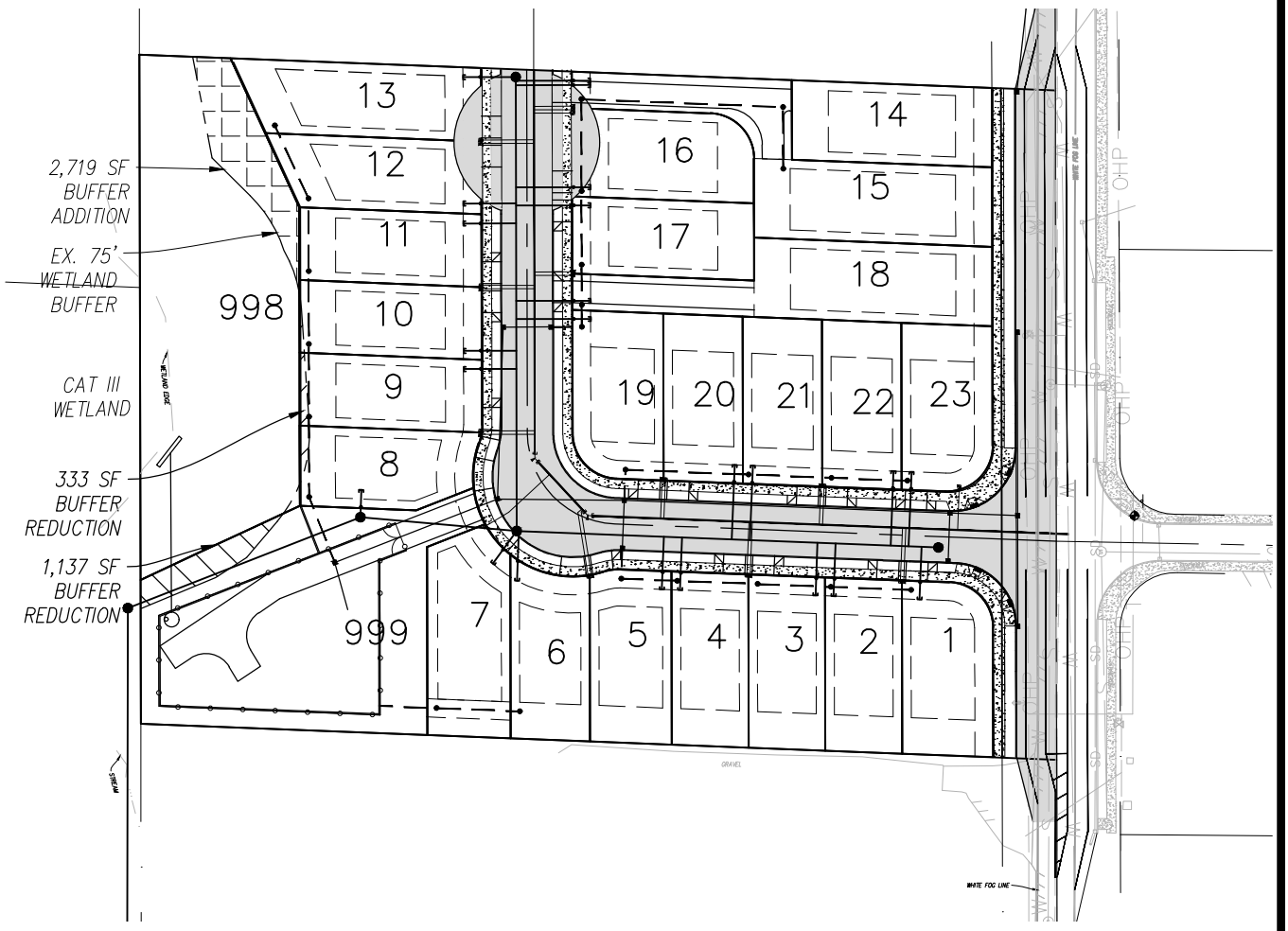
FIG. 2

OMEGA
ENGINEERING, INC.

2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

EXISTING BASIN MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 100'	1 OF 1



N

FIG. 3

OMEGA
ENGINEERING, INC.
2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

DEVELOPED BASIN MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 100'	1 OF 1

Soil Map—Snohomish County Area, Washington
(CHAPEL HILL)



Map Scale: 1:1,300 if printed on A landscape (11" x 8.5") sheet.

N

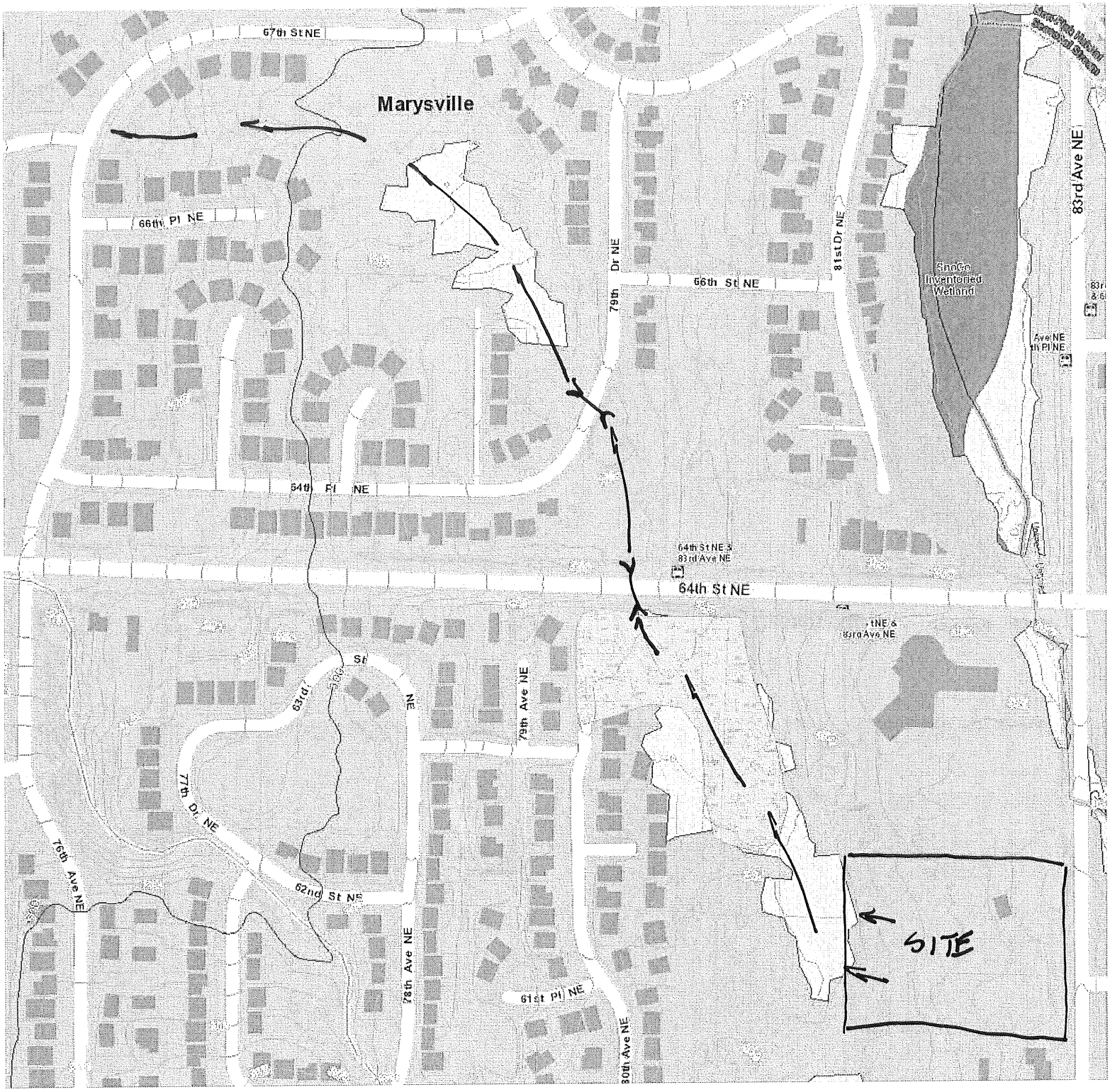
Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
72	Tokul gravelly medial loam, 0 to 8 percent slopes	4.9	70.0%
73	Tokul gravelly medial loam, 8 to 15 percent slopes	2.1	30.0%
Totals for Area of Interest		**7.0**	**100.0%**


67th St NE
Marysville
66th Pl NE
66th St NE
79th Dr NE
81st Dr NE
83rd Ave NE
Shoreline Inventoried Wetland
64th Pl NE
64th St NE & 83rd Ave NE
64th St NE
79th Ave NE
77th Dr NE
76th Ave NE
62nd St NE
78th Ave NE
61st Pl NE
80th Ave NE
SITE
DOWNSTREAM
N

APPENDIX A

STORMWATER CALCULATIONS

WWHM2012

PROJECT REPORT

POND SIZING CALCULATIONS

General Model Information

Project Name:	prelim vault - assumed areas
Site Name:	CHAPEL HILL
Site Address:	
City:	MARYSVILLE
Report Date:	8/8/2023
Gage:	Everett
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.200
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Mod	3.53
Pervious Total	3.53
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	0.98
Pervious Total	0.98

Impervious Land Use	acre
ROADS FLAT	0.77
ROOF TOPS FLAT	1.56
DRIVEWAYS FLAT	0.22
Impervious Total	2.55
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater
Vault 1	Vault 1	

Mitigated Routing

Vault 1

Width: 88.0890419422153 ft.
Length: 88.0890419422153 ft.
Depth: 9 ft.
Discharge Structure
Riser Height: 8 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.011 ft.
Notch Height: 3.424 ft.
Orifice 1 Diameter: 1.1145801E53607 in Elevation: 0 ft.
Element Flows To:
Outlet 1 Outlet 2

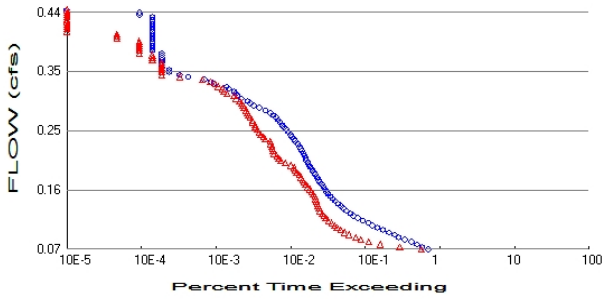
Vault Hydraulic Table

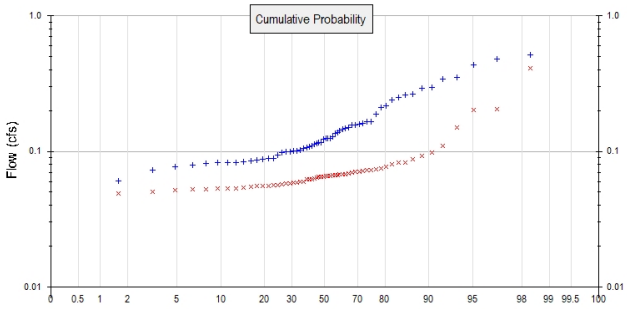
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.178	0.000	0.000	0.000
0.1000	0.178	0.017	0.010	0.000
0.2000	0.178	0.035	0.015	0.000
0.3000	0.178	0.053	0.018	0.000
0.4000	0.178	0.071	0.021	0.000
0.5000	0.178	0.089	0.023	0.000
0.6000	0.178	0.106	0.026	0.000
0.7000	0.178	0.124	0.028	0.000
0.8000	0.178	0.142	0.030	0.000
0.9000	0.178	0.160	0.032	0.000
1.0000	0.178	0.178	0.033	0.000
1.1000	0.178	0.196	0.035	0.000
1.2000	0.178	0.213	0.036	0.000
1.3000	0.178	0.231	0.038	0.000
1.4000	0.178	0.249	0.039	0.000
1.5000	0.178	0.267	0.041	0.000
1.6000	0.178	0.285	0.042	0.000
1.7000	0.178	0.302	0.044	0.000
1.8000	0.178	0.320	0.045	0.000
1.9000	0.178	0.338	0.046	0.000
2.0000	0.178	0.356	0.047	0.000
2.1000	0.178	0.374	0.048	0.000
2.2000	0.178	0.391	0.050	0.000
2.3000	0.178	0.409	0.051	0.000
2.4000	0.178	0.427	0.052	0.000
2.5000	0.178	0.445	0.053	0.000
2.6000	0.178	0.463	0.054	0.000
2.7000	0.178	0.481	0.055	0.000
2.8000	0.178	0.498	0.056	0.000
2.9000	0.178	0.516	0.057	0.000
3.0000	0.178	0.534	0.058	0.000
3.1000	0.178	0.552	0.059	0.000
3.2000	0.178	0.570	0.060	0.000
3.3000	0.178	0.587	0.061	0.000
3.4000	0.178	0.605	0.062	0.000
3.5000	0.178	0.623	0.063	0.000
3.6000	0.178	0.641	0.064	0.000

3.7000	0.178	0.659	0.064	0.000
3.8000	0.178	0.676	0.065	0.000
3.9000	0.178	0.694	0.066	0.000
4.0000	0.178	0.712	0.067	0.000
4.1000	0.178	0.730	0.068	0.000
4.2000	0.178	0.748	0.069	0.000
4.3000	0.178	0.766	0.069	0.000
4.4000	0.178	0.783	0.070	0.000
4.5000	0.178	0.801	0.071	0.000
4.6000	0.178	0.819	0.072	0.000
4.7000	0.178	0.837	0.074	0.000
4.8000	0.178	0.855	0.077	0.000
4.9000	0.178	0.872	0.080	0.000
5.0000	0.178	0.890	0.084	0.000
5.1000	0.178	0.908	0.088	0.000
5.2000	0.178	0.926	0.092	0.000
5.3000	0.178	0.944	0.096	0.000
5.4000	0.178	0.961	0.101	0.000
5.5000	0.178	0.979	0.105	0.000
5.6000	0.178	0.997	0.110	0.000
5.7000	0.178	1.015	0.115	0.000
5.8000	0.178	1.033	0.120	0.000
5.9000	0.178	1.051	0.126	0.000
6.0000	0.178	1.068	0.148	0.000
6.1000	0.178	1.086	0.156	0.000
6.2000	0.178	1.104	0.164	0.000
6.3000	0.178	1.122	0.172	0.000
6.4000	0.178	1.140	0.180	0.000
6.5000	0.178	1.157	0.189	0.000
6.6000	0.178	1.175	0.198	0.000
6.7000	0.178	1.193	0.207	0.000
6.8000	0.178	1.211	0.216	0.000
6.9000	0.178	1.229	0.225	0.000
7.0000	0.178	1.247	0.235	0.000
7.1000	0.178	1.264	0.244	0.000
7.2000	0.178	1.282	0.254	0.000
7.3000	0.178	1.300	0.265	0.000
7.4000	0.178	1.318	0.275	0.000
7.5000	0.178	1.336	0.285	0.000
7.6000	0.178	1.353	0.296	0.000
7.7000	0.178	1.371	0.307	0.000
7.8000	0.178	1.389	0.318	0.000
7.9000	0.178	1.407	0.329	0.000
8.0000	0.178	1.425	0.340	0.000
8.1000	0.178	1.442	0.843	0.000
8.2000	0.178	1.460	1.746	0.000
8.3000	0.178	1.478	2.843	0.000
8.4000	0.178	1.496	3.975	0.000
8.5000	0.178	1.514	4.982	0.000
8.6000	0.178	1.532	5.745	0.000
8.7000	0.178	1.549	6.237	0.000
8.8000	0.178	1.567	6.683	0.000
8.9000	0.178	1.585	7.068	0.000
9.0000	0.178	1.603	7.432	0.000
9.1000	0.178	1.621	7.779	0.000
9.2000	0.000	0.000	8.110	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.53
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.98
Total Impervious Area: 2.55

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.13049
5 year	0.208674
10 year	0.270887
25 year	0.362105
50 year	0.439697
100 year	0.525966

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.066379
5 year	0.092923
10 year	0.1141
25 year	0.145377
50 year	0.172256
100 year	0.202465

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.145	0.059
1950	0.147	0.065
1951	0.125	0.055
1952	0.101	0.053
1953	0.082	0.053
1954	0.516	0.063
1955	0.156	0.082
1956	0.137	0.088
1957	0.189	0.071
1958	0.165	0.059

1959	0.129	0.063
1960	0.125	0.067
1961	0.259	0.073
1962	0.125	0.055
1963	0.211	0.058
1964	0.167	0.049
1965	0.103	0.066
1966	0.060	0.055
1967	0.122	0.056
1968	0.149	0.068
1969	0.483	0.059
1970	0.085	0.057
1971	0.161	0.098
1972	0.099	0.062
1973	0.098	0.065
1974	0.264	0.064
1975	0.101	0.053
1976	0.106	0.063
1977	0.076	0.058
1978	0.089	0.053
1979	0.296	0.059
1980	0.138	0.052
1981	0.087	0.054
1982	0.113	0.073
1983	0.240	0.056
1984	0.116	0.110
1985	0.155	0.076
1986	0.349	0.206
1987	0.158	0.149
1988	0.082	0.075
1989	0.105	0.052
1990	0.111	0.070
1991	0.114	0.065
1992	0.087	0.068
1993	0.083	0.050
1994	0.079	0.067
1995	0.116	0.082
1996	0.218	0.072
1997	0.433	0.408
1998	0.072	0.055
1999	0.094	0.068
2000	0.082	0.092
2001	0.028	0.044
2002	0.108	0.068
2003	0.084	0.065
2004	0.142	0.080
2005	0.099	0.065
2006	0.341	0.071
2007	0.252	0.070
2008	0.292	0.202
2009	0.089	0.067

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.5162	0.4081
2	0.4830	0.2056
3	0.4330	0.2020

4	0.3492	0.1491
5	0.3406	0.1105
6	0.2956	0.0985
7	0.2921	0.0920
8	0.2640	0.0879
9	0.2589	0.0823
10	0.2516	0.0821
11	0.2397	0.0804
12	0.2182	0.0764
13	0.2113	0.0752
14	0.1895	0.0733
15	0.1665	0.0727
16	0.1648	0.0724
17	0.1607	0.0713
18	0.1579	0.0710
19	0.1564	0.0702
20	0.1554	0.0697
21	0.1493	0.0685
22	0.1474	0.0679
23	0.1452	0.0678
24	0.1418	0.0676
25	0.1385	0.0668
26	0.1367	0.0667
27	0.1287	0.0667
28	0.1253	0.0658
29	0.1248	0.0654
30	0.1247	0.0654
31	0.1224	0.0652
32	0.1165	0.0650
33	0.1157	0.0645
34	0.1138	0.0635
35	0.1130	0.0634
36	0.1105	0.0626
37	0.1076	0.0625
38	0.1061	0.0623
39	0.1051	0.0594
40	0.1030	0.0593
41	0.1015	0.0590
42	0.1009	0.0586
43	0.0992	0.0581
44	0.0987	0.0579
45	0.0977	0.0574
46	0.0944	0.0563
47	0.0892	0.0562
48	0.0890	0.0553
49	0.0871	0.0553
50	0.0867	0.0552
51	0.0852	0.0551
52	0.0843	0.0541
53	0.0830	0.0532
54	0.0823	0.0529
55	0.0821	0.0529
56	0.0818	0.0528
57	0.0790	0.0521
58	0.0765	0.0519
59	0.0723	0.0501
60	0.0604	0.0487
61	0.0284	0.0439

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0652	14940	11997	80	Pass
0.0690	12365	6201	50	Pass
0.0728	10620	3377	31	Pass
0.0766	8787	2378	27	Pass
0.0804	7270	1866	25	Pass
0.0842	5987	1583	26	Pass
0.0879	5221	1282	24	Pass
0.0917	4408	1117	25	Pass
0.0955	3681	995	27	Pass
0.0993	3104	888	28	Pass
0.1031	2637	818	31	Pass
0.1069	2336	763	32	Pass
0.1106	1969	681	34	Pass
0.1144	1671	633	37	Pass
0.1182	1473	593	40	Pass
0.1220	1350	565	41	Pass
0.1258	1199	526	43	Pass
0.1295	1089	506	46	Pass
0.1333	1004	496	49	Pass
0.1371	921	486	52	Pass
0.1409	856	475	55	Pass
0.1447	789	461	58	Pass
0.1485	723	450	62	Pass
0.1522	674	429	63	Pass
0.1560	635	407	64	Pass
0.1598	615	390	63	Pass
0.1636	588	365	62	Pass
0.1674	553	339	61	Pass
0.1712	519	320	61	Pass
0.1749	502	308	61	Pass
0.1787	482	294	60	Pass
0.1825	457	278	60	Pass
0.1863	437	258	59	Pass
0.1901	416	244	58	Pass
0.1938	399	236	59	Pass
0.1976	384	216	56	Pass
0.2014	364	180	49	Pass
0.2052	348	157	45	Pass
0.2090	340	148	43	Pass
0.2128	326	139	42	Pass
0.2165	316	127	40	Pass
0.2203	299	125	41	Pass
0.2241	288	122	42	Pass
0.2279	279	119	42	Pass
0.2317	266	116	43	Pass
0.2355	246	113	45	Pass
0.2392	236	97	41	Pass
0.2430	221	92	41	Pass
0.2468	212	84	39	Pass
0.2506	198	80	40	Pass
0.2544	187	76	40	Pass
0.2581	174	72	41	Pass
0.2619	164	71	43	Pass

0.2657	154	67	43	Pass
0.2695	146	65	44	Pass
0.2733	135	61	45	Pass
0.2771	125	58	46	Pass
0.2808	115	56	48	Pass
0.2846	98	54	55	Pass
0.2884	80	51	63	Pass
0.2922	68	49	72	Pass
0.2960	62	47	75	Pass
0.2998	56	44	78	Pass
0.3035	46	40	86	Pass
0.3073	41	37	90	Pass
0.3111	39	30	76	Pass
0.3149	37	27	72	Pass
0.3187	32	26	81	Pass
0.3224	30	23	76	Pass
0.3262	20	21	104	Pass
0.3300	18	18	100	Pass
0.3338	15	14	93	Pass
0.3376	9	7	77	Pass
0.3414	7	4	57	Pass
0.3451	5	4	80	Pass
0.3489	5	4	80	Pass
0.3527	4	4	100	Pass
0.3565	4	4	100	Pass
0.3603	4	4	100	Pass
0.3641	4	3	75	Pass
0.3678	4	3	75	Pass
0.3716	4	3	75	Pass
0.3754	4	2	50	Pass
0.3792	3	2	66	Pass
0.3830	3	2	66	Pass
0.3867	3	2	66	Pass
0.3905	3	2	66	Pass
0.3943	3	2	66	Pass
0.3981	3	1	33	Pass
0.4019	3	1	33	Pass
0.4057	3	1	33	Pass
0.4094	3	0	0	Pass
0.4132	3	0	0	Pass
0.4170	3	0	0	Pass
0.4208	3	0	0	Pass
0.4246	3	0	0	Pass
0.4283	3	0	0	Pass
0.4321	3	0	0	Pass
0.4359	2	0	0	Pass
0.4397	2	0	0	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0.1081 acre-feet
On-line facility target flow:	0.0546 cfs.
Adjusted for 15 min:	0.0546 cfs.
Off-line facility target flow:	0.0358 cfs.
Adjusted for 15 min:	0.0358 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Vault 1 POC	☐	545.78			☐	0.00			
Total Volume Infiltrated		545.78	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

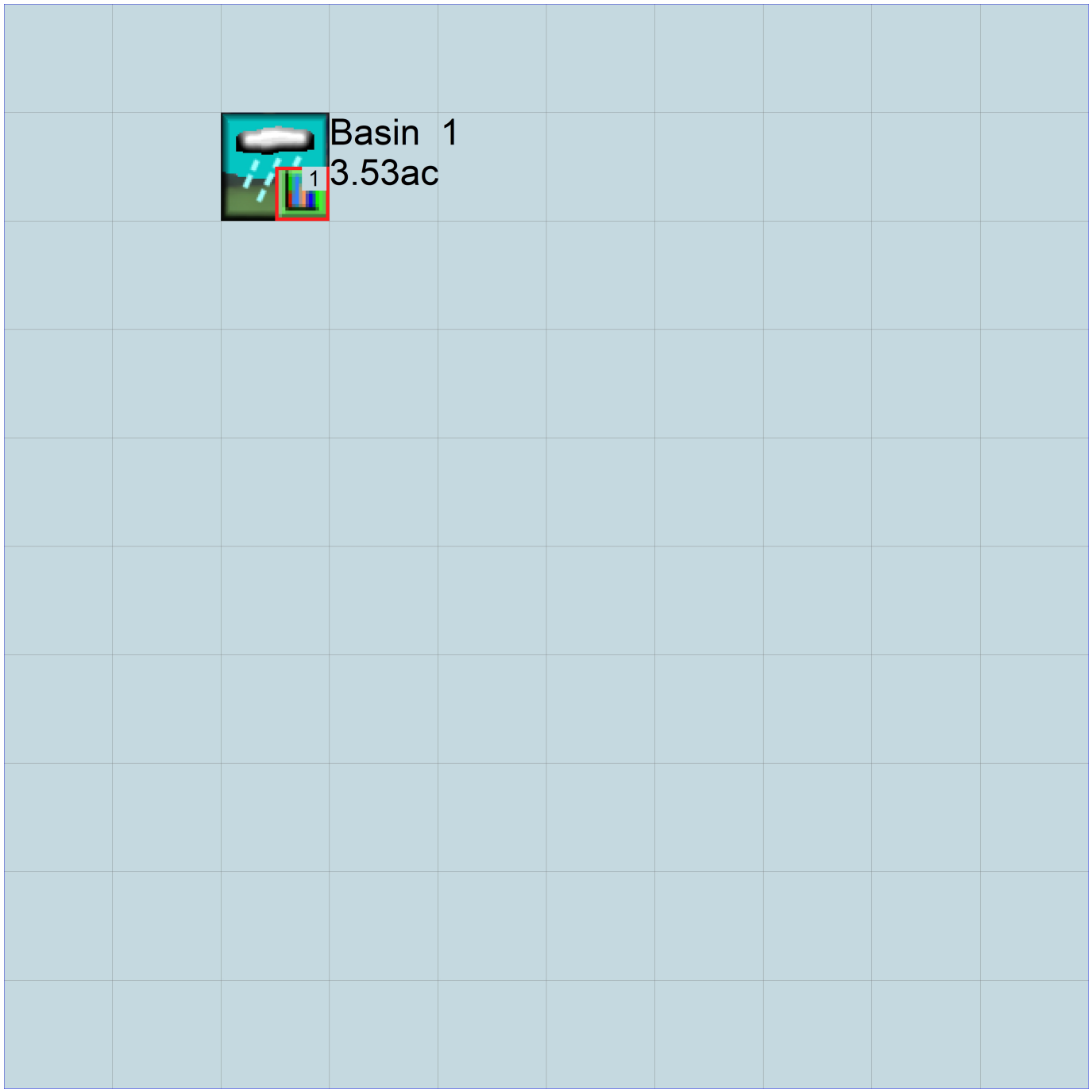
PERLND Changes

No PERLND changes have been made.

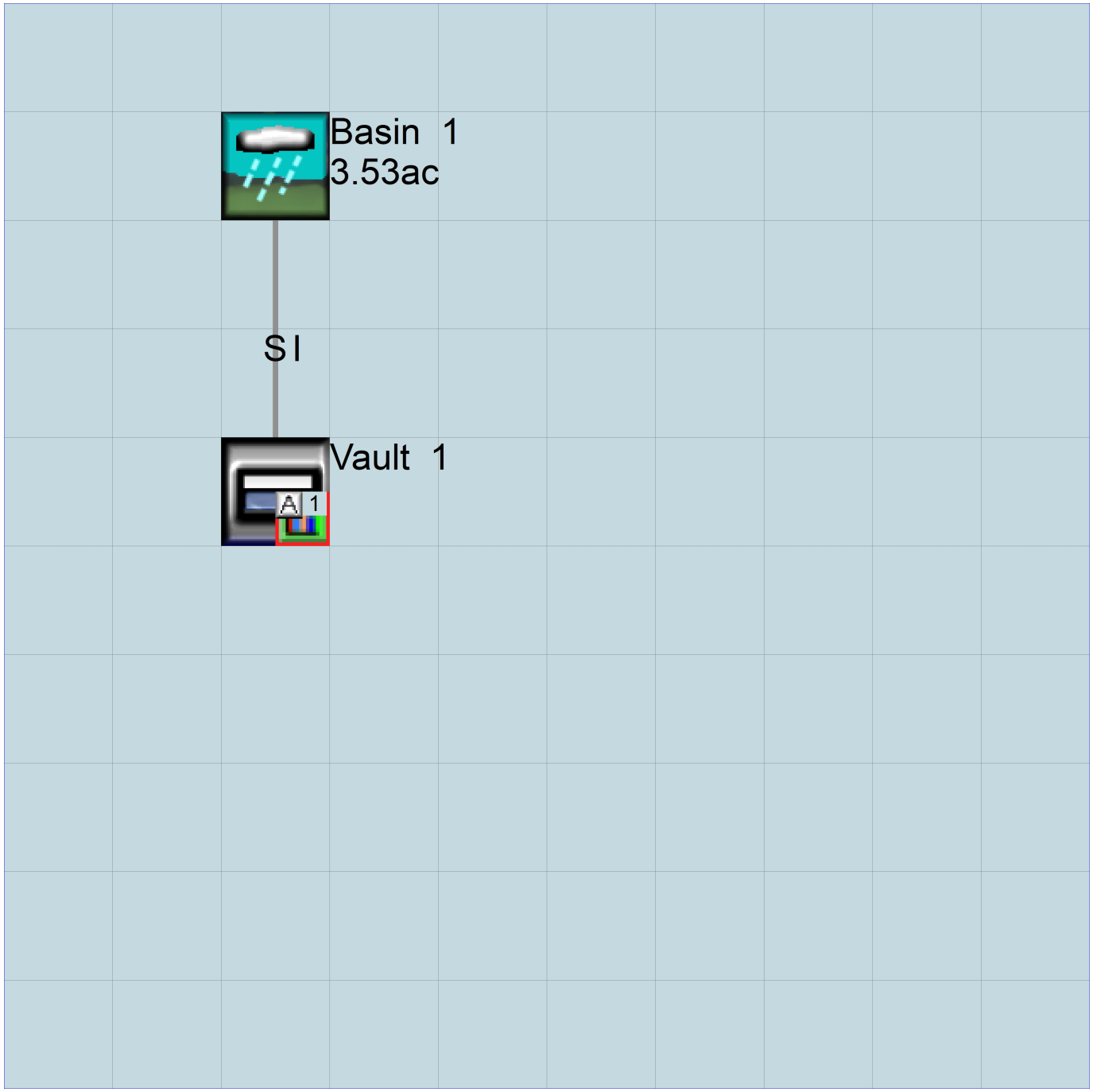
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   prelim vault - assumed areas.wdm
MESSU       25   Preprelim vault - assumed areas.MES
            27   Preprelim vault - assumed areas.L61
            28   Preprelim vault - assumed areas.L62
            30   POCprelim vault - assumed areas1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      11
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                      in  out           ***
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  11                        3.53     COPY   501     12
PERLND  11                        3.53     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *      *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><---><---><---><---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.2            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.2            IMPLND   1 999 EXTNL  PREC
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   prelim vault - assumed areas.wdm
MESSU       25   Mitprelim vault - assumed areas.MES
            27   Mitprelim vault - assumed areas.L61
            28   Mitprelim vault - assumed areas.L62
            30   POCprelim vault - assumed areas1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      16
      IMPLND       1
      IMPLND       4
      IMPLND       5
      RCHRES       1
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Vault  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   16     C, Lawn, Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   16         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
```

```
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   16         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   16              0       4.5      0.03       400      0.05       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   16              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   16           0.1      0.25      0.25         6       0.5      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   16              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    4         0    0    4    0    0    0    1    9
    5         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    4         0    0    0    0    0
    5         0    0    0    0    0
```

```
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    4              0         0
    5              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    4              0         0
    5              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  16                       0.98     RCHRES   1      2
PERLND  16                       0.98     RCHRES   1      3
IMPLND   1                       0.77     RCHRES   1      5
IMPLND   4                       1.56     RCHRES   1      5
IMPLND   5                       0.22     RCHRES   1      5

******Routing******
PERLND  16                       0.98     COPY     1     12
IMPLND   1                       0.77     COPY     1     15
IMPLND   4                       1.56     COPY     1     15
IMPLND   5                       0.22     COPY     1     15
PERLND  16                       0.98     COPY     1     13
RCHRES   1                          1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                        in  out                             ***
    1     Vault  1               1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
```

```
    1         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1               1      0.02       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   92    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.178138  0.000000  0.000000
  0.100000  0.178138  0.017814  0.010661
  0.200000  0.178138  0.035628  0.015076
  0.300000  0.178138  0.053441  0.018465
  0.400000  0.178138  0.071255  0.021321
  0.500000  0.178138  0.089069  0.023838
  0.600000  0.178138  0.106883  0.026113
  0.700000  0.178138  0.124696  0.028205
  0.800000  0.178138  0.142510  0.030153
  0.900000  0.178138  0.160324  0.031982
  1.000000  0.178138  0.178138  0.033712
  1.100000  0.178138  0.195951  0.035357
  1.200000  0.178138  0.213765  0.036929
  1.300000  0.178138  0.231579  0.038437
  1.400000  0.178138  0.249393  0.039888
  1.500000  0.178138  0.267207  0.041288
  1.600000  0.178138  0.285020  0.042642
  1.700000  0.178138  0.302834  0.043955
  1.800000  0.178138  0.320648  0.045229
  1.900000  0.178138  0.338462  0.046468
  2.000000  0.178138  0.356275  0.047676
  2.100000  0.178138  0.374089  0.048853
  2.200000  0.178138  0.391903  0.050003
  2.300000  0.178138  0.409717  0.051126
  2.400000  0.178138  0.427531  0.052226
  2.500000  0.178138  0.445344  0.053303
  2.600000  0.178138  0.463158  0.054359
  2.700000  0.178138  0.480972  0.055394
  2.800000  0.178138  0.498786  0.056411
  2.900000  0.178138  0.516599  0.057409
  3.000000  0.178138  0.534413  0.058391
  3.100000  0.178138  0.552227  0.059356
```

```
  3.200000  0.178138  0.570041  0.060305
  3.300000  0.178138  0.587854  0.061241
  3.400000  0.178138  0.605668  0.062161
  3.500000  0.178138  0.623482  0.063069
  3.600000  0.178138  0.641296  0.063964
  3.700000  0.178138  0.659110  0.064846
  3.800000  0.178138  0.676923  0.065716
  3.900000  0.178138  0.694737  0.066575
  4.000000  0.178138  0.712551  0.067424
  4.100000  0.178138  0.730365  0.068261
  4.200000  0.178138  0.748178  0.069089
  4.300000  0.178138  0.765992  0.069906
  4.400000  0.178138  0.783806  0.070714
  4.500000  0.178138  0.801620  0.071514
  4.600000  0.178138  0.819434  0.072436
  4.700000  0.178138  0.837247  0.074637
  4.800000  0.178138  0.855061  0.077558
  4.900000  0.178138  0.872875  0.080930
  5.000000  0.178138  0.890689  0.084624
  5.100000  0.178138  0.908502  0.088556
  5.200000  0.178138  0.926316  0.092663
  5.300000  0.178138  0.944130  0.096893
  5.400000  0.178138  0.961944  0.101207
  5.500000  0.178138  0.979757  0.105568
  5.600000  0.178138  0.997571  0.110123
  5.700000  0.178138  1.015385  0.115386
  5.800000  0.178138  1.033199  0.120851
  5.900000  0.178138  1.051013  0.126508
  6.000000  0.178138  1.068826  0.148289
  6.100000  0.178138  1.086640  0.156019
  6.200000  0.178138  1.104454  0.163978
  6.300000  0.178138  1.122268  0.172159
  6.400000  0.178138  1.140081  0.180557
  6.500000  0.178138  1.157895  0.189163
  6.600000  0.178138  1.175709  0.197974
  6.700000  0.178138  1.193523  0.206984
  6.800000  0.178138  1.211337  0.216189
  6.900000  0.178138  1.229150  0.225583
  7.000000  0.178138  1.246964  0.235163
  7.100000  0.178138  1.264778  0.244925
  7.200000  0.178138  1.282592  0.254865
  7.300000  0.178138  1.300405  0.264979
  7.400000  0.178138  1.318219  0.275266
  7.500000  0.178138  1.336033  0.285720
  7.600000  0.178138  1.353847  0.296341
  7.700000  0.178138  1.371660  0.307124
  7.800000  0.178138  1.389474  0.318068
  7.900000  0.178138  1.407288  0.329169
  8.000000  0.178138  1.425102  0.340426
  8.100000  0.178138  1.442916  0.843198
  8.200000  0.178138  1.460729  1.746074
  8.300000  0.178138  1.478543  2.843459
  8.400000  0.178138  1.496357  3.974981
  8.500000  0.178138  1.514171  4.982452
  8.600000  0.178138  1.531984  5.745157
  8.700000  0.178138  1.549798  6.237043
  8.800000  0.178138  1.567612  6.683588
  8.900000  0.178138  1.585426  7.068649
  9.000000  0.178138  1.603240  7.432877
  9.100000  0.178138  1.621053  7.779330
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.2            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.2            IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP
```

```
END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   1 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16


END MASS-LINK

END RUN
```

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WWHM2012

PROJECT REPORT

CONVEYANCE CALCULATIONS

General Model Information

Project Name:	Convey
Site Name:	CHAPEL HILL
Site Address:	
City:	MARYSVILLE
Report Date:	8/9/2023
Gage:	Everett
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.200
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Mod	3.53
Pervious Total	3.53
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	0.98
Pervious Total	0.98

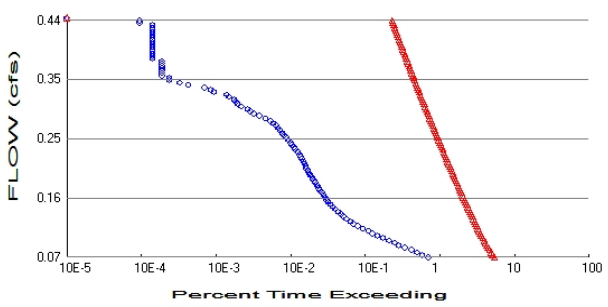
Impervious Land Use	acre
ROADS FLAT	0.77
ROOF TOPS FLAT	1.56
DRIVEWAYS FLAT	0.22
Impervious Total	2.55
Basin Total	3.53

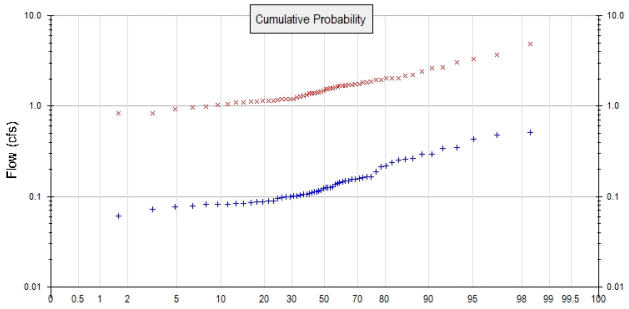
Element Flows To:

Surface	Interflow	Groundwater

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.53
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.98
Total Impervious Area: 2.55

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.13049
5 year	0.208674
10 year	0.270887
25 year	0.362105
50 year	0.439697
100 year	0.525966

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	1.48237
5 year	2.060317
10 year	2.491807
25 year	3.095263
50 year	3.588906
100 year	4.121901

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.145	1.692
1950	0.147	1.835
1951	0.125	1.687
1952	0.101	1.380
1953	0.082	1.839
1954	0.516	2.433
1955	0.156	1.704
1956	0.137	0.760
1957	0.189	1.416
1958	0.165	3.688

1959	0.129	1.324
1960	0.125	1.432
1961	0.259	4.834
1962	0.125	1.566
1963	0.211	2.026
1964	0.167	1.028
1965	0.103	1.187
1966	0.060	1.239
1967	0.122	2.687
1968	0.149	1.534
1969	0.483	3.348
1970	0.085	1.141
1971	0.161	1.688
1972	0.099	2.200
1973	0.098	1.744
1974	0.264	2.165
1975	0.101	1.710
1976	0.106	1.133
1977	0.076	1.111
1978	0.089	0.825
1979	0.296	2.036
1980	0.138	1.194
1981	0.087	1.146
1982	0.113	1.120
1983	0.240	1.650
1984	0.116	1.435
1985	0.155	1.943
1986	0.349	2.046
1987	0.158	1.755
1988	0.082	1.387
1989	0.105	1.472
1990	0.111	1.105
1991	0.114	1.306
1992	0.087	1.400
1993	0.083	1.064
1994	0.079	1.147
1995	0.116	0.980
1996	0.218	1.604
1997	0.433	1.863
1998	0.072	1.964
1999	0.094	0.826
2000	0.082	3.057
2001	0.028	0.958
2002	0.108	0.927
2003	0.084	1.262
2004	0.142	2.646
2005	0.099	1.196
2006	0.341	1.573
2007	0.252	1.551
2008	0.292	1.175
2009	0.089	1.206

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.5162	4.8337
2	0.4830	3.6879
3	0.4330	3.3476

4	0.3492	3.0571
5	0.3406	2.6875
6	0.2956	2.6464
7	0.2921	2.4327
8	0.2640	2.1999
9	0.2589	2.1650
10	0.2516	2.0459
11	0.2397	2.0360
12	0.2182	2.0258
13	0.2113	1.9639
14	0.1895	1.9431
15	0.1665	1.8632
16	0.1648	1.8386
17	0.1607	1.8349
18	0.1579	1.7552
19	0.1564	1.7438
20	0.1554	1.7103
21	0.1493	1.7038
22	0.1474	1.6916
23	0.1452	1.6883
24	0.1418	1.6873
25	0.1385	1.6498
26	0.1367	1.6038
27	0.1287	1.5732
28	0.1253	1.5656
29	0.1248	1.5513
30	0.1247	1.5337
31	0.1224	1.4721
32	0.1165	1.4351
33	0.1157	1.4315
34	0.1138	1.4164
35	0.1130	1.3998
36	0.1105	1.3867
37	0.1076	1.3799
38	0.1061	1.3244
39	0.1051	1.3059
40	0.1030	1.2621
41	0.1015	1.2394
42	0.1009	1.2058
43	0.0992	1.1965
44	0.0987	1.1942
45	0.0977	1.1867
46	0.0944	1.1748
47	0.0892	1.1472
48	0.0890	1.1461
49	0.0871	1.1406
50	0.0867	1.1328
51	0.0852	1.1202
52	0.0843	1.1106
53	0.0830	1.1048
54	0.0823	1.0641
55	0.0821	1.0282
56	0.0818	0.9795
57	0.0790	0.9579
58	0.0765	0.9273
59	0.0723	0.8262
60	0.0604	0.8251
61	0.0284	0.7600

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0652	14940	114516	766	Fail
0.0690	12365	108634	878	Fail
0.0728	10620	104399	983	Fail
0.0766	8787	99223	1129	Fail
0.0804	7270	94389	1298	Fail
0.0842	5987	90261	1507	Fail
0.0879	5221	87309	1672	Fail
0.0917	4408	83630	1897	Fail
0.0955	3681	80336	2182	Fail
0.0993	3104	77042	2482	Fail
0.1031	2637	74091	2809	Fail
0.1069	2336	71973	3081	Fail
0.1106	1969	69257	3517	Fail
0.1144	1671	66690	3991	Fail
0.1182	1473	64231	4360	Fail
0.1220	1350	62519	4631	Fail
0.1258	1199	60231	5023	Fail
0.1295	1089	58028	5328	Fail
0.1333	1004	55996	5577	Fail
0.1371	921	53943	5857	Fail
0.1409	856	52531	6136	Fail
0.1447	789	50713	6427	Fail
0.1485	723	48895	6762	Fail
0.1522	674	47226	7006	Fail
0.1560	635	45622	7184	Fail
0.1598	615	44403	7219	Fail
0.1636	588	42885	7293	Fail
0.1674	553	41409	7488	Fail
0.1712	519	39997	7706	Fail
0.1749	502	38970	7762	Fail
0.1787	482	37644	7809	Fail
0.1825	457	36382	7961	Fail
0.1863	437	35185	8051	Fail
0.1901	416	33987	8169	Fail
0.1938	399	33110	8298	Fail
0.1976	384	32019	8338	Fail
0.2014	364	30992	8514	Fail
0.2052	348	29987	8616	Fail
0.2090	340	29260	8605	Fail
0.2128	326	28276	8673	Fail
0.2165	316	27356	8656	Fail
0.2203	299	26458	8848	Fail
0.2241	288	25602	8889	Fail
0.2279	279	24939	8938	Fail
0.2317	266	24084	9054	Fail
0.2355	246	23335	9485	Fail
0.2392	236	22587	9570	Fail
0.2430	221	21838	9881	Fail
0.2468	212	21331	10061	Fail
0.2506	198	20629	10418	Fail
0.2544	187	19966	10677	Fail
0.2581	174	19395	11146	Fail
0.2619	164	18923	11538	Fail
0.2657	154	18311	11890	Fail

0.2695	146	17757	12162	Fail
0.2733	135	17205	12744	Fail
0.2771	125	16647	13317	Fail
0.2808	115	16249	14129	Fail
0.2846	98	15744	16065	Fail
0.2884	80	15248	19060	Fail
0.2922	68	14767	21716	Fail
0.2960	62	14446	23300	Fail
0.2998	56	13999	24998	Fail
0.3035	46	13573	29506	Fail
0.3073	41	13146	32063	Fail
0.3111	39	12763	32725	Fail
0.3149	37	12440	33621	Fail
0.3187	32	12040	37625	Fail
0.3224	30	11663	38876	Fail
0.3262	20	11342	56709	Fail
0.3300	18	10977	60983	Fail
0.3338	15	10716	71440	Fail
0.3376	9	10429	115877	Fail
0.3414	7	10106	144371	Fail
0.3451	5	9809	196180	Fail
0.3489	5	9582	191640	Fail
0.3527	4	9302	232550	Fail
0.3565	4	9015	225375	Fail
0.3603	4	8720	218000	Fail
0.3641	4	8496	212400	Fail
0.3678	4	8295	207375	Fail
0.3716	4	8044	201100	Fail
0.3754	4	7818	195450	Fail
0.3792	3	7589	252966	Fail
0.3830	3	7430	247666	Fail
0.3867	3	7208	240266	Fail
0.3905	3	6992	233066	Fail
0.3943	3	6785	226166	Fail
0.3981	3	6603	220100	Fail
0.4019	3	6466	215533	Fail
0.4057	3	6271	209033	Fail
0.4094	3	6096	203200	Fail
0.4132	3	5908	196933	Fail
0.4170	3	5719	190633	Fail
0.4208	3	5615	187166	Fail
0.4246	3	5439	181300	Fail
0.4283	3	5296	176533	Fail
0.4321	3	5161	172033	Fail
0.4359	2	5035	251750	Fail
0.4397	2	4896	244800	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0.1081 acre-feet
On-line facility target flow:	0.0546 cfs.
Adjusted for 15 min:	0.0546 cfs.
Off-line facility target flow:	0.0358 cfs.
Adjusted for 15 min:	0.0358 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

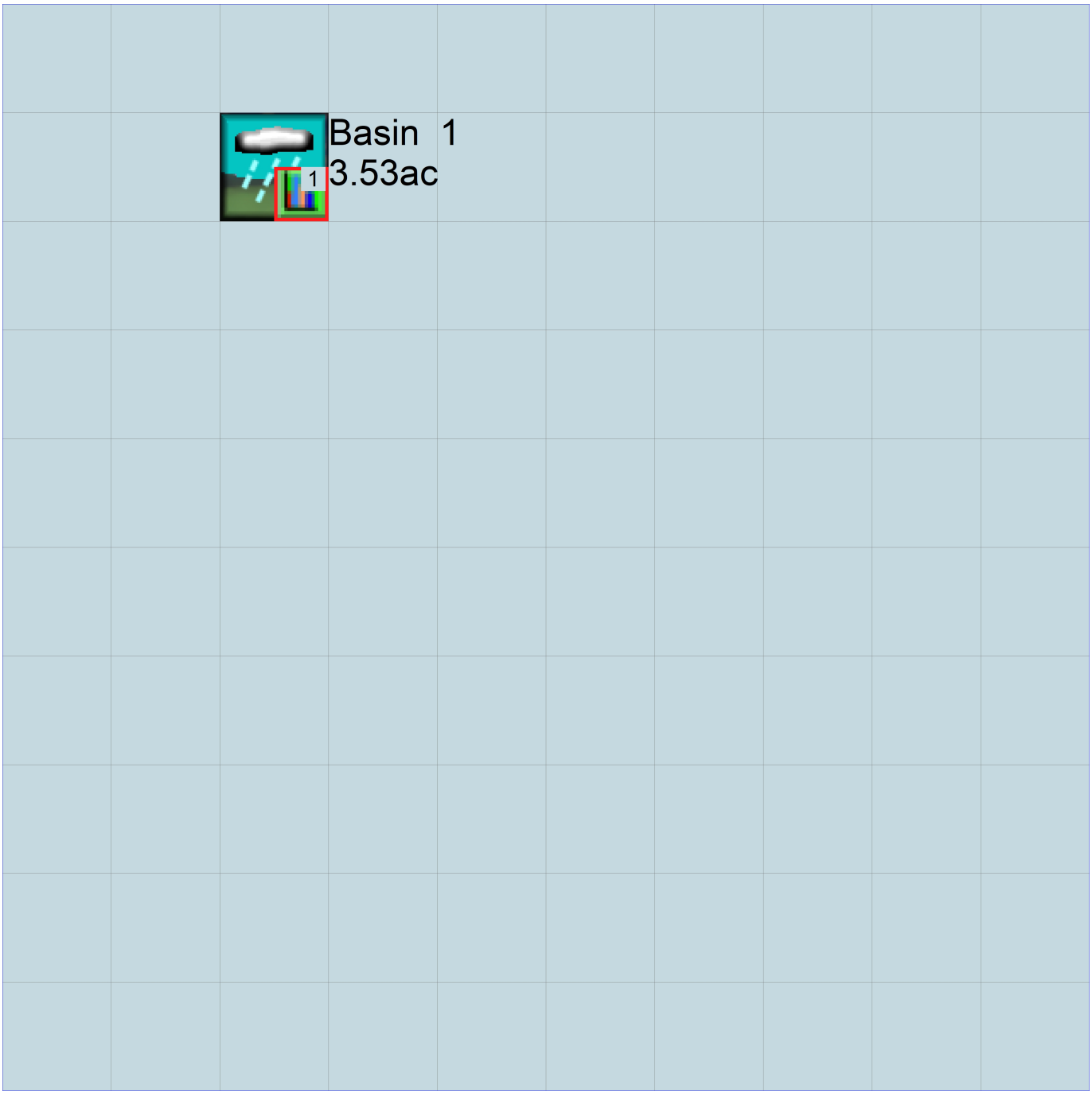
PERLND Changes

No PERLND changes have been made.

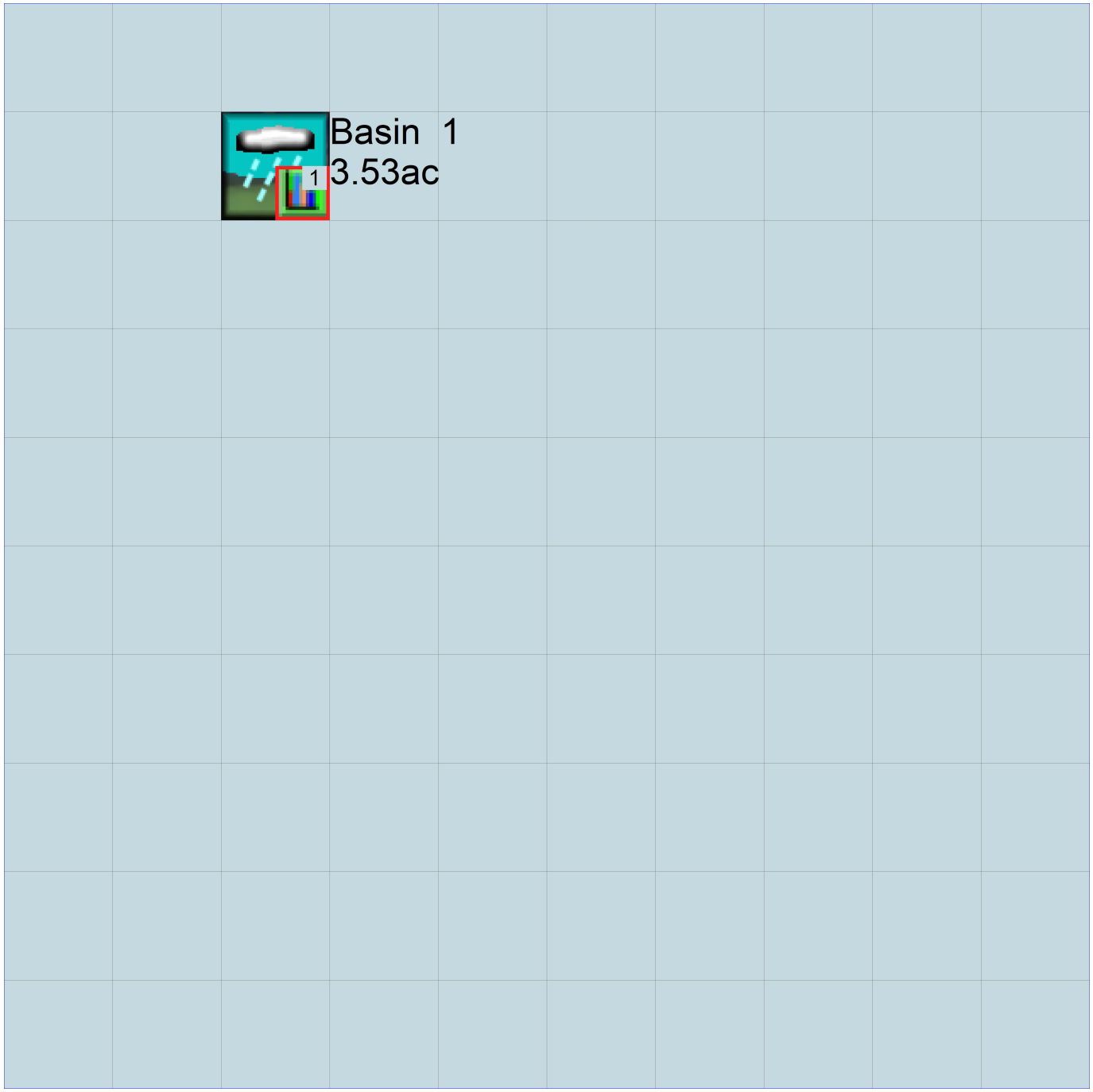
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Convey.wdm
MESSU       25   PreConvey.MES
            27   PreConvey.L61
            28   PreConvey.L62
            30   POCConvey1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      11
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                      in  out           ***
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  11                        3.53     COPY   501     12
PERLND  11                        3.53     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *      *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><--->
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Convey.wdm
MESSU       25   MitConvey.MES
            27   MitConvey.L61
            28   MitConvey.L62
            30   POCConvey1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      16
      IMPLND       1
      IMPLND       4
      IMPLND       5
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                      in  out           ***
   16     C, Lawn, Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   16         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   16         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   16              0       4.5      0.03       400      0.05       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   16              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   16            0.1      0.25      0.25         6       0.5      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS       AGWS      GWVS
   16              0         0         0         0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    4         0    0    4    0    0    0    1    9
    5         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    4         0    0    0    0    0
    5         0    0    0    0    0
  END IWAT-PARM1
```

```
  IWAT-PARM2
    <PLS >       IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >       IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    4              0         0
    5              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    4              0         0
    5              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  16                        0.98     COPY   501     12
PERLND  16                        0.98     COPY   501     13
IMPLND   1                        0.77     COPY   501     15
IMPLND   4                        1.56     COPY   501     15
IMPLND   5                        0.22     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
```

```
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
             FG FG FG FG  possible  exit  *** possible  exit      possible  exit
              *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.2            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.2            IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2023; All Rights Reserved.

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Local (360)943-0304

www.clearcreeksolutions.com

APPENDIX B

Geotechnical Assessment

PTANumber: 30052600403700
Note: Diagrams may not be drawn to scale

OCT 1978 PAID SNOHOMISH HEALTH DISTRICT

SNOHOMISH HEALTH DISTRICT

Environmental Health Division
Courthouse, Everett, Washington 98201

APPLICATION FOR A SEWAGE DISPOSAL SYSTEM PERMIT

[Submit 3 copies]

Acct. No. #263005-4-~~015-0004~~ 037

Permit to be issued to Mr. VanBerkbigler

For installation at (street address) 6114 83rd. Ave. N.E Marysville, Wa. 98270

Sec. 26 Twp. 30 Rg. 5 Short Plat 2845 (6-78) Lot ___ Plat ___ Lot ___ Blk. ___

Type of Building: New X Existing ___ Single family residence X No. bedrooms three (3)

Water Supply: Public ___ Private well Other: (specify type or use) ___

Builder Mr. Vanberkbigler Address 8515 40th. Ave. NE Marysville,Wa Telephone 659-3178

Designer Noel Higa Address P.O. Box 326 Arlington, Wa. 98223 License No. 659-6366

Soil Log Hole No. 1 0-24" Silty sandy loam; 24"-32" Faint mottled to mottled sandy clay loam; @32" Hardpan

Soil Log Hole No. 2 + Same as #1

Elevation of Water Table, if encountered. (Distance from ground surface) NONE

Corrections to control surface water if needed NONE

Fill needed: (Amount) 12"-166 cu/yds.

Percolation:

Test Hole No. 1 Average Rate 3 (Fall in min/inch-bottom 6" test hole) Depth test taken 24"

Test Hole No. 2 Average Rate 2 (Fall in min/inch-bottom 6" test hole) Depth test taken 24"

Test Hole No. 3 Average Rate 4.5 (Fall in min/inch-bottom 6" test hole) Depth test taken 24"

Average percolation rate on which to base drainfield design 5 min/inch Date taken 9-27-78

Septic tank requirements based on present rule and regulations:

Septic Tank Size 1000 gallons. Dual Compartment

Amount of Square Feet of Disposal Field 555 Tr. Width 24" Tr. Depth 12"

Signature of Designer Noel Higa Date 10-4-78

DO NOT WRITE BELOW THIS LINE (to be completed by issuing agency)

No. Permit ___ Date ___ Sanitarian ___ Pending ___

Permit to be issued V Date 10-6-78 Sanitarian Gary D Ball

Rechecked ___ Sanitarian ___ Wet Winter Months ___

Check Received ___ Cash Received ___ Permit Renewal ___

Called for Inspection 8/6/79 Installer Ron Moss

Permit issued (date) 11/21/78 Permit Number 2255-78

HD-14

GENERAL NOTES

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BARK MULCH IS NOT TO BE PLACED ABOVE THE ROOT CROWN.

ALL PLANTS SHALL AT LEAST CONFORM TO THE MINIMUM STANDARD ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

LAWN AREAS ARE TO BE HYDROSEEDED WITH A PACIFIC NORTHWEST LAWN MIX PER MANUFACTURER'S SPECIFICATIONS, OR APPROVED EQUAL. REMOVE ALL STONES LARGER THAN 1" FROM LAWN AREAS.

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LANDSCAPE PLANTING SCHEDULE

TREES

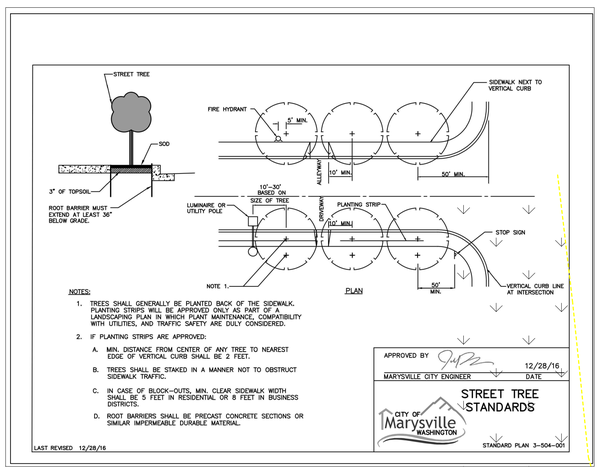
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	18	Pinus nigra / Austrian Pine	6' MIN. HT.	B&B

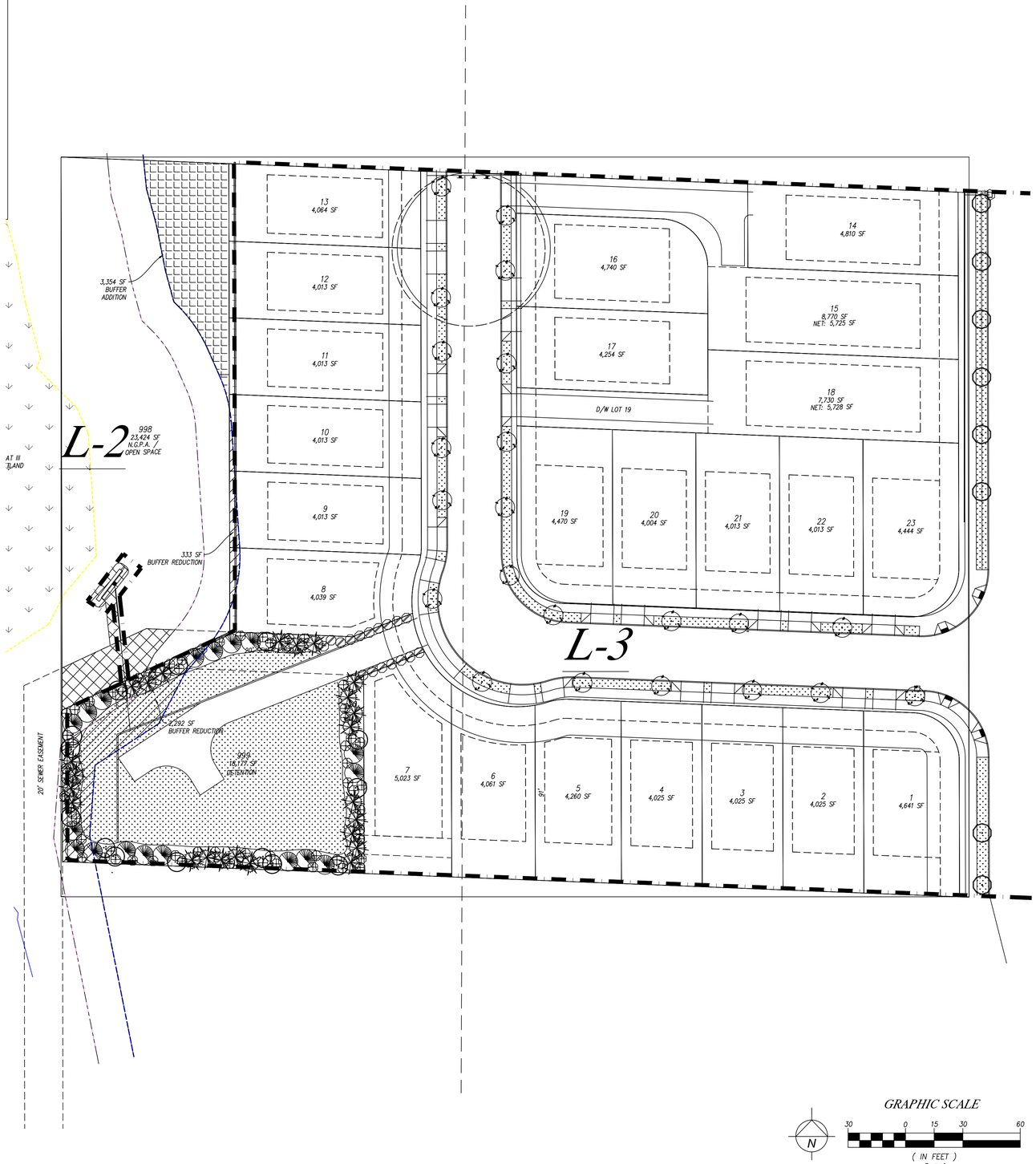
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GROUNDCOVER

SYMBOL	QTY	BOTANICAL / COMMON NAME		
		Hydroseeded Lawn		





DATE		REVISION	BY
11.22.23	1	SITE PLAN CHANGES	PJ

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Landscape Architect
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Eastham, MA 02642
p. 360.659.8159
c. 425.210.1986
e. pauljaylla@gmail.com

State of Washington registered Landscape Architect
Paul Jay
certificate No. 566

Chapel Hill Plat

for: Robinett Brothers LLC

LANDSCAPE PLAN

APPLICANT:
Land Solutions

DATE:
8.9.23

PJLA JOB NO.:

DRAWN BY: PJ

CHECKED BY: PJ

LANDSCAPE PLAN

SHEET
L-1
OF 3

Nov 22, 2023 - 10:17am Paul C:\Users\Paul\AppData\Local\Temp\AcPublish_8628\LP11.22.23.dwg Layout Name: L-1 COVER

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GROUNDCOVER

SYMBOL	QTY	BOTANICAL / COMMON NAME		
		Hydroseeded Lawn		

LANDSCAPE MAINTENANCE NOTES:

22C.120.180 Landscaping – Maintenance.

(1) All landscaped areas and plants required by this chapter must be permanently maintained in a healthy growing condition in order to accomplish the purpose for which they were required.

(2) Dead or diseased plants must be replaced within 30 days of notification, or as soon as practical in regard to freezing weather, or complex situations involving the removal and replacement of large trees.

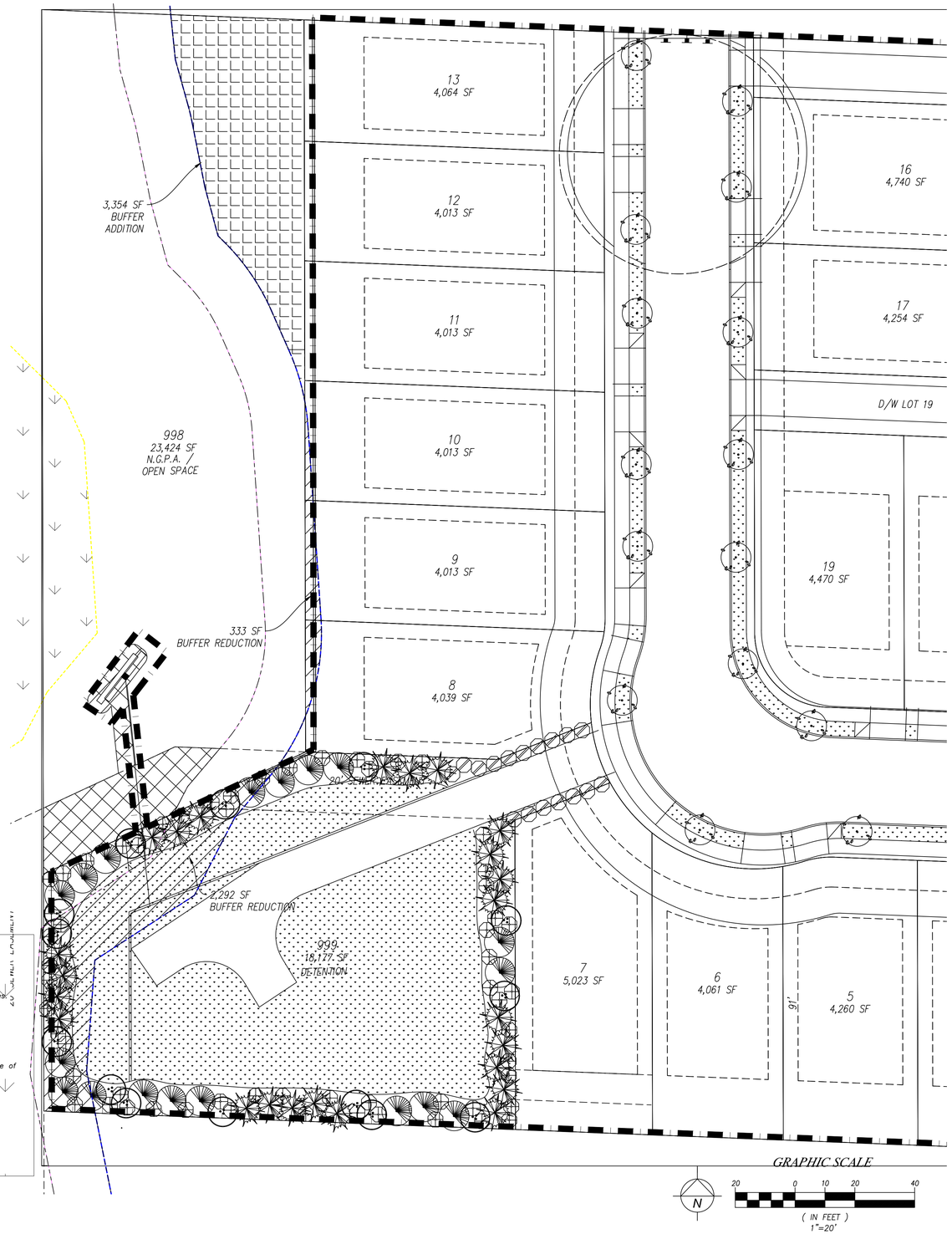
(3) All landscaped areas must be kept free of debris and weeds.

(4) Plant material must not interfere with public utilities, restrict pedestrian or vehicular access, or constitute a traffic hazard.

(5) Planted areas next to pedestrian walkways and sidewalks shall be maintained or plant material chosen to maintain a clear zone between three and eight feet from ground level.

(6) The owners, their agents and assigns are responsible for providing, protecting, and maintaining all landscaping material in a healthy and growing condition, replacing it when necessary, and keeping it free of refuse and debris.

(7) All fencing, walls and other features used for screening purposes shall be kept free of litter, debris, and weeds. (Ord. 2852 § 10 (Exh. A), 2011).



DATE		REVISION	BY
11.22.23	1	SITE PLAN CHANGES	PJ

Paul Jay
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1115 Bridge Road
Eastham, MA 02642
p. 360.659.8159
c. 425.210.1986
e. pauljaysla@gmail.com

State of Washington registered Landscape Architect

Paul Jay
certificate no. 566

Chapel Hill Plat

for: Robinett Brothers LLC

LANDSCAPE PLAN

APPLICANT:
Land Solutions

DATE:
8.9.23

PJLA JOB NO.:

DRAWN BY: PJ

CHECKED BY: PJ

LANDSCAPE PLAN

SHEET
L-2
OF 3

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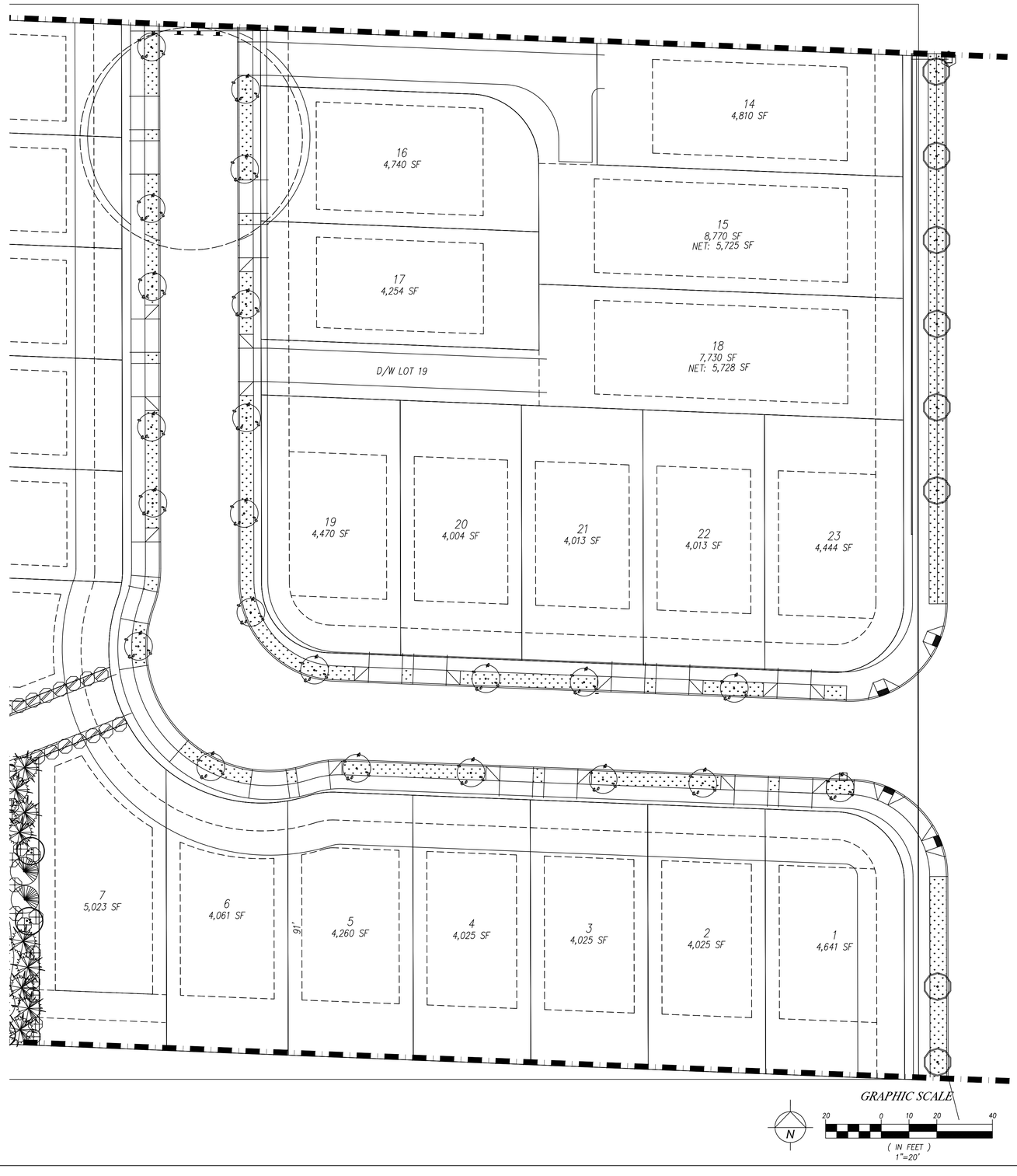
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Chapel Hill Plat

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LANDSCAPE PLAN

SHEET
L-3
OF 3

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PRELIMINARY PLAT OF CHAPEL HILL

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

ZONING NOTES:

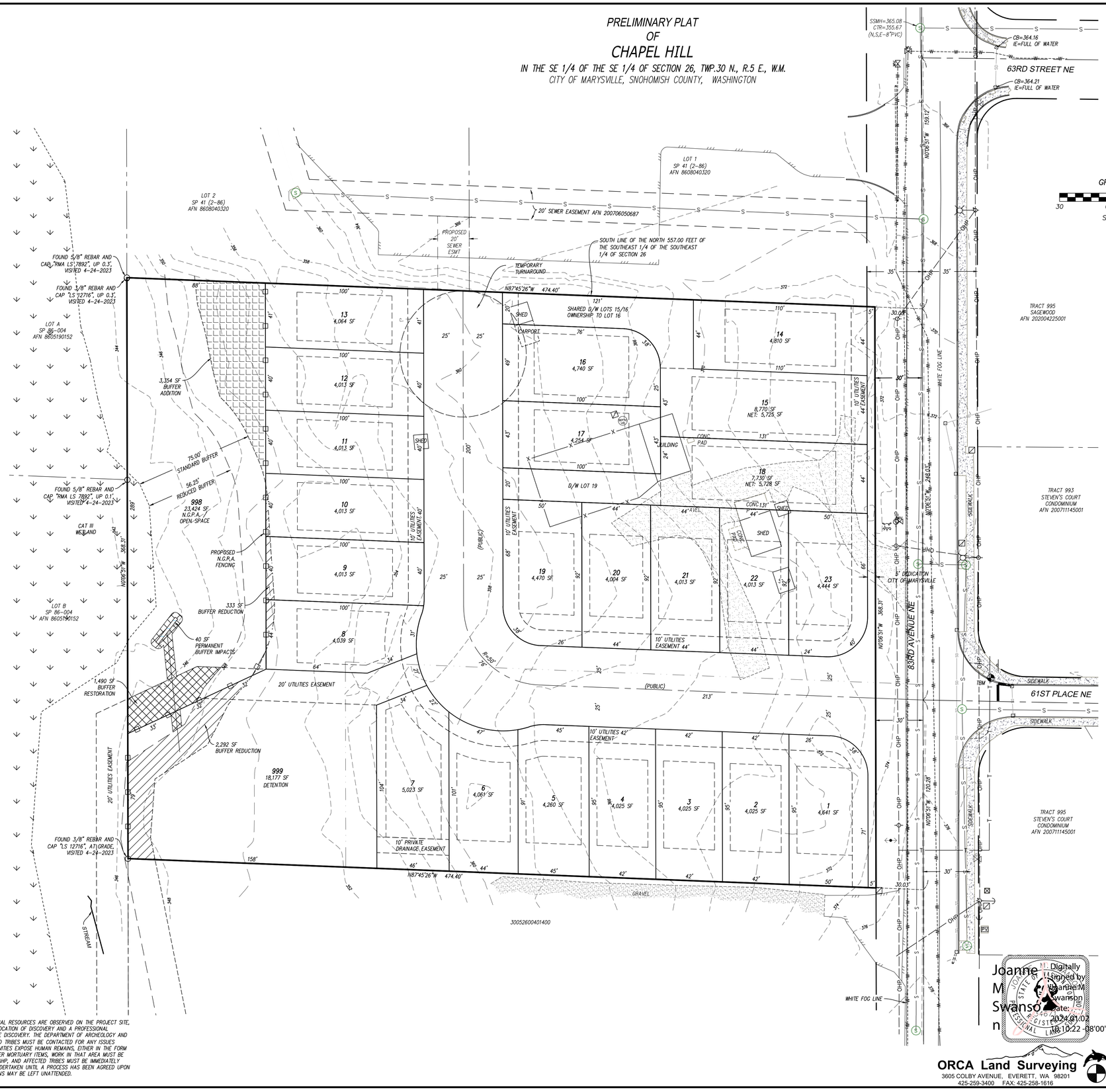
R-8
MINIMUM LOT AREA 4,000 SF
MINIMUM DUPLEX AREA 7,200 SF
MINIMUM LOT WIDTH 40'
MINIMUM LOT FRONTAGE ON PANHANDLE 20'
MAXIMUM BUILDING HEIGHT 30'
MAXIMUM BUILDING COVERAGE 50%
MAXIMUM IMPERVIOUS SURFACES 50%
FRONT YARD SETBACK 20'
STREET SETBACK 10'
REAR YARD SETBACK 20'
SIDE YARD SETBACK 5'
CORNER LOT SETBACK 10'

LEGEND

- BENCHMARK
- FOUND MONUMENT, AS NOTED
- FOUND REBAR, AS NOTED
- WV WATER VALVE
- WATER METER
- FIRE HYDRANT
- POWER/UTILITY POLE
- POWER POLE WITH STREET LIGHT
- UTILITY POLE WITH CONDUIT
- GUY ANCHOR
- JUNCTION BOX
- PV POWER VAULT
- POWER TRANSFORMER
- TPED TELEPHONE PEDESTAL / VAULT
- T TELEPHONE MANHOLE
- S SANITARY SEWER MANHOLE
- CATCH BASIN
- GV GAS VALVE
- GAS METER
- SIGN
- MAILBOX
- GRAVEL
- CONCRETE (WALKS, SLABS, CURB)
- UTILITY PAINT MARK

BUFFER AVERAGING:

BUFFER ADDITION: 3,354 SF
BUFFER REDUCTION: (2,625 SF)
NET BUFFER: 729 SF



GRAPHIC SCALE

30 0 30 60
SCALE: 1" = 30'



VICINITY MAP
N.T.S.

OWNER/APPLICANT:
ROBINETT INVESTMENT COMPANY
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CONTACT: GINGER AMUNDSON

PLANNER\CONTACT:
LAND RESOLUTIONS
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SURVEYOR:
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LANDSCAPE ARCHITECT:
PAUL JAY LANDSCAPE ARCHITECT
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PAULJAYLA@GMAIL.COM

ENGINEER:
OMEGA ENGINEERING
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WETLAND ECOLOGIST:
WETLAND RESOURCES, INC
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(425) 337-3174
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOT 1 AND LOT 2, CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

PROJECT INFORMATION

SITE ADDRESS:	6114 83RD AVENUE NE MARYSVILLE, WASHINGTON 98270	
TAX NUMBER:	300526-004-037-00 AND 300526-004-043-00	
PROPOSED LAND USE	HIGH DENSITY SINGLE FAMILY RESIDENTIAL	
EXISTING ZONING:	R 6.5	
SEWAGE DISPOSAL	CITY OF MARYSVILLE SEWER DEPARTMENT	
WATER SUPPLY	CITY OF MARYSVILLE WATER DEPARTMENT	
SCHOOL DISTRICT	MARYSVILLE SCHOOL DISTRICT NO. 25	
FIRE DISTRICT	MARYSVILLE FIRE DISTRICT	
AVERAGE LOT SIZE	4,651 SF	0.11 ACRES
SMALLEST LOT SIZE	4,004 SF	0.09 ACRES

CITY OF MARYSVILLE DENSITY CALCULATION:

TOTAL SITE AREA	174,580 SF	4.01 ACRES
MINUS FLOOD PLAINS	0 SF	0.00 ACRES
MINUS UTILITY EASEMENTS OVER 30'	0 SF	0.00 ACRES
MINUS PUBLIC OWNED FACILITY & R.O.W.	27,517 SF	0.63 ACRES
MINUS STORM WATER DETENTION TRACTS OR EASEMENTS	18,177 SF	0.42 ACRES
MINUS ACCESS EASEMENTS	1,045 SF	0.12 ACRES
MINUS CRITICAL AREAS UNDER WATER	0 SF	0.00 ACRES
MINUS PANHANDLES	2,002 SF	0.05 ACRES
NET SITE AREA	123,839 SF	2.84 ACRES

SFR UNITS = 2.84 X 8 = 22.74
TOTAL = 23 UNITS MAXIMUM
WE ARE PROPOSING 23 UNITS WITH THIS APPLICATION.

PROJECT NOTES:

1) ONSITE DENSITY PROVISIONS PER MMC 22.E.010.360 ARE PROPOSED WITH THIS APPLICATION DUE TO CRITICAL AREAS ON SITE.
2) NEAREST FIRE HYDRANT IS LOCATED APPROXIMATELY 230' NORTH OF THE SOUTHEAST CORNER OF THE SITE ON THE WEST SIDE OF 83RD AVENUE NE, ALONG SITE FRONTAGE.
3) 10' UTILITIES EASEMENT ABUTTING ROAD FRONTAGE ON ALL LOTS AND TRACTS AT TIME OF RECORDING.
4) ALL LOT AREAS ARE GROSS AREAS UNLESS OTHERWISE NOTED.
5) PROJECT SHALL BE CONSTRUCTED IN ONE PHASE.
6) HOUSE AND DRIVEWAY LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS WITHIN PERMITTED BUILDING SETBACKS TO BE DETERMINED AT TIME OF BUILDING PERMIT.
7) ALL EXISTING STRUCTURES TO BE REMOVED.
8) FRONT BUILDING SETBACK 10' FACE OF BUILDING, 20' TO GARAGE.

EQUIPMENT & PROCEDURES

INSTRUMENTATION: LEICA TCRM1205 TOTAL STATION AND STONEX S900 GNSS

METHOD OF SURVEY: COMBINED FIELD TRAVERSE AND GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) OBSERVATION

PRECISION: MEETS OR EXCEEDS W.A.C. 332-130-090 REQUIREMENTS.

BASIS OF BEARING: THE EAST LINE OF THE SOUTHEAST 1/4, AS THE BEARING OF N 01°14'11" E, PER RECORD OF SURVEY, RECORDED UNDER A.F. NO. 9012075006. ROTATED TO (GNSS) OBSERVATIONS BEING N 0°06'51" W.

REFERENCES: RECORD OF SURVEY, A.F. NO. 9012075006

VERTICAL DATUM: NAVD 88, AS OBTAINED BY (GNSS) OBSERVATION. (CONVERSION TO NGVD29 - 3.734)

TBM - TEMPORARY BENCH MARK: MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

NOTES

1) THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT, AND DOES NOT PURPORT TO SHOW ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND/OR OCCUPATION WHICH MAY ENCUMBER TITLE TO OR USE THIS PROPERTY.
2) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT THE EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.
3) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

ARCHEOLOGICAL NOTE:

IF AT ANY TIME DURING CONSTRUCTION ARCHEOLOGICAL RESOURCES ARE OBSERVED ON THE PROJECT SITE, WORK SHALL BE TEMPORARILY SUSPENDED AT THE LOCATION OF DISCOVERY AND A PROFESSIONAL ARCHAEOLOGIST SHOULD DOCUMENT AND ASSESS THE DISCOVERY. THE DEPARTMENT OF ARCHEOLOGY AND HISTORIC PRESERVATION (DAHP) AND ALL CONCERNED TRIBES MUST BE CONTACTED FOR ANY ISSUES INVOLVING NATIVE AMERICAN SITES. IF PROJECT ACTIVITIES EXPOSE HUMAN REMAINS, EITHER IN THE FORM OF BURIALS OR ISOLATED BONES OR TEETH, OR OTHER MORTUARY ITEMS, WORK IN THAT AREA MUST BE STOPPED IMMEDIATELY. LOCAL LAW ENFORCEMENT, DAHP, AND AFFECTED TRIBES MUST BE IMMEDIATELY CONTACTED. NO ADDITIONAL EXCAVATION MAY BE UNDERTAKEN UNTIL A PROCESS HAS BEEN AGREED UPON BY THESE PARTIES, AND NO EXPOSED HUMAN REMAINS MAY BE LEFT UNATTENDED.

Joanne M Swanson
Digitally Signed by Joanne M Swanson
Date: 2024.01.02 10:10:22 -08'00'

ORCA Land Surveying
3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
3605 Colby Avenue :: Everett, WA 98201
tele (425) 258-4438 :: fax (425) 258-1616

PRELIMINARY PLAT MAP OF CHAPEL HILL
CITY FILE NO.

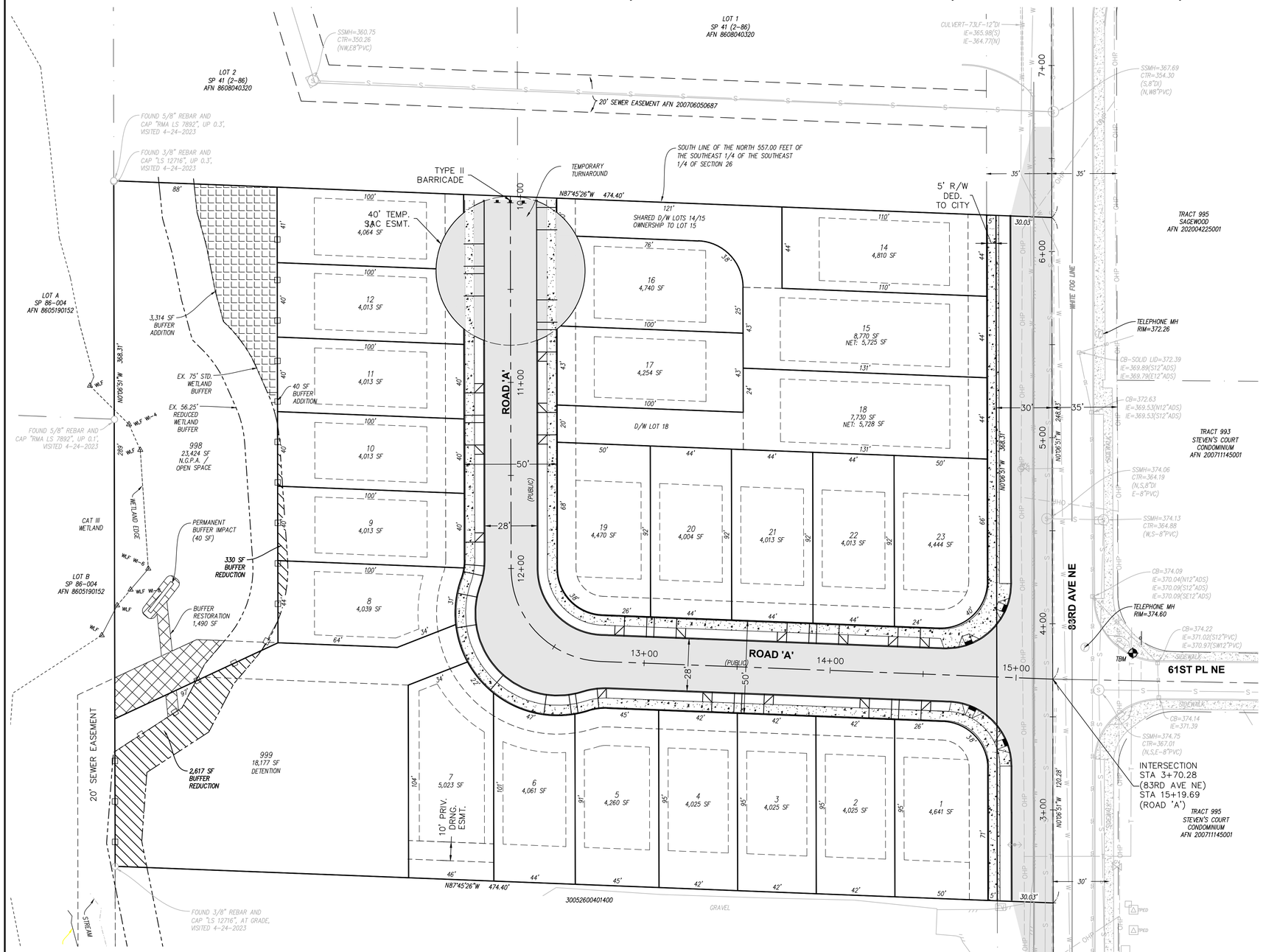
IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M. & CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

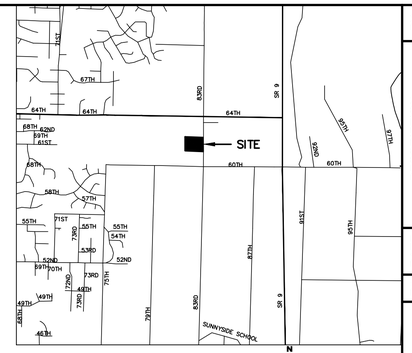
SHEET 1 OF 1

PROJECT: 2023-017 | DWG BY: JLH | DATE: 11/29/2023 | REV:

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.





VICINITY MAP

SCALE: 1" = 2,000'

PROJECT DESIGN TEAM

SURVEYOR
ORCA LAND SURVEYING
JOANNE M. SWANSON, PLS
3605 COLBY AVE
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425.259.3400

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CONTACT: GINGER AMUNDSON

PLANNER/CONTACT
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OWNER
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MARYSVILLE, WA 98270

CIVIL ENGINEER
OMEGA ENGINEERING, INC.
JOSEPH SMEBY, PE
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WETLAND ECOLOGIST:
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EMAIL:
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOTS 1 & 2 OF CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER AUDITOR'S FILE NUMBER 9104180195, RECORDS OF SNOHOIMSH COUNTY, WASHINGTON.

EXCEPT THAT PORTION IF ANY LYING WITH DEED TO STATE OF WASHINGTON, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

DATUM NAVD 88 (CONVERSION TO NGVD29 – 3.734)

TEMP. BENCHMARK
MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK
AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

SITE DATA

SITE ADDRESS:	6114 83RD AVE NE, MARYSVILLE, WA 98270
TAX ACCOUNT NO.:	30052600403700
ZONING:	R 6.5
WATER SUPPLY:	CITY OF MARYSVILLE
SEWAGE DISPOSAL:	CITY OF MARYSVILLE
FIRE DISTRICT:	MARYSVILLE FIRE DISTRICT
GROSS SITE AREA:	4.01 ACRES (174,580 SF)

DRAWING INDEX

1) PROJECT COVER SHEET
2) EXISTING CONDITIONS
3) SWPPP
4) FRONTAGE PLAN & PROFILE
5) GRADING PLAN
6) DRAINAGE PLAN
7) ROAD 'A' PROFILE
8) POND DETAIL
9) SEWER & WATER PLAN
10) NOTES

ARCHEOLOGICAL NOTE:

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BUILDING SETBACKS:

FRONT: 20'
STREET: 10'
REAR YARD: 20'
SIDE YARD: 5'
CORNER LOT: 10'

Know what's below.
Call two business days before you dig.

PFN:

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

N

0 30 60
HORIZONTAL SCALE

R#	DATE	DESCRIPTION	BY

JOSEPH M. SMEBY — 20 — EXPIRES 11/20/2023 — PROFESSIONAL ENGINEER — STATE OF WASHINGTON

11/20/2023

COVER SHEET

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

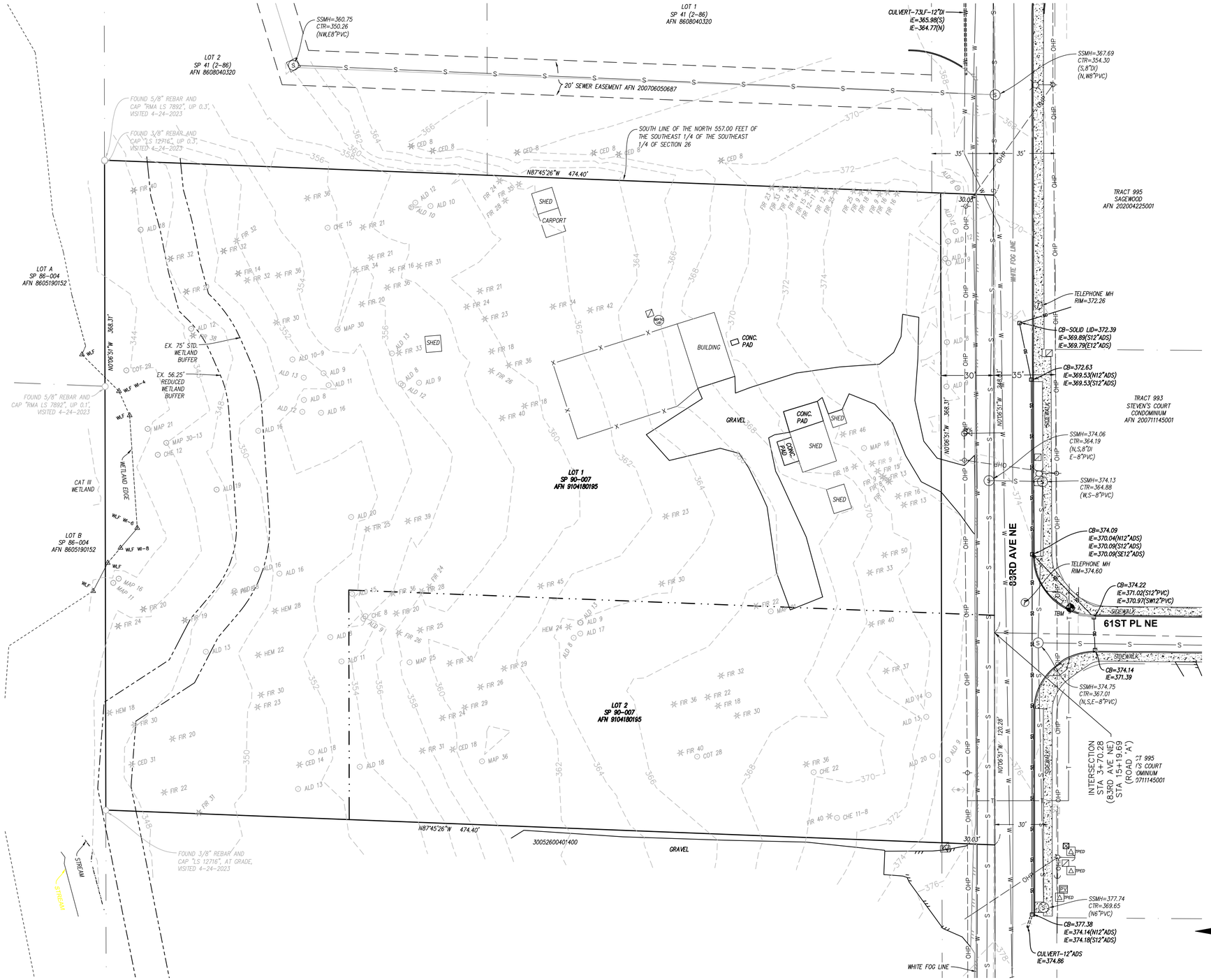
CHAPEL HILL

CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	23-0436
DSN. BY:	JMS
DATE:	11/20/2023
SCALE:	1" = 30'
DRAWING NO.	1 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



PFN:

Know what's below.
Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — STATE OF WASHINGTON
11/20/2023

EXISTING CONDITIONS

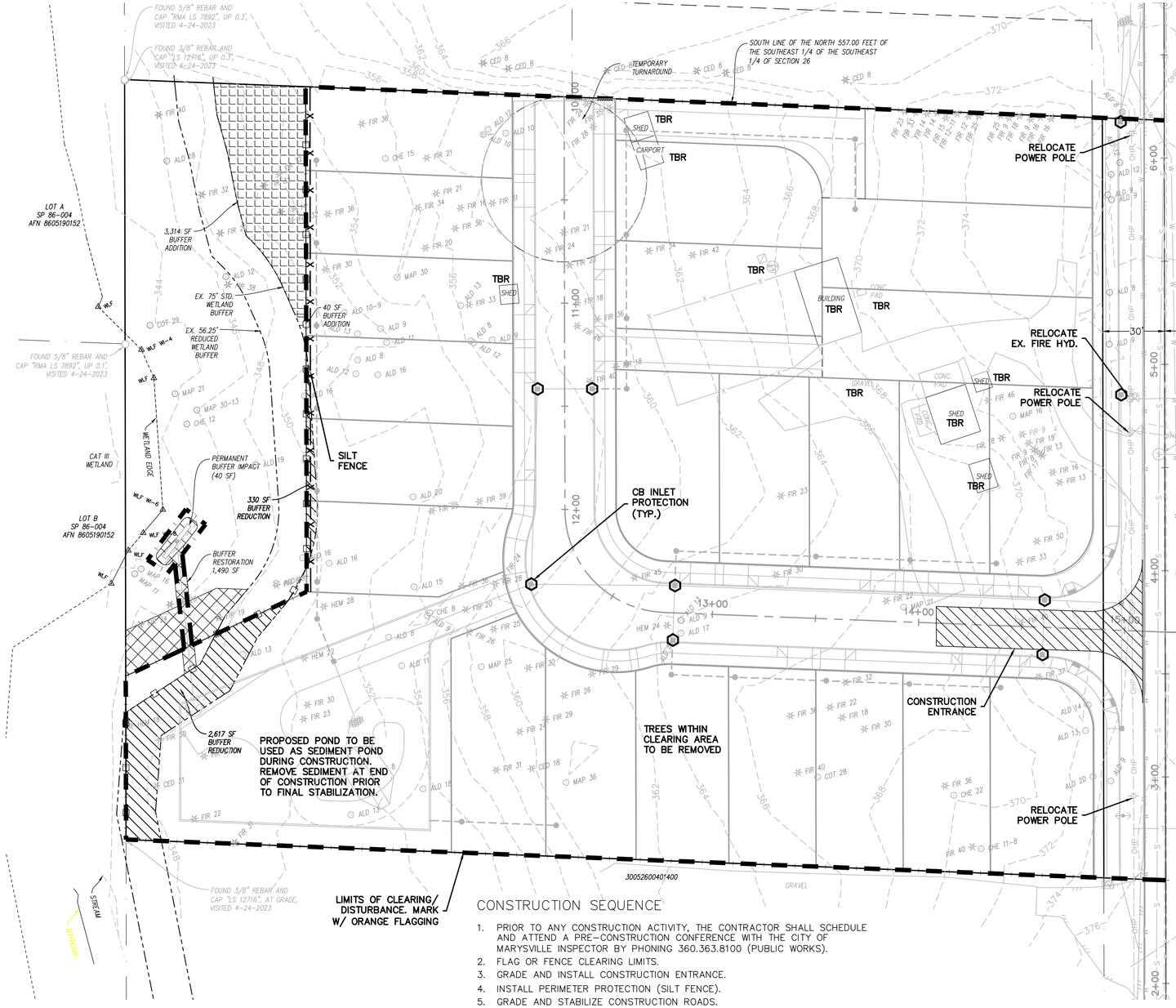
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f 425.259.1958

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	11/20/2023
SCALE:	1" = 30'
DRAWING NO.	2 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



GRADING, EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL LIMITS OF CLEARING AND AREAS OF VEGETATION PRESERVATION AS PRESCRIBED ON THE PLANS SHALL BE CLEARLY FLAGGED IN THE FIELD AND OBSERVED DURING CONSTRUCTION.
2. ALL REQUIRED SEDIMENTATION AND EROSION CONTROL FACILITIES MUST BE CONSTRUCTED AND IN OPERATION PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE NATURAL DRAINAGE SYSTEM. THE CONTRACTOR SHALL SCHEDULE AN INSPECTION OF THE EROSION CONTROL FACILITIES PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION. ALL EROSION AND SEDIMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION AS DETERMINED BY THE CITY, UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND FINAL STABILIZATION HAS OCCURRED. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT, AND ADDITIONS TO THE EROSION AND SEDIMENTATION CONTROL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.
3. THE EROSION AND SEDIMENTATION CONTROL SYSTEM FACILITIES DEPICTED ON THESE PLANS ARE INTENDED TO BE MINIMUM REQUIREMENTS TO MEET ANTICIPATED SITE CONDITIONS. AS CONSTRUCTION PROGRESSES AND UNEXPECTED OR SEASONAL CONDITIONS DICTATE, FACILITIES WILL BE NECESSARY TO ENSURE COMPLETE SILTATION CONTROL ON THE SITE. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE PERMITTEE TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE THE MINIMUM REQUIREMENTS, AS MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES, AND/OR STORM DRAINAGE SYSTEMS.
4. APPROVAL OF THESE PLANS IS FOR GRADING, TEMPORARY DRAINAGE, EROSION AND SEDIMENTATION CONTROL ONLY. IT DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT STORM DRAINAGE DESIGN, SIZE OR LOCATION OF PIPES, RESTRICTORS, CHANNELS, OR RETENTION FACILITIES.
5. ANY DISTURBED AREA WHICH HAS BEEN STRIPPED OF VEGETATION AND WHERE NO FURTHER WORK IS ANTICIPATED FOR THE TIME PERIOD SET FORTH BY THE SWPPP, MUST BE IMMEDIATELY STABILIZED WITH MULCHING, GRASS PLANTING, OR OTHER APPROVED EROSION CONTROL TREATMENT APPLICABLE TO THE TIME OF YEAR IN QUESTION. DURING THE DRY SEASON (MAY 1 – SEPTEMBER 30) SOILS MAY BE EXPOSED AND UNWORKED FOR 7 DAYS. DURING THE WET SEASON (OCTOBER 1 – APRIL 30) SOILS MAY BE EXPOSED AND UNWORKED FOR 2 DAYS. GRASS SEEDING ALONE WILL BE ACCEPTABLE ONLY DURING THE DRY SEASON. SEEDING MAY PROCEED OUTSIDE THE SPECIFIED TIME PERIOD WHENEVER IT IS IN THE INTEREST OF THE PERMITTEE BUT MUST BE AUGMENTED WITH MULCHING, NETTING, OR OTHER TREATMENT APPROVED BY THE CITY.
6. IN CASE EROSION OR SEDIMENTATION OCCURS TO ADJACENT PROPERTIES, ALL CONSTRUCTION WORK WITHIN THE DEVELOPMENT THAT WILL FURTHER AGGRAVATE THE SITUATION MUST CEASE, AND THE OWNER/CONTRACTOR WILL IMMEDIATELY COMMENCE RESTORATION METHODS. RESTORATION ACTIVITY WILL CONTINUE UNTIL SUCH TIME AS THE AFFECTED PROPERTY OWNER IS SATISFIED.
7. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED BY TEMPORARY SEEDING AND MULCHING. HYDROSEEDING IS PREFERRED. NO TEMPORARY OR PERMANENT STOCKPILING OF MATERIALS OR EQUIPMENT SHALL OCCUR WITHIN CRITICAL AREAS OR ASSOCIATED BUFFERS, OR THE CRITICAL ROOT ZONE FOR VEGETATION PROPOSED FOR RETENTION.
8. NON COMPLIANCE WITH THE REQUIREMENTS FOR EROSION CONTROLS, WATER QUALITY, AND CLEARING LIMITS MAY RESULT IN REVOCATION OF PROJECT PERMIT, PLAN APPROVAL, AND BOND FORECLOSURES.
9. ALL EARTH WORK SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARDS. PRECONSTRUCTION SOILS INVESTIGATION MAY BE REQUIRED TO EVALUATE SOILS STABILITY.
10. IF CUT AND FILL SLOPES EXCEED A MAXIMUM OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL, A ROCK OR CONCRETE RETAINING WALL MAY BE REQUIRED. ALL ROCK RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT ARE TO BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER EXPERIENCED IN SOIL MECHANICS.
11. THE SURFACE OF ALL SLOPES SHALL BE COMPACTED. THIS MAY BE ACCOMPLISHED BY OVER-BUILDING THE SLOPES, THEN CUTTING BACK TO FINAL GRADES; OR BY COMPACTING EACH LIFT AS THE SLOPE IS BEING CONSTRUCTED. ALL SLOPES SHALL BE COMPACTED BY THE END OF EACH WORKING DAY.
12. UPON COMPLETION OF WORK, FINAL REPORTS MUST BE SUBMITTED TO THE CITY IN CONFORMANCE WITH THE CURRENT CITY ADOPTED INTERNATIONAL BUILDING CODE.

CONSTRUCTION SEQUENCE

1. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF MARYSVILLE INSPECTOR BY PHONING 360.363.8100 (PUBLIC WORKS).
2. FLAG OR FENCE CLEARING LIMITS.
3. GRADE AND INSTALL CONSTRUCTION ENTRANCE.
4. INSTALL PERIMETER PROTECTION (SILT FENCE).
5. GRADE AND STABILIZE CONSTRUCTION ROADS.
6. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF MARYSVILLE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
7. RELOCATE SURFACE WATER CONTROLS OR EROSION CONTROL MEASURES, OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH CITY OF MARYSVILLE EROSION AND SEDIMENT CONTROL STANDARDS.
8. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR EQUIVALENT.
9. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE.
10. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
11. UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMP'S IF APPROPRIATE.
12. REMOVE ALL ACCUMULATED SEDIMENT FROM CONVEYANCE SYSTEM AND FINAL PONDS AND PREPARE FOR FINAL USE AS DETENTION/WET PONDS.

CONSTRUCTION ENTRANCE NOTE:
VACUUM SWEEPER TO BE ON-SITE DURING IMPORT AND EXPORT OF DIRT, GRAVEL AND OTHER MATERIALS.

TOPSOIL/STOCK PILE NOTE:
ALL MATERIAL GENERATED ON-SITE WILL BE STOCKPILED IN AREAS SHOWN AND ALL IMPORT MATERIAL WILL BE PLACED DAILY.

ALL STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING AT THE END OF EACH DAY. BMP C123

CLEARING/DISTURBANCE AREA NOTE:
SILT FENCE SHALL BE INSTALLED AS NEEDED TO PROTECT ADJACENT PROPERTIES AND ENSURE SEDIMENT LADEN RUNOFF DOES NOT LEAVE THE SITE OR ENTER ON-SITE CRITICAL AREAS.

LEGEND

- CLEARING LIMITS
- SILT FENCE
- CATCH BASIN (CB) INLET PROTECTION
- CONSTRUCTION ENTRANCE

GRADING QUANTITIES:

CUT = 4,000 C.Y.
FILL = 4,000 C.Y.

GRADING QUANTITIES CALCULATED USING AUTOCAD GRID SUBTRACTION METHOD COMPARING EXISTING GRADE TO FINISHED GRADE.

N

0 30 60
HORIZONTAL SCALE

PFN:

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

811 Know what's below. Call two business days before you dig.

R#	DATE	DESCRIPTION	BY

JOSEPH M. SWARTS — PROFESSIONAL ENGINEER — 11/20/2023

SWPPP

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS

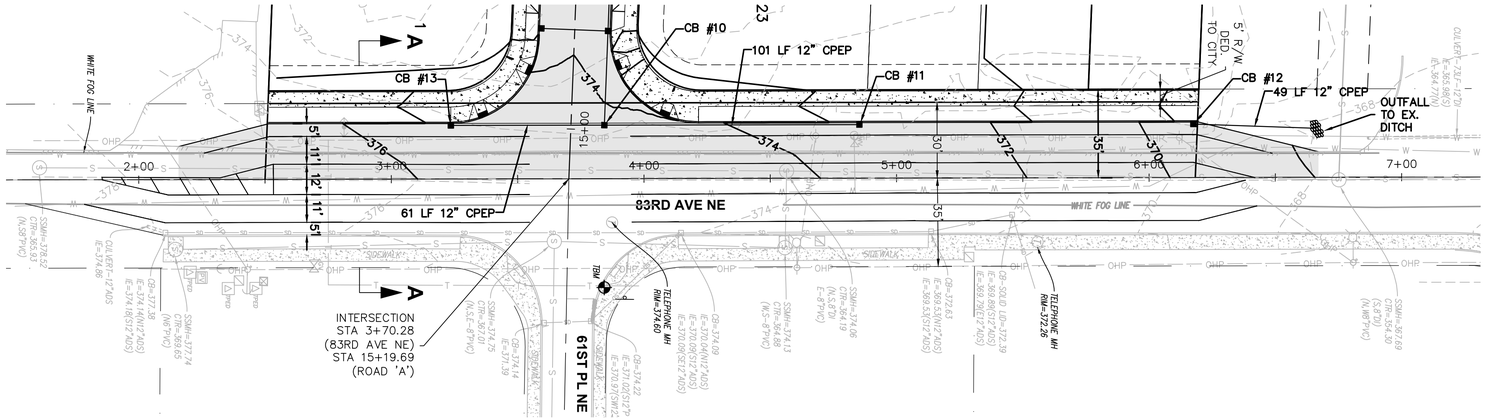
DATE: 11/20/2023

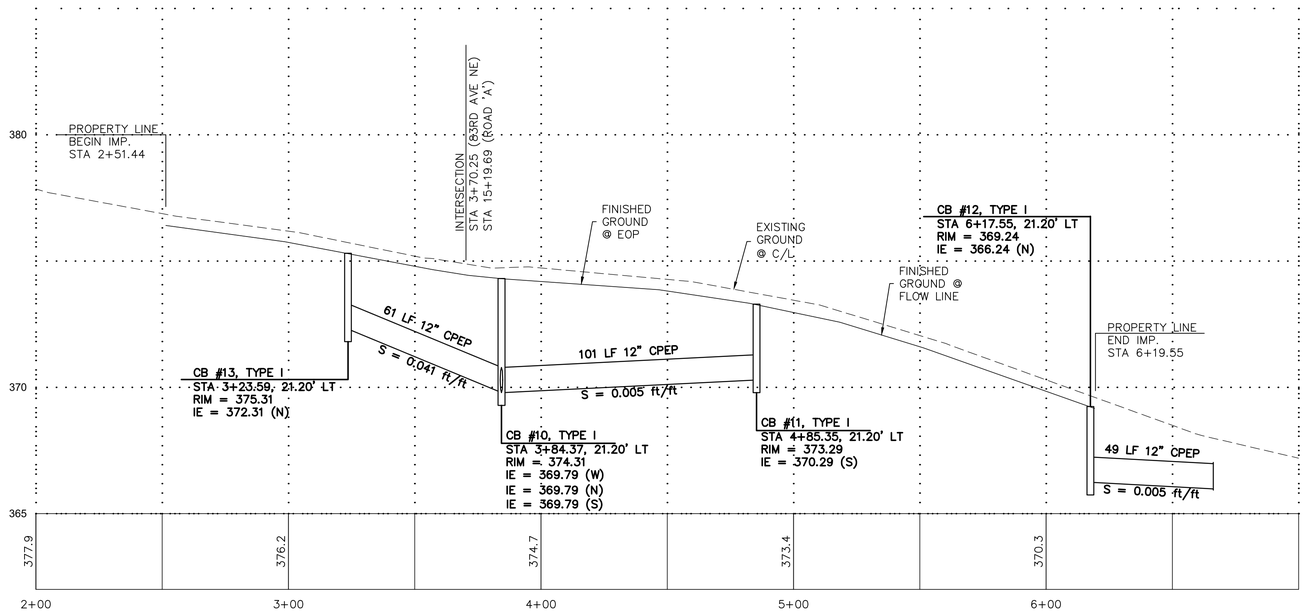
SCALE: 1" = 30'

DRAWING NO. 3 OF 10

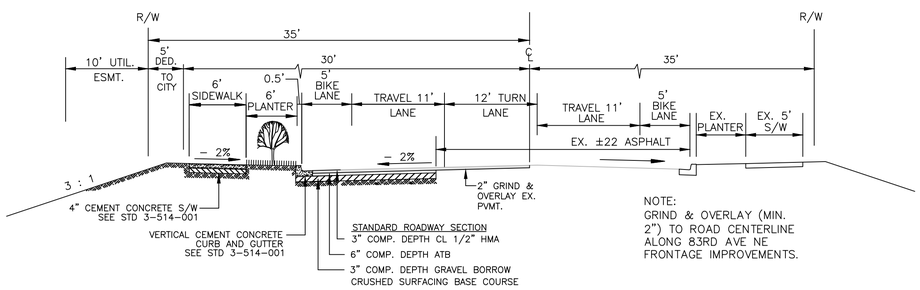
CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.





83RD AVE NE CENTERLINE PROFILE

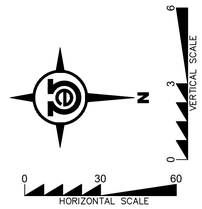


SECTION A-A
83RD AVE NE
COM STD. PLAN 3–201–004

NOTE:
GRIND & OVERLAY (MIN. 2") TO ROAD CENTERLINE ALONG 83RD AVE NE FRONTAGE IMPROVEMENTS.

Know what's below. Call two business days before you dig.

PFN:



CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON
11/20/2023

FRONTAGE IMP.
83RD AVE NE
PLAN & PROFILE

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

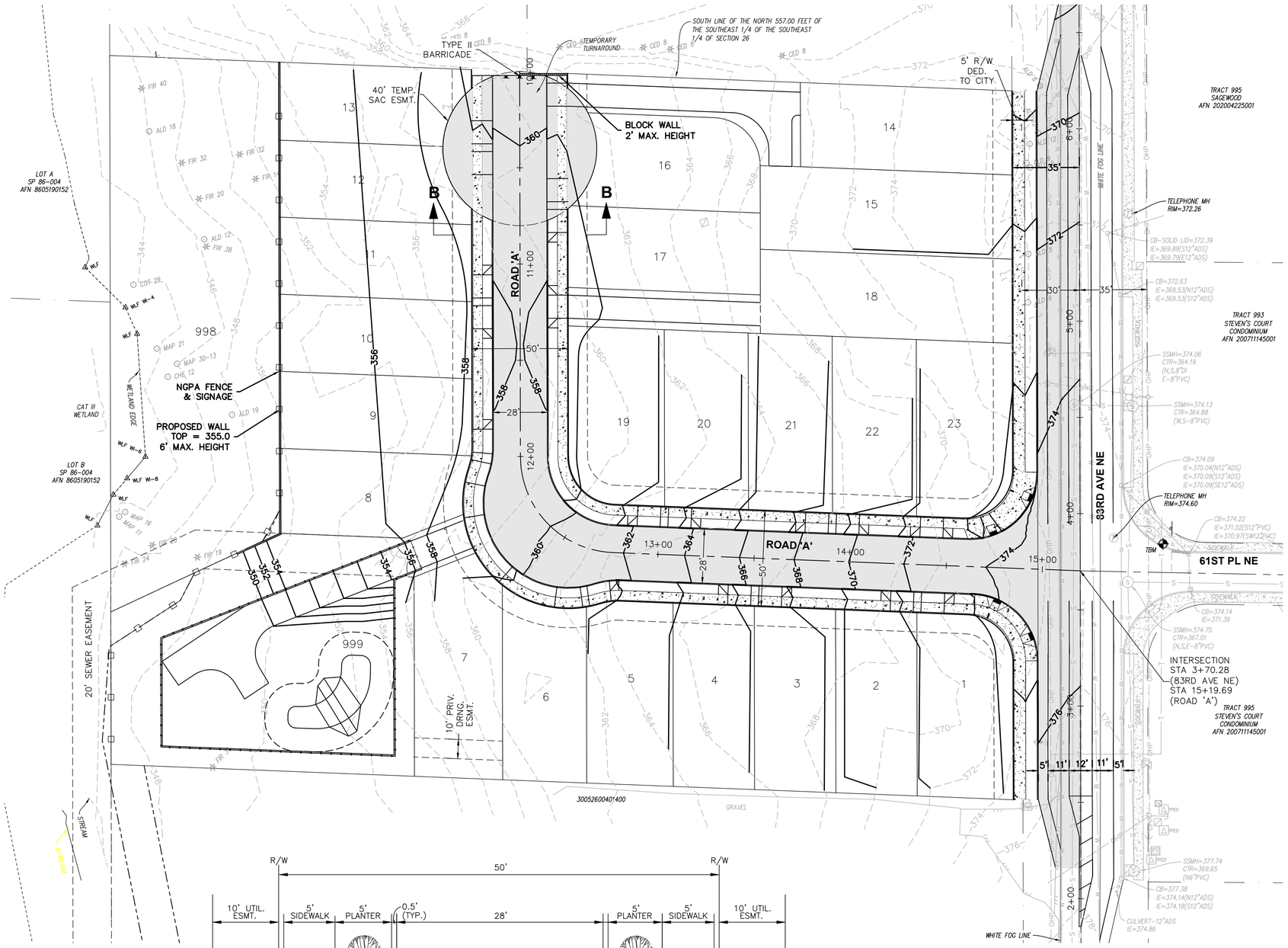
OMEGA ENGINEERING, INC.

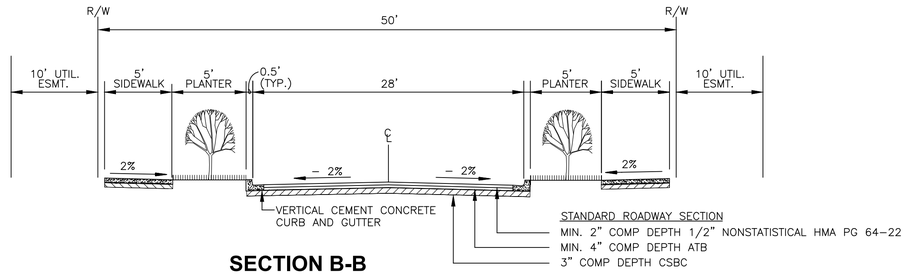
CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	
11/20/2023	
SCALE:	
1" = 30'	
DRAWING NO.	
4 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.





SECTION B-B
ROAD 'A'
LOCAL ACCESS STREET
COM STD. PLAN 3-202-002
N.T.S.

N

0 30 60
HORIZONTAL SCALE

Know what's below. Call two business days before you dig.

PFN:

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

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R#	DATE	DESCRIPTION	BY

JOSEPH MARK MCINTYRE — REGISTERED PROFESSIONAL ENGINEER — 11/20/2023

ROAD & GRADING

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958
OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS

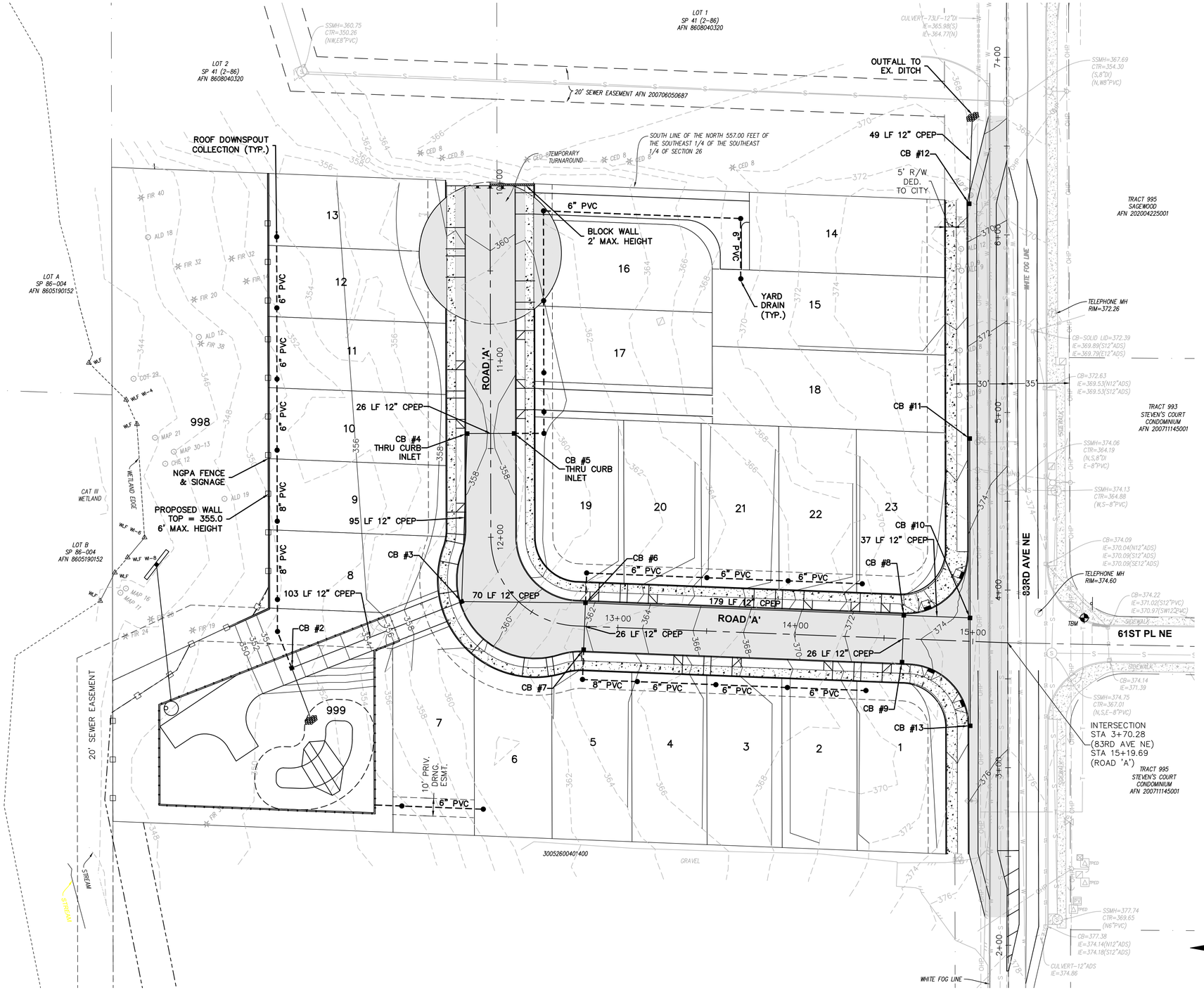
DATE: 11/20/2023

SCALE: 1" = 30'

DRAWING NO. 5 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



PFN:

811 Know what's below. Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — 11/20/2023

DRAINAGE PLAN

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

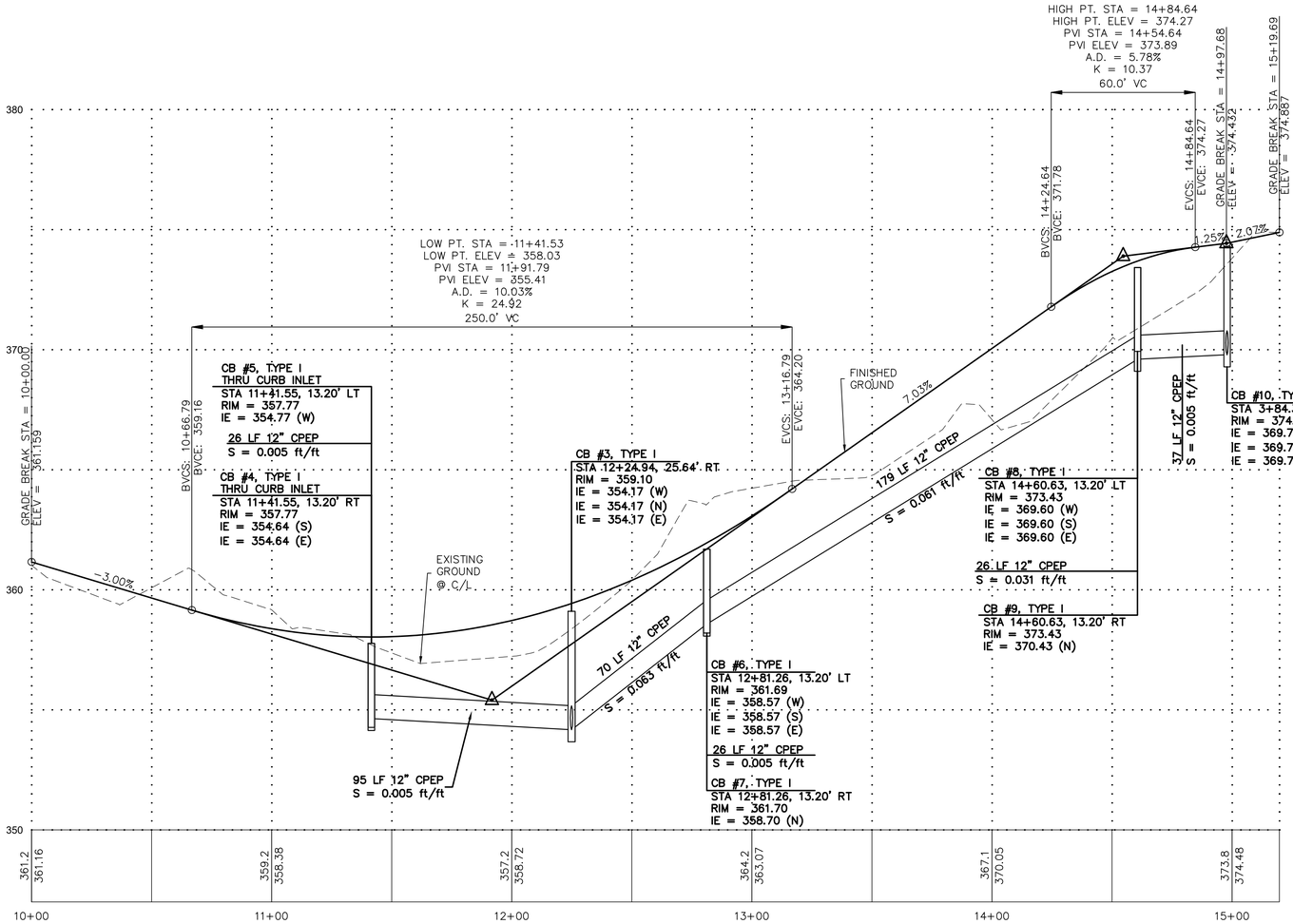
OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 11/20/2023	
SCALE: 1" = 30'	
DRAWING NO. 6 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



ROAD 'A' CENTERLINE PROFILE

0 30 60
HORIZONTAL SCALE

0 3 6
VERTICAL SCALE

Know what's below.
Call two business
days before you dig.

PFN:

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ROMS — PROFESSIONAL ENGINEER
11/20/2023

ROAD 'A' PROFILE

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL

CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP
30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS

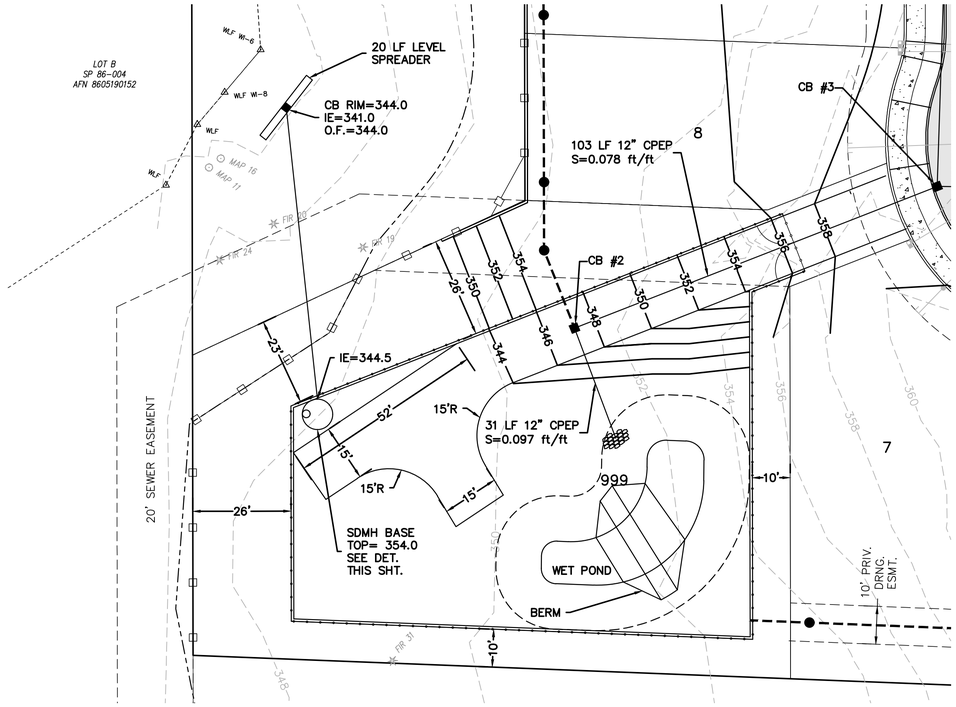
DATE: 11/20/2023

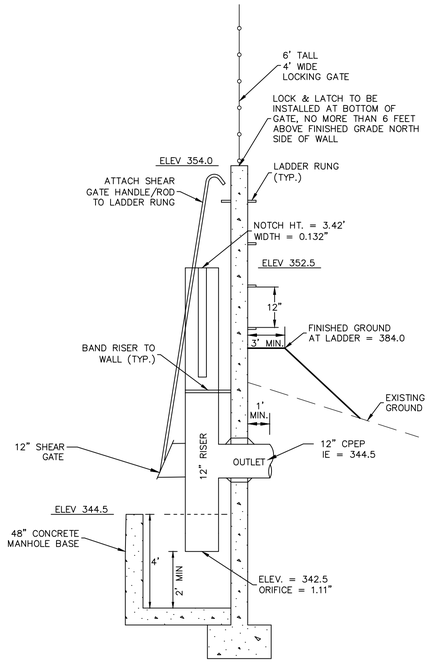
SCALE: 1" = 30'

DRAWING NO. 7 OF 10

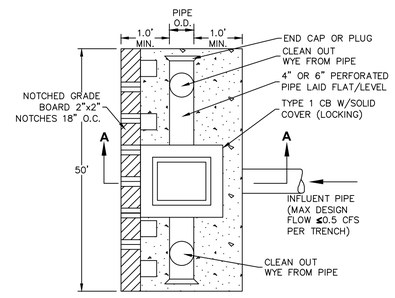
CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.

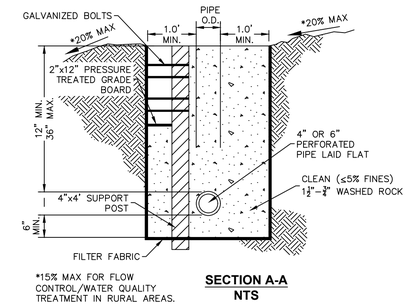




SDMH BASE/WALL SECTION
NOT TO SCALE

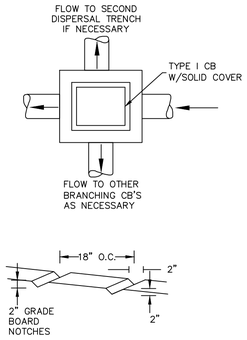


PLAN
NTS



*15% MAX FOR FLOW CONTROL/WATER QUALITY TREATMENT IN RURAL AREAS.

SECTION A-A
NTS



NOTES:

1. THIS TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE AND/OR EROSION.
2. TRENCHES MAY BE PLACED NO CLOSER THAN 50 FEET TO ONE ANOTHER. (100 FEET ALONG FLOWLINE)
3. TRENCH AND GRADE BOARD MUST BE LEVEL. ALIGN TO FOLLOW CONTOURS OF SITE.
4. SUPPORT POST SPACING AS REQUIRED BY SOIL CONDITIONS TO ENSURE GRADE BOARD REMAINS LEVEL.

DISPERSION TRENCH WITH NOTCHED GRADE BOARD
NOT TO SCALE

DETENTION PERFORMANCE CHART							
STORM EVENT	VOLUME STORAGE REQ. (CU FT)				MAXIMUM RELEASE RATES		
	DEAD	LIVE	DESIGNED	AS-BUILT	RATE	DESIGNED	AS-BUILT
2 YR	5,000	30,280	32,000	.	0.130	0.066	.
50 YR	.	48,875	50,000	.	0.440	0.172	.

DESIGN IMPERVIOUS AREA PER LOT = 65%
ROADS & ACCESS TRACTS AS SHOWN

N

0 20 40
HORIZONTAL SCALE

PFN:

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Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER DATE

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER
11/20/2023

DETENTION POND DETAIL

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 11/20/2023	
SCALE: 1" = 20'	
DRAWING NO. 8 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



Know what's below. Call two business days before you dig.

PFN:

N

0 30 60
HORIZONTAL SCALE

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — STATE OF WASHINGTON

11/20/2023

SEWER & WATER PLAN

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	11/20/2023
SCALE:	1" = 30'
DRAWING NO.	9 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.

GENERAL PLAN NOTES

1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF MARYSVILLE. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE DEVELOPMENT SERVICES CENTER TO BE ATTENDED BY ALL CONTRACTORS THAT WILL PERFORM WORK SHOWN ON THE APPROVED ENGINEERING PLANS, REPRESENTATIVES FROM ALL APPLICABLE UTILITY COMPANIES, THE PROJECT OWNER AND APPROPRIATE CITY STAFF. CONTACT DEVELOPMENT SERVICES AT (360-363-8100) TO SCHEDULE THE MEETING. THE CONTRACTOR IS RESPONSIBLE TO HAVE THEIR OWN SET OF APPROVED PLANS AT THE MEETING.

2. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT THE CONTRACTOR SHALL OBTAIN A "PUNCH LIST" PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER, SANITARY SEWER AND STORM SYSTEMS.

3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (HEREINAFTER REFERRED TO AS THE "STANDARD SPECIFICATIONS"), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER, LATEST EDITION, UNLESS SUPERSEDED OR AMENDED BY THE CITY OF MARYSVILLE CITY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (HEREINAFTER REFERRED TO AS THE "CITY STANDARDS").

4. ALL WORK WITHIN THE DEVELOPMENT AND CITY RIGHT-OF-WAY SHALL BE SUBJECT TO THE INSPECTION OF THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE.

5. PRIOR TO ANY SITE CONSTRUCTION INCLUDING CLEARING/LOGGING OR GRADING, THE SITE CLEARING LIMITS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR (OR PROJECT ENGINEER) AS REQUIRED BY THESE PLANS. THE PROJECT SURVEYOR'S NAME AND PHONE NUMBER IS **ORCA LAND SURVEYING 425.259.3400**.

6. THE DEVELOPER, CONTRACTOR AND PROJECT ENGINEER IS RESPONSIBLE FOR WATER QUALITY AS DETERMINED BY THE MONITORING PROGRAM ESTABLISHED BY THE PROJECT ENGINEER. THE PROJECT ENGINEER'S NAME AND PHONE NUMBER IS **OMEGA ENGINEERING, INC. 425.903.4852**.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS FOR UTILITY, ROAD, AND RIGHT-OF-WAY CONSTRUCTION. THE CONTRACTOR FOR THIS PROJECT IS_____, CONTACT PERSON IS_____, PHONE___ , MOBILE PHONE_____, EMERGENCY PHONE _____.

8. THE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP) BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED SWPPP PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND FINAL STABILIZATION HAS OCCURRED. SEDIMENT LADEN WATERS SHALL NOT ENTER THE CITY STORMWATER DRAINAGE SYSTEM OR A NATURAL DRAINAGE SYSTEM.

9. THE CONTRACTOR SHALL KEEP TWO SETS OF PLANS ON SITE AT ALL TIMES FOR RECORDING RECORD DRAWING INFORMATION; ONE SET SHALL BE SUBMITTED TO THE PROJECT ENGINEER, AND ONE SET SHALL BE SUBMITTED TO THE CITY ENGINEER AT COMPLETION OF CONSTRUCTION AND PRIOR TO FINAL ACCEPTANCE OF WORK.

10. PRIOR TO CONSTRUCTION THE OWNER AND/OR CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE CITY ENGINEER WHEN CONFLICTS EXIST BETWEEN THE PLANS AND FIELD CONDITIONS. CONFLICTS SHALL BE RESOLVED (INCLUDING PLAN AND PROFILE REVISIONS) AND RESUBMITTED FOR APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.

11. ANY REVISIONS MADE TO THESE PLANS, OR CHANGES TO THE DESIGN MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE CITY PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS.

12. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (811) AT LEAST TWO WORKING DAYS IN ADVANCE. PRIOR TO CONSTRUCTION THE OWNER AND/OR CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE CITY ENGINEER WHEN CONFLICTS EXIST BETWEEN THE PLANS AND FIELD CONDITIONS. CONFLICTS SHALL BE RESOLVED (INCLUDING PLAN AND PROFILE REVISIONS) AND RESUBMITTED FOR APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.

13. CITY OF MARYSVILLE HORIZONTAL DATUM SHALL BE NAD 83, AND THE VERTICAL DATUM SHALL BE NAVD 88, IN WASHINGTON STATE PLANE COORDINATES (FEET), WASHINGTON NORTH ZONE 4601. A LIST OF BENCHMARKS IS AVAILABLE THROUGH THE PUBLIC WORKS DEPARTMENT.

14. TEMPORARY STREET PATCHING SHALL BE ALLOWED FOR AS APPROVED BY THE CITY ENGINEER. TEMPORARY STREET PATCHING SHALL BE PROVIDED BY PLACEMENT AND COMPACTION OF ATB OR CLASS B ASPHALT CONCRETE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AS REQUIRED.

15. PROVIDE TRAFFIC CONTROL PLAN(S) IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS REQUIRED.

16. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THESE APPROVED PLANS ON CONSTRUCTION SITE AT ALL TIMES.

17. ANY STRUCTURE AND/OR OBSTRUCTION THAT REQUIRES REMOVAL OR RELOCATION RELATING TO THIS PROJECT SHALL BE DONE SO AT THE DEVELOPER'S EXPENSE.

18. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE ELEVATIONS AND LOCATIONS OF HIDDEN UTILITIES. ALL VISIBLE ITEMS SHALL BE THE ENGINEER'S RESPONSIBILITY. LOCATION OF UTILITIES SHOWN ON CONSTRUCTION PLANS ARE BASED ON BEST RECORDS AVAILABLE AND ARE SUBJECT TO VARIATION. FOR ASSISTANCE IN UTILITY LOCATION, CALL 1-800-424- 5555.

19. THE CONTRACTOR SHALL INSTALL, REPLACE, OR RELOCATE ALL SIGNS, AS SHOWN ON THE PLANS OR AS AFFECTED BY CONSTRUCTION, PER CITY STANDARDS.

20. POWER, STREET LIGHT, CABLE, AND TELEPHONE LINES SHALL BE IN A TRENCH LOCATED WITHIN A 10-FOOT UTILITY EASEMENT ADJACENT TO PUBLIC RIGHT-OF-WAY. RIGHT-OF-WAY CROSSINGS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION FROM OTHER UTILITIES (SEWER, WATER, AND STORM) OF 5 FEET.

21. ALL CONSTRUCTION SURVEYING FOR EXTENSIONS OF PUBLIC FACILITIES SHALL BE DONE UNDER THE DIRECTION OF A WASHINGTON STATE LICENSED LAND SURVEYOR OR A WASHINGTON STATE LICENSED PROFESSIONAL CIVIL ENGINEER.

22. DURING CONSTRUCTION, ALL PUBLIC STREETS ADJACENT TO THIS PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM ON-SITE CONSTRUCTION, AND EXISTING STRUCTURES SHALL BE PROTECTED AS DIRECTED BY THE CITY.

23. CERTIFIED RECORD DRAWINGS ARE REQUIRED PRIOR TO PROJECT ACCEPTANCE.

24. A NPDES STORMWATER GENERAL PERMIT MAY BE REQUIRED BY THE DEPARTMENT OF ECOLOGY FOR THIS PROJECT. FOR INFORMATION VISIT THE DEPARTMENT OF ECOLOGY WEB SITE WWW.ECY.WA.GOV/PROGRAMS/WQ/STORMWATER/CONSTRUCTION/.

25. ANY DISTURBANCE OR DAMAGE TO CRITICAL AREAS AND ASSOCIATED BUFFERS, OR SIGNIFICANT TREES DESIGNATED FOR PRESERVATION AND PROTECTION SHALL BE MITIGATED IN ACCORDANCE WITH A MITIGATION PLAN REVIEWED AND APPROVED BY THE CITY'S PLANNING DIVISION. PREPARATION AND IMPLEMENTATION OF THE MITIGATION PLAN SHALL BE AT THE DEVELOPER'S EXPENSE.

26. A GRADING PERMIT ISSUED PURSUANT TO THE CURRENT ADOPTED INTERNATIONAL BUILDING CODE, AND APPROVAL OF THE TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE OBTAINED FROM THE COMMUNITY DEVELOPMENT DEPARTMENT PRIOR TO ANY ON-SITE GRADING WORK NOT EXPRESSLY EXEMPT BY THE CURRENT ADOPTED INTERNATIONAL BUILDING CODE.

27. PRIOR TO COMMENCEMENT OF FRAMING, FINAL DRAINAGE INSPECTION AND APPROVAL OF THE ROOF LEADER AND POSITIVE FOOTING SYSTEMS SHALL BE COMPLETED BY THE BUILDING DEPARTMENT. CALL 360-363-8100 TO SCHEDULE THE INSPECTION.

STORMWATER NOTES

1. DURING CONSTRUCTION, ALL EXISTING AND NEWLY INSTALLED DRAINAGE STRUCTURES SHALL BE PROTECTED FROM SEDIMENTS.
2. ALL STORM MANHOLES SHALL CONFORM TO CITY STANDARD DETAIL NO.4-08-009. FLOW CONTROL MANHOLE/OIL WATER SEPARATOR SHALL CONFORM TO CITY STANDARD DETAIL NO. 4-040-004.

3. MANHOLE RING AND COVER SHALL CONFORM TO CITY STANDARD DETAIL 4-08-009 AND 4-080-15 THRU 4-080-24. THE COVER SHALL BE MARKED WITH "STORM" OR "DRAIN" IN 2-INCH RAISED LETTERS. MINIMUM WEIGHT OF THE FRAME SHALL BE 210 POUNDS. MINIMUM WEIGHT OF THE COVER SHALL BE 150 POUNDS.

4. CATCH BASINS SHALL BY TYPE I UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE. TYPE I CATCH BASINS SHALL CONFORM TO CITY STANDARD DETAIL NO.4-080-007 AND 4- 080-008 AND SHALL BE USED ONLY FOR DEPTHS LESS THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.

5. CATCH BASINS TYPE II SHALL CONFORM TO CITY STANDARD DETAIL NO. 4-08-009 AND SHALL BE USED FOR DEPTHS GREATER THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.

6. CAST IRON OR DUCTILE IRON FRAME AND GRATE SHALL CONFORM TO CITY STANDARD DETAIL NO.4-080-022.

   GRATE SHALL BE MARKED WITH "DRAINS TO STREAM". SOLID CATCH BASIN LIDS (SQUARE UNLESS NOTED AS ROUND) SHALL CONFORM TO WSDOT STANDARD PLAN B-30.20-02 (OLYMPIC FOUNDRY NO. SM60, SM52, OR SM44 OR EQUAL). VANED GRATES SHALL BE REQUIRED ON ALL STORM STRUCTURES WHEN ROADWAY PROFILE IS GREATER THAN 3% AND SHALL CONFORM TO WSDOT STANDARD PLAN B-30.30-01 (OLYMPIC FOUNDRY NO. SM60V OR EQUAL). GRATES LOCATED IN THE GUTTER FLOW LINE SHALL BE DEPRESSED 0.1 FEET BELOW PAVEMENT LEVEL.

7. ALL CATCH BASINS AND MANHOLES LOCATED OUTSIDE OF PAVED AREAS, SHALL BE PLACED IN A SIX FOOT SQUARE BY FOUR INCH THICK CONCRETE PAD.

8. ALL CATCH BASINS AND MANHOLES SHALL HAVE LOCKING LIDS. ROLLED GRATES ARE NOT APPROVED FOR USE OUTSIDE OF THE CITY RIGHT-OF-WAY OR FOR USE WITH TYPE II MANHOLES.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL MANHOLE, INLET AND CATCH BASIN FRAMES AND GRATES TO GRADE JUST PRIOR TO CURB INSTALLATION AND/OR PAVING.

10. TRENCHING, BEDDING, AND BACKFILL FOR PIPE SHALL CONFORM TO CITY STANDARD DETAIL NO. 3-703-002 AND-003.

11. TRENCH BACKFILL OF NEW UTILITIES AND STORMWATER DRAINAGE SYSTEM FEATURES SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (MODIFIED PROCTOR) UNDER ROADWAYS AND 90% MAXIMUM DENSITY (MODIFIED PROCTOR) OFF ROADWAYS. COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH SECTIONS 7-08.3(3) AND 2-03.3(14)C – METHOD B AS DEFINED IN THE CURRENT EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. FOR PERMEABLE PAVEMENT AND OTHER STORMWATER BMP'S DESIGNED TO INFILTRATE SUBGRADE COMPACTION SHOULD BE "FIRM AND UNYIELDING" (QUALITATIVE), AND 90- 92% STANDARD PROCTOR (QUANTITATIVE). DO NOT ALLOW HEAVY COMPACTION DUE TO HEAVY EQUIPMENT OPERATION. THE SUBGRADE SHOULD NOT BE SUBJECT TO TRUCK TRAFFIC.

12. STORM PIPE SHALL BE A MINIMUM OF 10 FEET AWAY FROM BUILDING FOUNDATIONS AND/OR ROOF LINES.

13. AFTER ALL OTHER UTILITIES ARE INSTALLED AND PRIOR TO ASPHALT WORK, ALL STORM PIPE SHALL PASS A LOW PRESSURE AIR TEST IN ACCORDANCE WITH SECTION 7-04.3(1) E & F OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PIPE RUNS SHALL BE TESTED WITH [PIPE LOADED AND COMPACTED TO FINISH GRADE. PRODUCTS USED TO SEAL THE INSIDE OF THE PIPE ARE NOT TO BE USED TO OBTAIN THE AIR TEST.

14. ALL TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES, AND PROTECTIVE MEASURES FOR CRITICAL AREAS, PRESERVED NATIVE VEGETATION AND SIGNIFICANT TREES SHALL BE INSTALLED PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES.

15. STORMWATER FACILITIES WITH SIDE SLOPES STEEPER THAN 3:1 OR WITH A MAXIMUM WATER DEPTH GREATER THAN 3 FEET SHALL REQUIRE A POWDER OR VINYL COATED CHAIN LINK PERIMETER FENCE PER STANDARD PLANS 3-501-007 AND -008. SIDE SLOPE AVERAGING SHALL NOT BE ALLOWED. ALL INLET AND OUTFALL PIPES SHALL HAVE A TRASH RACK INSTALLED AND A MORTARED RIPRAP HEADWALL. REFER TO STORM DRAINAGE NOTE 21.

16. PRIOR TO SIDEWALK CONSTRUCTION; LOT DRAINAGE SYSTEMS, STUB-OUTS AND ANY BEHIND SIDEWALK DRAINS MUST BE INSTALLED AS REQUIRED. PIPE SHALL BE PVC 3034, OR SDR-35. STUB-OUTS SHALL BE MARKED WITH A 2" X 4" WITH 3 FEET VISIBLE ABOVE GRADE AND MARKED "STORM". LOCATIONS OF THESE INSTALLATIONS SHALL BE SHOWN ON THE RECORD DRAWING CONSTRUCTION PLANS SUBMITTED TO THE CITY.

17. STORM WATER RETENTION/DETENTION FACILITIES, STORM DRAINAGE PIPE AND CATCH BASINS SHALL BE FLUSHED AND CLEANED BY THE DEVELOPER PRIOR TO; CITY OF MARYSVILLE FINAL ACCEPTANCE OF THE PROJECT AND; UPON COMMENCEMENT AND COMPLETION OF THE 2-YEAR WARRANTY PERIOD FOR THE STORM DRAINAGE SYSTEM.

18. UNLESS OTHERWISE NOTED, ALL STORM SEWER PIPE SHALL BE; (CP) NON-REINFORCED CONCRETE, ASTM C-14; (RCP) REINFORCED CONCRETE FOR CONCRETE PIPE DIAMETERS 24" OR GREATER, ASTM C-76; OR (CMP) CORRUGATED METAL. CMP TO BE; GALVANIZED STEEL WITH TREATMENT I ASPHALT COATING OR BETTER; OR CORRUGATED ALUMINUM; OR AASHTO M274-70 ALUMINIZED STEEL. ALL PIPES SHALL BE INSTALLED WITH RUBBER GASKETS AS PER MANUFACTURERS RECOMMENDATIONS.

   COVERAGE REQUIREMENTS FOR 12" DIAMETER PIPE:
   BACKFILL OVER PIPE LESS THAN 12" REQUIRES RCP CLASS IV. BACKFILL OVER PIPE LESS THAN 24" REQUIRES RCP MINIMUM.
   BACKFILL OVER PIPE GREATER THAN 24" REQUIRES 16 GAGE CMP MINIMUM.

19. CORRUGATED POLYETHYLENE PIPE (CPP):

   A. ALL PIPE SHALL BE SMOOTH INTERIOR. CPP SHALL BE DOUBLE-WALLED. ALL PIPE SHALL MEET AASHTO AND ASTM SPECIFICATIONS.
   B. UPON REQUEST BY THE CITY INSPECTOR, ALL PIPE RUNS SHALL PASS THE LOW PRESSURE AIR TEST REQUIREMENTS OF SECTION 7-04.3(1) E & F OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PIPE RUNS SHALL BE TESTED WITH PIPE LOADED AND COMPACTED TO FINISH GRADE.
   C. UPON REQUEST BY THE CITY INSPECTOR, PIPE SHALL BE SUBJECT TO MANDREL TESTING (MANDREL SIZE = 90% OF NOMINAL PIPE DIAMETER).
   D. PIPE SHALL BE STORED ON SITE IN SHIPPING BUNKS ON A FLAT LEVEL SURFACE. THIS REQUIREMENT WILL BE STRICTLY ENFORCED; FAILURE TO COMPLY MAY RESULT IN REJECTION OF THE PIPE AND/OR FUTURE RESTRICTION ON USE OF MATERIAL.
   E. MINIMUM DEPTH OF COVER SHALL BE 2 FEET.
   F. COUPLINGS SHALL BE INTEGRAL BELL AND SPIGOT OR DOUBLE BELL SEPARATE COUPLINGS. SPLIT COUPLINGS WILL NOT BE ALLOWED.
   G. BACKFILL SHALL COMPLY WITH SECTION 7-08.3(3) OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION MODIFIED AS FOLLOWS:

      THE SECOND PARAGRAPH OF SECTION 7-08.3(3) IS DELETED AND REPLACED WITH THE FOLLOWING:
      THE MATERIAL USED FOR BACKFILLING AROUND AND TO A POINT 1 FOOT ABOVE THE TOP OF THE PIPE SHALL BE CLEAN EARTH OR SAND, FREE FROM CLAY. ANY GRAVEL OR STONES INCLUDED IN THE BACKFILL SHALL PASS THROUGH A 1 INCH SIEVE.

20. ALL NON-PERFORATED METAL PIPE SHALL HAVE NEOPRENE GASKETS AT THE JOINTS. O-RING GASKETS MAY BE USED FOR TYPE-F COUPLING BAND.

21. CULVERT ENDS SHALL BE BEVELED TO MATCH SIDE SLOPES. FIELD CUTTING OF CULVERT ENDS IS PERMITTED WHEN APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE.

22. ALL FIELD CUT CULVERT PIPE SHALL BE TREATED AS REQUIRED IN THE STANDARD SPECIFICATIONS OR GENERAL SPECIAL PROVISIONS.

23. ALL PIPE SHALL BE PLACED ON STABLE EARTH. IF IN THE OPINION OF THE CITY INSPECTOR, THE EXISTING TRENCH FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED WITH GRAVEL BEDDING TO SUPPORT THE PIPE.

24. ALL LANDSCAPED AND LAWN AREAS, EXCEPT AREAS WITHIN THE DRIPLINE OF PRESERVED TREES, SHALL BE AMENDED PER BMP T5.13 POST CONSTRUCTION SOIL QUALITY AND DEPTH IN CHAPTER 5, VOLUME V OF THE STORMWATER MANUAL.

ROADWAY NOTES

1. MONUMENTS SHALL BE INSTALLED AT ALL STREET INTERSECTIONS, AT ANGLE POINTS, AND POINTS OF CURVATURE IN EACH STREET. ALL BOUNDARY MONUMENTS MUST BE INSTALLED ACCORDING TO THE WASHINGTON STATE SUBDIVISION LAWS.
2. CURB AND GUTTER INSTALLATION SHALL CONFORM TO CITY STANDARD DETAIL 3-514.

3. SIDEWALKS AND DRIVEWAYS SHALL BE INSTALLED AS LOTS ARE BUILT ON. SIDEWALKS AND DRIVEWAYS SHALL CONFORM TO CITY STANDARD DETAIL 3-303-001 AND -002. IF ASPHALT IS DAMAGED DURING REPLACEMENT OF CURB AND GUTTER, THE REPAIR SHALL CONFORM TO CITY STANDARD DETAIL 3-514-001.

4. THE SURROUNDING GROUND (5 FEET BEYOND THE BASE) FOR ALL POWER TRANSFORMERS, TELEPHONE/TV PEDESTALS, AND STREET LIGHT MAIN DISCONNECTS SHALL BE GRADED TO A POSITIVE 2 PERCENT SLOPE FROM TOP OF CURB.

5. SIGNAGE AND TRAFFIC CONTROL DEVICES ARE SAFETY ITEMS AND SHALL BE INSTALLED PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY OR PLAT APPROVAL. HOWEVER, IN LARGER DEVELOPMENTS, EXACT LOCATIONS OF STOP AND YIELD SIGNS MAY NEED TO BE DETERMINED AFTER FULL BUILDOUT WHEN TRAFFIC PATTERNS HAVE BEEN ESTABLISHED. IN THIS CASE, CONTRACTOR SHALL PROVIDE INDICATED "CITY-PLACED" SIGNS, SIGNPOSTS, AND BRACKETS TO THE CITY SIGN SPECIALIST (425) 328-7954 FOR LATER INSTALLATION BY THE CITY. ALL SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6. PRIOR TO ANY SIGN OR STRIPING INSTALLATION OR REMOVAL THE CONTRACTOR SHALL CONTACT THE CITY SIGN SPECIALIST (425) 328-7954 TO ARRANGE FOR AN ON-SITE MEETING TO DISCUSS PLACEMENT AND UNIFORMITY.

7. NEW OR REVISED STOP SIGNS OR YIELD SIGNS SHALL BE ADVANCE WARNED USING THE PROCEDURE OUTLINED IN THE MUTCD. ADVANCE WARNING SIGNS AND FLAGS SHALL BE MAINTAINED BY INSTALLER FOR 30 DAYS AND THEN REMOVED.

HYDROSEEDING GENERAL NOTES

1. CONSTRUCTION ACCEPTANCE: WILL BE SUBJECT TO A WELL-ESTABLISHED GROUND COVER THAT FULFILLS THE REQUIREMENTS OF THE APPROVED CONSTRUCTION PLANS AND CITY OF MARYSVILLE STANDARDS.
2. ALL DISTURBED AREAS SUCH AS RETENTION FACILITIES, ROADWAY BACKSLOPES, ETC., SHALL BE SEEDED WITH A PERENNIAL GROUND COVER GRASS TO MINIMIZE EROSION. GRASS SEEDING WILL BE DONE USING AN APPROVED HYDROSEEDER OR AS OTHERWISE APPROVED BY THE CITY OF MARYSVILLE.
3. PREPARATION OF SURFACE: ALL AREAS TO BE SEEDED SHALL BE PREPARED IN A MANNER CONSISTENT WITH BMP T5.13 POST CONSTRUCTION SOIL QUALITY AND DEPTH IN CHAPTER 5 OF VOLUME V OF THE STORMWATER MANUAL.
4. IMMEDIATELY FOLLOWING FINISH GRADING PERMANENT VEGETATION SHALL BE APPLIED CONSISTENT WITH THE DESIGN AND MAINTENANCE STANDARDS FOR TEMPORARY AND PERMANENT SEEDING IN THE CITY ADOPTED DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON.
5. ALL HYDROSEEDING FIRMS SHALL HAVE A PRINTOUT OF THE APPLICATION RATE FOR EACH JOB READILY AVAILABLE FOR INSPECTION BY THE CONSTRUCTION INSPECTION DIVISION OF COMMUNITY DEVELOPMENT.
6. THE CITY OF MARYSVILLE CONSTRUCTION INSPECTION DIVISION OF COMMUNITY DEVELOPMENT SHALL BE NOTIFIED OF POTENTIAL HYDROSEEDING PRIOR TO THE COMMENCEMENT OF SAME TO ENSURE COMPLIANCE OF THESE SPECIFICATIONS.

PFN:

Know what's below.
Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

R#	DATE	DESCRIPTION	BY

11/20/2023

NOTES

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY
23-0436	JMS
DATE: 11/20/2023	
SCALE: N.T.S.	
DRAWING NO. 10 OF 10	

COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue ◆ Marysville, WA 98270
360.363.8000

January 3, 2024

Land Resolutions
Attn: Jen Haugen
3605 Colby Ave
Everett, WA 98201

Re: **PA23-030 – Chapel Hill Subdivision – *Complete Application***
Major Subdivision

Dear Jen,

The Community Development Department has reviewed the above referenced application and determined the application ***complete*** on January 3, 2024. Any additional information/items that are needed will be requested after all affected departments and local agencies have had an opportunity to review the proposal.

If you have any questions regarding this application, please contact me at emorgan@marysvillewa.gov, or by phone at 360-363-8216.

Sincerely,

Emily Morgan

Emily Morgan
Senior Planner

e-copy: Haylie Miller, CD Director
Chris Holland, Planning Manager
Robinett Investment Company

REQUEST FOR REVIEW

Community Development Department ◆ 501 Delta Avenue ◆ Marysville, WA 98270
Office Hours: Mon - Fri 8:00 AM - 4:30 PM ◆ Phone: (360) 363-8000

PROJECT INFORMATION					
File Number	PA23-030	**Date Sent**	1.3.2024	**Please Return by**	1.17.2024
Project Title	Chapel Hill Subdivision	**Related File Number**(s)	PreA23-011		
Project Description	The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. To achieve desired residential density, the provisions of MMC 22E.010.360 for on-site density transfer for the critical area and associated buffer areas are proposed with this development.				

BACKGROUND SUMMARY									
Applicant	Land Resolutions – Jen Haugen, Planner								
Location	6114 83rd Ave			**APNs**	30052600403700 / 30052600404300				
Acreage (SF)	4.01 acres (174,580 sq. ft.)			**Section**	26	**Township**	30	**Range**	05
Comprehensive Plan	Single Family High	**Zoning**	R-6.5	**Shoreline Environment**	N/A				

REVIEWING AGENCIES				
Marysville	**Local Agencies & Districts**	**State & Federal**	**County**	**Other**
☒ **Building** ☐ **Parks** ☒ **Police** ☒ **PW – Development Services** ☒ **PW – Engineering** ☒ **PW – Operations** ☒ **PW – Solid Waste** ☒ **PW – Streets** ☒ **PW – Traffic Eng.** ☒ **PW – Water Res.** ☒ **PW – WWTP**	☐ **Arlington Airport** ☐ **Arlington** (city) ☒ **Comcast** ☐ **Community Transit** ☒ **Marysville Fire District** ☒ **Marysville SD 25** ☒ **PUD No. 1** (electric) ☒ **Ziply**	☒ **US Army Corps of Engineers** ☐ **BNSF** ☒ **DAHP** ☐ **DNR** ☒ **DOE** (Bellevue) ☐ **DOE** (Floodplain) ☐ **DOE** (Register) ☐ **DOE** (Shorelands) ☐ **WDFW** ☐ **WSDOT** ☐ **WUTC**	☐ **Health District** ☐ **Planning** ☒ **Public Works - Land Development** ☐ ☐	☐ **Olympic Pipeline** ☐ **Puget Sound Energy** ☒ **Stillaguamish Tribe** ☒ **Tulalip Tribes** ☐ ☐

PROJECT MANAGER			
Name Emily Morgan	**Title** Senior Planner	**Phone** 360.363.8216	**E-mail** emorgan@marysvillewa.gov

The City of Marysville Community Development Department is reviewing this application and encourages other affected agencies, departments, community groups and municipalities to respond. Your comments will assist the City's evaluation of this application. Furthermore, you will become a Party of Record to this case if you submit a response with your name and address. We highly recommend that you send your comments on letterhead. Without a full name and address, you will not be considered a Party of Record. You may e-mail, fax or send via regular mail your comments to this project manager listed above.

If you have no comments, please check the box below, sign and return this form to the project manager.

☐ **NO COMMENTS** **Signature**: _____ **Date**: _____

☐ **ATTACHED** **Title**: _____ **Agency**: _____

COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue ◆ Marysville, WA 98270 ◆ (360) 363-8000

NOTICE OF APPLICATION

Scan to View Project Materials

File Number: PA23-030

Project Title: Chapel Hill Subdivision

Applicant: Robinett Investment Company

Project Contact: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021

Project Location: 6114 83rd Ave NE

APN: 30052600403700 / 30052600404300

Date of Completeness: January 3, 2024

NOTICE IS HEREBY GIVEN THAT AN APPLICATION WAS MADE FOR THE FOLLOWING PROPOSAL:

The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. To achieve desired residential density, the provisions of MMC 22E.010.360 for on-site density transfer for the critical area and associated buffer areas are proposed. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development.

Existing Environmental Documents: Traffic Impact Analysis; Geotechnical Report; Critical Area Study and Buffer Mitigation Plan; Preliminary Drainage Report

Public Hearing: An Open Public Record Decision Hearing is required for this application; a subsequent Notice of Hearing will be published at a later date.

Public Comment Period: Written comments must be submitted to the contact person listed below by **5:00 PM on January 24, 2024**.

Document Availability: http://docs.marysvillewa.gov/htcomnet/public/?folder=7736a130

ANY PERSON HAS THE RIGHT TO RECEIVE NOTICE, PARTICIPATE IN ANY HEARINGS, REQUEST A COPY OF THE FINAL DECISION AND APPEAL THE DECISION AS PROVIDED BY LAW.

For project information or to become a party of record, please contact:
Emily Morgan, Senior Planner
(360) 363-8216
emorgan@marysvillewa.gov

THIS NOTICE IS NOT TO BE REMOVED CONCEALED OR DESTROYED

Everett Daily Herald

Affidavit of Publication

State of Washington }
County of Snohomish } ss

Michael Gates being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the Everett Daily Herald a daily newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a daily newspaper in Snohomish County, Washington and is and always has been printed in whole or part in the Everett Daily Herald and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Snohomish County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of EDH989622 CHAPEL HILL SUBDIV as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 1 issue(s), such publication commencing on 01/05/2024 and ending on 01/05/2024 and that said newspaper was regularly distributed to its subscribers during all of said period.

The amount of the fee for such publication is $79.24.

Linda Phillips
Notary Public
State of Washington
My Appointment Expires 8/29/2025
Commission Number 4417

Subscribed and sworn before me on this 9th day of January. 2024.

Notary Public in and for the State of Washington.

COMM DEVEL - CITY OF MARYSVILLE | 88522148
JANIS LAMOUREUX

MARYSVILLE

CITY OF MARYSVILLE
COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue • Marysville, WA 98270 • (360) 363-8000

NOTICE OF APPLICATION

File Number: PA23-030
Project Title: Chapel Hill Subdivision
Applicant: Robinett Investment Company
Project Contact: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021
Project Location: 6114 83rd Ave NE
APN: 30052600403700 / 30052600404300
Date of Completeness: January 3, 2024

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The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. To achieve desired residential density, the provisions of MMC 22E.010.360 for on-site density transfer for the critical area and associated buffer areas are proposed. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development.

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ANY PERSON HAS THE RIGHT TO RECEIVE NOTICE, PARTICIPATE IN ANY HEARINGS, REQUEST A COPY OF THE FINAL DECISION AND APPEAL THE DECISION AS PROVIDED BY LAW.

For project information or to become a party of record, please contact:

Emily Morgan, Senior Planner
(360) 363-8216
emorgan@marysvillewa.gov

Published: January 5, 2024

EDH989622

COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue ◆ Marysville, WA 98270
(360) 363-8000

January 25, 2024

Jen Haugen
Land Resolutions
3605 Colby Ave
Everett, WA 98201

Re: Chapel Hill Subdivision – PA23-030 – Technical Review 1
6114 83rd Ave NE – APN(s) 30052600403700, 30052600404300

Dear Jen,

After preliminary review of the above referenced proposal, the following comment(s) are provided:

CITY OF MARYSVILLE COMMUNITY DEVELOPMENT – PLANNING

Emily Morgan, Senior Planner
360.363.8216 | emorgan@marysvillewa.gov

SUBDIVISION COMMENTS

1. Include File Number PA23-030 on all future correspondence, in addition to all site, civil and landscape plans.
2. Amend plans to show the top and toe of all proposed walls, including the stormwater detention facility.
3. On the plat map under "City of Marysville Density Calculation" access easements are deducted. Please identify where the access easement is located.
4. Per MMC 22G.090.670(5), interior lot lines should be composed of straight lines. The configuration proposed for Lot 15 would not meet this intent. Please revise lots to have Lot 14 include the panhandle with access to Lot 15 via a shared driveway/easement.
   4.1. The plat map notes that mention which lots are to access from said panhandles do not appear to be correct. Revise to clarify which lots are to access via the proposed panhandles.
   4.2. The plat maps also looks as if the handles are to be separate tracts for access. Please revise to remove the dashed lines or clarify if these are to be separate tracts.
5. Per MMC 22C.070.070, Lot 14, 15, and 18 must have proposed dwellings oriented towards 83rd Ave NE, which would include a pedestrian access.

LANDSCAPE PLAN COMMENTS

6. Significant trees, which include evergreen trees eight inches in diameter or greater and/or deciduous trees 12 inches in diameter or greater measured four and one-half feet above grade, shall be retained as follows:
   6.1. Perimeter landscaped areas that do not constitute a safety hazard shall be retained.

6.2. At the discretion of the community development director, the applicant shall be required to hire a certified arborist to evaluate trees proposed for retention, including those located within NGPA tracts (specifically along the fringes) or other areas as identified. The arborist shall make a written recommendation to the community development department with regard to the treatment of the treed area. In the event of an immediate hazard, this requirement shall be waived.

6.3. To provide the best protection for significant trees during the construction stage, the applicant shall install a temporary, five-foot-high, orange clearing limits construction fence in a line generally corresponding to the dripline of any significant tree(s) to be retained. All such fencing shall be installed and inspected by the community development department prior to commencement of site work.

6.4. At the discretion and approval of the community development director, where it is not feasible and/or desirable to retain the significant trees, the applicant may propose a planting plan on an alternative site or area, or payment into the city tree fund, that provides effective replacement of the functions and/or value lost through removal of the significant trees.

7. Stormwater management facilities are required to have a 5ft. L5 landscape buffer. Planting areas may incorporate no more than 30 percent deciduous plantings due to maintenance and pond performance constraints.

   Please provide confirmation that the proposed planted buffer would meet this standard.

CRITICAL AREA REVIEW

8. Based on the provide Critical Area Report, prepared by Wetland Resources, Buffer Width Averaging, as outlined in MMC 22E.010.100(5)(a) is being pursued. That said, the averaged buffer can in no case be less than 25% of the 75 ft. buffer width (or 56.25 ft.) per subsection (5)(c). Therefore, the entire area proposed to be disturbed wetland-ward of said reduced buffer line would be subject to variance criteria per MMC 22E.010.100(13).

   8.1. Being as the proposed location of the dispersion facility is not within the allowable modified buffer area, a wetland variance per MMC 22E.010.100(13) would be required. The applicant would be required to provide justification for the proposed variance along with payment of the associated fees would be required.

9. Per MMC 22E.100.380, retaining walls must be setback 15 ft. from the edge of critical area buffers. Therefore, the proposed retaining wall along the backside of Lots 8 – 13 as well as Tract 999 would not be allowed. Further, due to the vertical drop, fall protection fencing would be required to be constructed; per code, two-rail wetland fencing is required.

   Please revise to remove the proposed retaining walls along the NGPA tract.

10. The areas of buffer addition, reduction, and restoration do not appear to match amongst the different plan sets. Please revise to ensure the correct buffer alteration areas are accurately depicted.

MARYSVILLE FIRE DISTRICT

Brian Merkley, Deputy Fire Marshal
360.363.8541 | bmerkley@mfdrfa.org

GENERAL INFORMATION

11. The project shall comply with current fire code requirements (2018 IFC) including WA State and local City of Marysville amendments to the fire code, city design standards, and all applicable NFPA standards, including IFC Chapter 33 and NFPA 241 construction codes.
12. Fire marshal approval of fire access and fire hydrant/water supply systems is required as part of the civil construction plan review and approval process.

WATER RELATED – GIS shows an existing 12 in. main along west side of 83rd Ave NE

13. **Lots 14, 15, and 18 will require 13D sprinkler systems due to access and distance from ROW.**
14. It is the developer's responsibility to see that adequate water for fire protection is attainable. The minimum required fire flow is determined using IFC Appendix B, and depends upon building sizes, construction types, and sprinkler systems. Proof of fire flow will be required. Letter from O'Keefe shows acceptable fire flow.
15. Maximum hydrant spacing for the proposed SF use is 600 ft. Locations of proposed hydrants appear acceptable.
16. Fire hydrants shall comply with city Water Design Standard 2-060 Hydrants, including 5" Storz fittings, with blue reflective hydrant markers to be provided in the roadways, located four inches off the centerline on the hydrant side of the road.
17. Fire hydrants shall be provided in approved locations. Fire hydrants on an approved water main extension are required within the site for this development.
18. Fire hydrants with approved water supply must be in service prior to building construction.
19. The location of fire hydrants requires fire marshal approval on civil construction plans.
20. Future homes to be constructed may require residential sprinkler installation for a number of reasons, including: if homes are three or more stories tall, if fire flow from hydrants does not meet fire code requirements, if any part of homes is further than 200' from the public road ROW with no hydrant provided on-site, or to mitigate access deficiencies.
21. Where residential fire sprinklers may be required the developer should install a water service per Standard Plan 2-090-001 Full ¾" x 1" Meter Service. Under this plan a 1" tap is made at the water main and 1" piping is run to the 1" meter setter. If in the end a ¾" water meter will suffice then all that is required is to install two reducer bushings with the ¾" water meter. A single service tap should be used where sprinklers are required, not a double service installation.

ACCESS RELATED – Single access exists from 83rd Ave NE. Two autocourts are shown on the plan providing access to lots 14, 15, and 18.

22. Turnaround provision is required for dead-end access in excess of 150 feet long. Turnarounds shall comply with city standard plans. Temporary turnaround appears acceptable.
23. An adequate access route for fire apparatus must be in service prior to any building construction.

24. Access for firefighting operations along all sides of all buildings is required. A minimum 5' wide access is required for SF dwellings. All parts of building exteriors should be accessible for firefighting by an approved route around the building, and be within 150 feet of a minimum 20' wide fire apparatus access. Access appears acceptable.
25. **"NO PARKING - FIRE LANE"** signs are required on both sides of all roads that are 26 feet wide or less. The signage shall be identified on the approved Civil Plans. (MMC 9.04.101, 2018 IFC Appendix D103.6.1)
26. The city address committee will determine road names and address numbers for the lots.

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Kacey Simon, Civil Plan Reviewer
360.363.8280 | ksimon@marysvillewa.gov

UTILITIES

27. Sanitary sewer: Sewer is located to the north in the adjacent parking lot of the church and can be found on record drawing S775. An offsite easement must be obtained prior to approval if choosing to connect to the sewer in the church parking lot.
28. Water: a 12" ductile iron water main is located in 83rd Ave NE and can be found on record drawing W481.
29. Storm: There is currently storm that runs along the eastern side of 83rd Ave NE and can be found on record drawing RD8.
30. Per MMC 14.03.250, utilities are to be extended along the street frontages of the proposed project.

    30.1. All utilities currently front the project.

FRONTAGE IMPROVEMENTS

31. Frontage improvements are required per MMC 12.02A.090 on all projects. Frontage improvements are described as curbs, gutters, and sidewalks; underground storm drainage facilities; patching the street from its preexisting edge to the new curb line; and overlayment of the existing public street to its centerline.

    31.1. 83rd Ave NE shall be build compliant with SP 3-201-004.

DEDICATION REQUIREMENTS

32. It appears that an additional 5' right-of-way is required for 83rd Ave NE.
33. The new roadways on site will require a 50 foot wide dedication.

ACCESS

34. The minimum width of a residential driveway is 12-feet and the maximum is 26-feet. Curb cuts shall be limited to a 20 foot maximum.
35. Per EDDS 3-302 bullet 5: A minimum corner clearance of 50 feet shall be maintained from the nearest edge of any access point to the edge of traveled way. When minimum corner clearances cannot be attained, the Engineer may require investigation to substantiate whether or not left turns should be prohibited into or out of the access point. See standard plan 3-301-001dimension A. (only applies to subdivisions off of an arterial)

36. The new roads shall be constructed to SP 3-202-002.

37. Elbow intersections per SP 3-209-002 are allowable on local access streets only and are subject to intersection spacing requirements established under section 3-209 of the EDDS.

DRAINAGE - All projects in the city of Marysville must comply with requirements stipulated under the MMC 14.15.040 and 14.15.050.

38. Stormwater drainage: The city has adopted the 2019 Ecology Manual. Projects above the 2,000 square feet and/ or 5,000 square feet threshold must comply with requirements stipulated in Volume I of the Stormwater Management Manual for Western Washington.

39. The maximum allowed impervious surface coverage for the Zoning designation is 50%.

STANDARD COMMENTS

40. Survey control datum NAVD-88 and NAD-83 are required to be used. Civil construction plans will not be accepted in any other datum.

41. Trench restoration is to be completed in accordance with section 3-703 of the EDDS. A full lane or full street overlay may be required.

42. The onsite grading and placement of any retaining walls must be compliant with section 22D.050.030 of the MMC.

43. A right of way use permit for all work proposed within City right of way is required. Cost for the ROW permit is $648.00. ROW permit fees must be paid before right of way permit issuance.

44. The applicant is responsible for identifying any existing well or septic systems on site or on adjacent properties. If there are any existing septic systems on site they need to be decommissioned based on the Snohomish Health District standards. If there are any wells on site they need to be decommissioned based on Department of Ecology standards.

45. Please refer to MMC 22G.030.020 for applicable plan review and construction inspection fees.

46. All civil construction plan submittals are to be routed directly to Kacey Simon, Civil Plan Reviewer. The first civil construction plan submittal is to consist of a completed grading permit application, a plan set, a copy of the drainage report and a copy of the geotechnical report. **Once the documents are ready to be submitted, we will provide you a link to where the materials can be uploaded to.**

Civil Plan Review Timing	
1st Review	**5 weeks**
2nd Review	**3 weeks**
3rd Review	**3 weeks**
Subsequent reviews will be 3 weeks	

47. Please be advised these comments are in reference to specific items and do not imply a full review of the proposed application. Additional comments which may change the design requirements will be provided during the civil construction plan review process.

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Brad Zahnow, Development Services Technician
360.363.8205 | bzahnow@marysvillewa.gov

48. **Utility Capital Improvement Fees -** Capital utility fees are assessed in accordance with the attached rate sheet. The "City" rates will be applicable to this project.
49. **Recovery (Latecomer) Fees -** No recovery fees are applicable to this project.
50. **Utility Main Fees -** Main fees for an existing water main within 83rd Ave NE will be assessed at $10.00/ft. of frontage.
51. **ULID/LID Fees -** No ULID or LID fees are applicable to this project.

UTILITY CAPITAL IMPROVEMENT CHARGES 2023

RESIDENTIAL UNITS

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Residential DU*	Eff 1/1/06	$4,750/du	$5,490/du	$4,490/du	$4,890/du
Inspection		Plumb permit varies	Plumb permit	$100	$100
Admin/Filing Fee		$20	$20	$20	$20

*Dwelling unit includes single-family, multi-unit housing, apts, condos, manufactured homes and mobile homes. Main fees or latecomer fees may apply, depending on location.

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Hotel/Motel	Eff 1/1/06	$1,816/rm	$2,099/rm	$1,717/rm	$1,870/rm
RV Park Pads	Eff 1/1/06	$2,375/pad	$2,745/pad	$2,245/pad	$2,445/pad

SURFACE WATER / STORM DRAINAGE

Surface water capital fee – Eff 1/1/11	Residential - $95/du	Commercial - $95/3200sf of imp surface

METER SERVICES

Meter Size	Tapping Fee	Meter Drop Fee
5/8" x 3/4"	$1,050	$500
3/4" x 3/4"	$1,075	$525
1"	$1,200	$560
1.5"	$1,600	$750
2"	$1,900 min	$850
3", 4", 6", 8"	Time and Material - $3,500 min + $1K/inch	Included in tapping fee

Fire sprinkler systems may require a larger meter for adequate fire flow – consult your designer.

SNOHOMISH COUNTY – PUBLIC WORKS

Gurpreet Dhaliwal, Engineer III
425.388.3870 | gurpreet.dhaliwal@snoco.org

52. Snohomish County Public Works concurs with the distribution and the conclusion that this development will not impact any county capital improvement projects or county road with three or

more directional peak hour trips. Therefore, no mitigation and no offer are required of this development to the county under the county/city interlocal agreement.

CITY OF MARYSVILLE – BUILDING DEPARTMENT

Mike Snook, Building Official
360.363.8210| msnook@marysvillewa.gov

53. Applicant shall comply with any and or all provisions the 2018 Edition of the International Building, Residential, Mechanical, 2018 Uniform Plumbing Codes, and current Washington State Amendments, or 2021 International Codes and Uniform Plumbing code if submitted after March 15, 2024
54. All plans and permit applications will be required to be submitted electronically as part of their submittal process. One (1) complete set of building plans, structural calculations, and 2018 Washington State Energy Code work sheets. 2021 Washington State Energy Codes required if submitted after March 15, 2024.
55. Contact our office if you have questions in regards to permit applications, checklists and/or handouts that you and/or your design team will be preparing plans for on your project.
56. If any demolition of structures is proposed, and you are unsure if permit/s will be required for the removal of any existing structures. Please contact the Building Division at 360-363-8000, to ask any specific questions. An asbestos report will be required for each demo permit.
57. A Geotechnical report shall be submitted to the City for this project. This is to be an in-depth report to address the following:
    - Soil Classification
    - Required Drainage Systems
    - Soil Compaction Requirements
    - Type of Footings, Foundations, and Slabs Allowed
    - Erosion Control Requirements
    - Retaining Walls
    - Fill and Grade
    - Final Grade
58. The building structure will be required to be designed under the 2018 IBC, Chapter 16, and Structural Design Requirements. Or 2021 IBC, if submitted after March 15, 2024. The seismic zone criteria is to be established under the guidelines of a Washington State Licensed Architect and/or Structural Engineer.
59. Please provide scaled floor plans with square footage of each room, open areas, and all levels throughout the building.
60. Construction shall comply with the 2018 IBC, Chapter 5 “General Building Heights and Areas”, and any “Area Modifications”.
61. All Mechanical Equipment shall be screened from public view under MMC Provisions. Please indicate how this will be achieved on your building plan, elevation submittal sheets.
62. A Fire Sprinkler system may be required. The applicant is to verify which type of fire sprinkler with the Fire Marshal’s Office.

63. All Electrical installations are to be permitted, inspected and approved through the City. The current code is NEC 2020 with WCEC Amendments, or 2023 NEC after January 1, 2024. A separate application and maybe plans will be required.
64. Special Inspection may be required. The list of the type of inspections shall be indicated on the plans by the Engineer of Record. The owner is to notify the City of the registered special inspection agency prior to permit issuance.
65. **Building application for plan review will be approximately 4-6 weeks for first-time plan review comments.**

CITY OF MARYSVILLE PUBLIC WORKS – OPERATIONS DEPARTMENT

Kim Bryant, Water Operations Supervisor
360.363.8163| kbryant@marysvillewa.gov

66. Connection to existing water main on 83rd Ave shall be a live tap on the 16" water main located on west side of road, currently plans show connection on the 24" JOA;
67. Relocate hydrant assemblies to behind sidewalk;
68. Swap water service and hydrant assembly location on lot 23;
69. Install water services for lots 5 and 6 perpendicular to water main;
70. Verify meter boxes located in temporary turn around are traffic rated;
71. A blow off assembly will be required at end of new water main;
72. Water details not shown.

SNOHOMISH COUNTY PUD

Mary Wickland
425.783.8465| MLWicklund@SNOPUD.com

73. The District presently has enough electric system capacity to serve the proposed development. However, the existing District facilities in the local area may require upgrading. Cost of any work, new or upgrade, to existing facilities that is required to connect this proposed development to the District electric system shall be in accordance with the applicable District policy. The developer will be required to supply the District with suitable locations/easements upon its property for any electrical facilities that must be installed to serve the proposed development. It is unlikely that easements will be granted on District-owned property, or consents granted within District transmission line corridors.
74. Please be advised that per WAC 296-24-960 the minimum worker safety clearance from any District distribution conductor is 10 feet. Therefore, the District requires a minimum 14-foot clearance from any structure to accommodate workers, scaffolding and ladders. Minimum worker safety clearance from 115kV transmission wires is 20 feet.
75. Any relocation, removal or undergrounding of District facilities to accommodate this project and the worker safety clearances shall be at the expense of the project developer and must be coordinated with the PUD in advance of final design.

76. There are wetlands on site. Please include any required utility work in the scope of all applicable land use/development/stormwater permits including for any planned over- or under- stream and wetland utility crossings.

77. The District policy requires the developer to provide a minimum 10-foot easement for underground electrical facilities that must be installed to serve the proposed development. In addition, the developer must maintain an 8-foot clearance between transformers and a 10-foot clearance between switch cabinets and any building/structures upon its property. Additional clearances may be required depending on the equipment in the area and accessibility of the equipment.

CITY OF MARYSVILLE PUBLIC WORKS – TRAFFIC DEPARTMENT

Jesse Hannahs, Traffic Engineering Manager
360.363.8287| jhannahs@marysvillewa.gov

78. Traffic impact fees will be required from the City and depending on trip generation/distribution, may be required from the County and State.

79. A Traffic Impact Analysis (TIA) will be required.

- Single family homes Trip Generation shall be 1 PM peak Hour trip per unit consistent with development of Traffic Impact Fee (TIF) calculations.
- Based upon aerial only, it appears that an existing single family home may be located upon property and would be removed.
- A credit of 1 PM peak Hour trip may be applied if confirmed.
- 22 or 23 PM Peak Hour trips shall be assumed for development depending on above comments regarding potential existing single family home.
- **Update to TIA; can be provided via an updated TIA or TIA addendum.**

80. **83rd Ave NE Frontage Improvements:** Lane transitions as proposed appear much too short and not per AASHTO standards for taper length/transition for a 35 mph roadway.

81. **Proposed Residential Roadways:** 50’ ROW residential roadway cross-section with 28’ of asphalt width shall be required per EDDS Standard Plan 3-202-002.

82. **ADA Curb Ramps:** Rotate side street ADA ramps across 61st PL NE approximately 5’ around radius to provide ramps closer to 83rd Ave NE.

    82.1. Stop bar and stop sign are dependent on curb ramp locations as they cannot be in front of curb ramps with less compliance for stop is sign/bar are too far from arterial.

83. Undergrounding of existing overhead utilities along frontage of 83rd Ave NE shall be required.

84. Per EDDS 3-506, street lighting will be required as part of civil construction plans.

- Proposed residential streets shall be designed as neighborhood collector/residential utilizing 100 watt equivalent LED fixtures.
- 83rd Ave NE shall be designed as minor arterial/residential utilizing 200 watt equivalent LED fixtures.
- Spacing of fixtures should be approximately 180’-220’.

- As part of civil construction approval process, proposed PUD street lighting locations will be provided by the City to the developer for submission to PUD and incorporation into the PUD site electrical plans.
- Contact Eddie Haugen of Snohomish County PUD at (425) 783-8276 or for more information regarding PUD design.

85. A Signing and Channelization plan shall be required as part of civil construction plans.

85.1. **Signing:** Any signs located upon development frontage will need to be identified and relocated as part of project.

- Signs within development:
- Stop sign upon EB approach of 61st PL NE to 83rd Ave NE.
- Dead End sign at entrance from 83rd Ave NE
- 25 mph speed limit sign 50'-100' after entrance from 83rd Ave NE
- Street Name signs at 90 degree corner of 61st PL NE and New N/S Street.
- No Parking In Cul-De-Sac sign at entrance to temporary cul-de-sac.
- No parking with arrow signs 10'-20' to each side of outside of 90 degree corner.
- Without these parking restrictions it has been found that Sanitation has consistent challenges picking up garage.
- Type IV Object Markers (2) with Future Roadway Connection sign at northern end of dead end street.

85.2. **Channelization:**

- Stop bar upon EB approach of 61st PL NE to 83rd Ave NE.
- 83rd Ave NE channelization shall not extend into the intersection beyond location of ADA curb ramps to cross 83rd Ave NE.
- 83rd Ave NE shall be channelized to the extent feasible for ultimate roadway cross-section of three lanes with bike lanes.

After you have had an opportunity to review, please let me know what technical review comments you need clarification on. Once received I can set up a conference meeting with all of the applicable city and agency representatives, if needed. If you have any questions, please do not hesitate to contact me at 360.363.8216, or by e-mail at emorgan@marysvillewa.gov.

Sincerely,

Emily Morgan

Emily Morgan
Senior Planner

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design · Planning · Management
3605 Colby Ave – Everett, WA 98201
(Office) 425-258-4438 (Fax) 425-258-1616

March 4, 2024

City of Marysville
Emily Morgan
501 Delta Avenue
Marysville, WA 98270

RE: Chapel Hill Subdivision – PA23-030 – Technical Review 1

Dear Emily:

This letter is in response to the City's Technical Review Letter dated January 25, 2024. You will find our responses to the comments in ***italics*** below.

SUBDIVISION COMMENTS

1. Include File Number PA23-030 on all future correspondence, in addition to all site, civil and landscape plans. ***Added***
2. Amend plans to show the top and toe of all proposed walls, including the stormwater detention facility. ***Revised on civil plans.***
3. On the plat map under "City of Marysville Density Calculation" access easements are deducted. Please identify where the access easement is located. ***Access easement over lot 15 to benefit lot 14.***
4. Per MMC 22G.090.670(5), interior lot lines should be composed of straight lines. The configuration proposed for Lot 15 would not meet this intent. Please revise lots to have Lot 14 include the panhandle with access to Lot 15 via a shared driveway/easement. ***Revised.***
   4.1. The plat map notes that mention which lots are to access from said panhandles do not appear to be correct. Revise to clarify which lots are to access via the proposed panhandles. ***Revised.***
   4.2. The plat maps also looks as if the handles are to be separate tracts for access. Please revise to remove the dashed lines or clarify if these are to be separate tracts. ***Panhandle for lots 14/15 are for a shared driveways with associated easement. The dashed line represents the easement location.***
5. Per MMC 22C.070.070, Lot 14, 15, and 18 must have proposed dwellings oriented towards 83rd Ave NE, which would include a pedestrian access. ***Noted.***

LANDSCAPE PLAN COMMENTS

6. Significant trees, which include evergreen trees eight inches in diameter or greater and/or deciduous trees 12 inches in diameter or greater measured four and one-half feet above grade, shall be retained as follows:
   6.1. Perimeter landscaped areas that do not constitute a safety hazard shall be retained. ***Noted, thank you.***
   6.2. At the discretion of the community development director, the applicant shall be required to hire a certified arborist to evaluate trees proposed for retention, including those located within NGPA tracts (specifically along the fringes) or other areas as identified. The arborist shall make a written recommendation to the community development department with regard to the treatment of the treed area. In the event of an immediate hazard, this requirement shall be waived. ***Noted, thank you.***
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7. Stormwater management facilities are required to have a 5ft. L5 landscape buffer. Planting areas may incorporate no more than 30 percent deciduous plantings due to maintenance and pond performance constraints. ***Noted, thank you.***

   Please provide confirmation that the proposed planted buffer would meet this standard. ***Landscaping plans revised to show buffer will meet this standard.***

CRITICAL AREA REVIEW

8. Based on the provide Critical Area Report, prepared by Wetland Resources, Buffer Width Averaging, as outlined in MMC 22E.010.100(5)(a) is being pursued. That said, the averaged buffer can in no case be less than 25% of the 75 ft. buffer width (or 56.25 ft.) per subsection (5)(c). Therefore, the entire area proposed to be disturbed wetland-ward of said reduced buffer line would be subject to variance criteria per MMC 22E.010.100(13). ***Noted.***

8.1. Being as the proposed location of the dispersion facility is not within the allowable modified buffer area, a wetland variance per MMC 22E.010.100(13) would be required. The applicant would be required to provide justification for the proposed variance along with payment of the associated fees would be required. ***Addressed by civil engineer on attached response letter.***

9. Per MMC 22E.100.380, retaining walls must be setback 15 ft. from the edge of critical area buffers. Therefore, the proposed retaining wall along the backside of Lots 8 – 13 as well as

Tract 999 would not be allowed. Further, due to the vertical drop, fall protection fencing would be required to be constructed; per code, two-rail wetland fencing is required. Please revise to remove the proposed retaining walls along the NGPA tract. ***Addressed by civil engineer on attached response letter.***

10. The areas of buffer addition, reduction, and restoration do not appear to match amongst the different plan sets. Please revise to ensure the correct buffer alteration areas are accurately depicted. ***Plans revised to match across all plan sets.***

GENERAL INFORMATION

11. The project shall comply with current fire code requirements (2018 IFC) including WA State and local City of Marysville amendments to the fire code, city design standards, and all applicable NFPA standards, including IFC Chapter 33 and NFPA 241 construction codes. ***Noted.***
12. Fire marshal approval of fire access and fire hydrant/water supply systems is required as part of the civil construction plan review and approval process. ***Noted.***

WATER RELATED – GIS shows an existing 12 in. main along west side of 83rd Ave NE
All water related comments addressed by civil engineer on attached response letter.

ACCESS RELATED – Single access exists from 83rd Ave NE. Two autocourts are shown on the plan providing access to lots 14, 15, and 18.
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UTILITIES
Utility related comments addressed by civil engineer on attached response letter.

FRONTAGE IMPROVEMENTS
Frontage related comments addressed by civil engineer on attached response letter.

DEDICATION REQUIREMENTS
Dedication related comments addressed by civil engineer on attached response letter.

ACCESS
All access related comments addressed by civil engineer on attached response letter.

DRAINAGE
All drainage related comments addressed by civil engineer on attached response letter.

STANDARD COMMENTS
All standard related comments addressed by civil engineer on attached response letter.

85.2. **Channelization**
Channelization related comments addressed by civil engineer on attached response letter.

If you should have any questions or concerns regarding this resubmittal, please feel free to contact me at (425) 258-4438 or jen@orcalandsurveying.com.

Thank you,

Jen Haugen
2023-017

February 29, 2024

RE: Civil Response Letter for Chapel Hill Subdivision.
PFN: PA 23-030

Staff,

This letter is intended to provide information regarding the changes to the civil plans and drainage report to address comments provided in a letter dated 1/25/24. All responses to City comments are provided in *ORANGE ALL CAPS ITALICS*.

SUBDIVISION COMMENTS

1. Include File Number PA23-030 on all future correspondence, in addition to all site, civil and landscape plans.

   FILE NUMBER ADDED TO COORESPONDENCE AND ALL CIVIL PLANS AND REPORTS

2. Amend plans to show the top and toe of all proposed walls, including the stormwater detention facility.

   TOP AND TOE ELEVATIONS ADDED TO ALL WALLS INCLUDED IN THE CURRENT DESIGN.

3. On the plat map under "City of Marysville Density Calculation" access easements are deducted. Please identify where the access easement is located.

   ADDRESSED BY OTHER CONSULTANT.

4. Per MMC 22G.090.670(5), interior lot lines should be composed of straight lines. The configuration proposed for Lot 15 would not meet this intent. Please revise lots to have Lot 14 include the panhandle with access to Lot 15 via a shared driveway/easement.

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   ADDRESSED BY OTHER CONSULTANT.

LANDSCAPE PLAN COMMENTS

6. Significant trees, which include evergreen trees eight inches in diameter or greater and/or deciduous trees 12 inches in diameter or greater measured four and one-half feet above grade, shall be retained as follows:

   ADDRESSED BY OTHER CONSULTANT.

   6.1. Perimeter landscaped areas that do not constitute a safety hazard shall be retained.

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t 425.903.4852
f 425.259.1958

6.2. At the discretion of the community development director, the applicant shall be required to hire a certified arborist to evaluate trees proposed for retention, including those located within NGPA tracts (specifically along the fringes) or other areas as identified. The arborist shall make a written recommendation to the community development department with regard to the treatment of the treed area. In the event of an immediate hazard, this requirement shall be waived.

6.3. To provide the best protection for significant trees during the construction stage, the applicant shall install a temporary, five-foot-high, orange clearing limits construction fence in a line generally corresponding to the dripline of any significant tree(s) to be retained. All such fencing shall be installed and inspected by the community development department prior to commencement of site work.

6.4. At the discretion and approval of the community development director, where it is not feasible and/or desirable to retain the significant trees, the applicant may propose a planting plan on an alternative site or area, or payment into the city tree fund, that provides effective replacement of the functions and/or value lost through removal of the significant trees.

7. Stormwater management facilities are required to have a 5ft. L5 landscape buffer. Planting areas may incorporate no more than 30 percent deciduous plantings due to maintenance and pond performance constraints.

Please provide confirmation that the proposed planted buffer would meet this standard.

ADDRESSED BY OTHER CONSULTANT

CRITICAL AREA REVIEW

8. Based on the provide Critical Area Report, prepared by Wetland Resources, Buffer Width Averaging, as outlined in MMC 22E.010.100(5)(a) is being pursued. That said, the averaged buffer can in no case be less than 25% of the 75 ft. buffer width (or 56.25 ft.) per subsection (5)(c). Therefore, the entire area proposed to be disturbed wetland-ward of said reduced buffer line would be subject to variance criteria per MMC 22E.010.100(13).

ADDRESSED BY OTHER CONSULTANT.

8.1. Being as the proposed location of the dispersion facility is not within the allowable modified buffer area, a wetland variance per MMC 22E.010.100(13) would be required. The applicant would be required to provide justification for the proposed variance along with payment of the associated fees would be required.

THE OUTFALL LOCATION FROM THE DETENTION POND FOR THIS PROJECT IS DRIVEN BY THE SITE GRADES. THEREFORE, WE HAVE COORDINATED WITH WETLAND RESOURCES AND A VARIANCE WILL BE SUBMITTED FOR THE CURRENT POND OUTFALL DESIGN.

9. Per MMC 22E.100.380, retaining walls must be setback 15 ft. from the edge of critical area buffers. Therefore, the proposed retaining wall along the backside of Lots 8 – 13 as well as Tract 999 would not be allowed. Further, due to the vertical drop, fall protection fencing would be required to be constructed; per code, two-rail wetland fencing is required.

Please revise to remove the proposed retaining walls along the NGPA tract.

ALL PROPOSED RETAINING WALLS HAVE BEEN MOVED OUTSIDE OF THE 15' SETBACK FROM CRITICAL AREA BUFFERS.

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10. The areas of buffer addition, reduction, and restoration do not appear to match amongst the different plan sets. Please revise to ensure the correct buffer alteration areas are accurately depicted.

THE BUFFER AREAS ARE SHOWN BASED ON LAYOUT PROVIDED BY OTHER CONSULTANTS.

MARYSVILLE FIRE DISTRICT

Brian Merkley, Deputy Fire Marshal
360.363.8541 | bmerkley@mfdrfa.org

GENERAL INFORMATION

11. The project shall comply with current fire code requirements (2018 IFC) including WA State and local City of Marysville amendments to the fire code, city design standards, and all applicable NFPA standards, including IFC Chapter 33 and NFPA 241 construction codes. *NOTED.*
12. Fire marshal approval of fire access and fire hydrant/water supply systems is required as part of the civil construction plan review and approval process. *NOTED.*

WATER RELATED – GIS shows an existing 12 in. main along west side of 83rd Ave NE

13. **Lots 14, 15, and 18 will require 13D sprinkler systems due to access and distance from ROW.**

NOTE ADDED TO SHEET 9.

14. It is the developer's responsibility to see that adequate water for fire protection is attainable. The minimum required fire flow is determined using IFC Appendix B, and depends upon building sizes, construction types, and sprinkler systems. Proof of fire flow will be required. Letter from O'Keefe shows acceptable fire flow. *NOTED.*
15. Maximum hydrant spacing for the proposed SF use is 600 ft. Locations of proposed hydrants appear acceptable. *NOTED.*
16. Fire hydrants shall comply with city Water Design Standard 2-060 Hydrants, including 5" Storz fittings, with blue reflective hydrant markers to be provided in the roadways, located four inches off the centerline on the hydrant side of the road.

THIS DETAILED INFORMATION WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.

17. Fire hydrants shall be provided in approved locations. Fire hydrants on an approved water main extension are required within the site for this development. *NOTED.*
18. Fire hydrants with approved water supply must be in service prior to building construction. *NOTED.*
19. The location of fire hydrants requires fire marshal approval on civil construction plans. *NOTED.*
20. Future homes to be constructed may require residential sprinkler installation for a number of reasons, including: if homes are three or more stories tall, if fire flow from hydrants does not meet fire code requirements, if any part of homes is further than 200' from the public road ROW with no hydrant provided on-site, or to mitigate access deficiencies. *NOTED.*
21. Where residential fire sprinklers may be required the developer should install a water service per Standard Plan 2-090-001 Full ¾" x 1" Meter Service. Under this plan a 1" tap is made at the water main and 1" piping is run to the 1" meter setter. If in the end a ¾" water meter will suffice then all that is required is to install two reducer bushings with the ¾" water meter. A single service tap should be used where sprinklers are required, not a

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double service installation.

NOTED, AND THIS DESIGN WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.

ACCESS RELATED – Single access exists from 83rd Ave NE. Two autocourts are shown on the plan providing access to lots 14, 15, and 18.

22. Turnaround provision is required for dead-end access in excess of 150 feet long. Turnarounds shall comply with city standard plans. Temporary turnaround appears acceptable. *NOTED.*

23. An adequate access route for fire apparatus must be in service prior to any building construction.
NOTED.

24. Access for firefighting operations along all sides of all buildings is required. A minimum 5' wide access is required for SF dwellings. All parts of building exteriors should be accessible for firefighting by an approved route around the building, and be within 150 feet of a minimum 20' wide fire apparatus access. Access appears acceptable. *NOTED.*

25. **"NO PARKING - FIRE LANE"** signs are required on both sides of all roads that are 26 feet wide or less. The signage shall be identified on the approved Civil Plans. (MMC 9.04.101, 2018 IFC Appendix D103.6.1)

NOTED, AND THIS WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.

26. The city address committee will determine road names and address numbers for the lots. *NOTED.*

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Kacey Simon, Civil Plan Reviewer
360.363.8280 | ksimon@marysvillewa.gov

UTILITIES

27. Sanitary sewer: Sewer is located to the north in the adjacent parking lot of the church and can be found on record drawing S775. An offsite easement must be obtained prior to approval if choosing to connect to the sewer in the church parking lot.

NOTED, AND WE ARE SHOWING A CONNECTION TO THE CHURCH AND WORKING TO OBTAIN THE NECESSARY EASEMENT.

28. Water: a 12" ductile iron water main is located in 83rd Ave NE and can be found on record drawing W481. *NOTED AND THE CONNECTION FOR THE PROJECT IS SHOWN FROM THE 12" MAIN.*

29. Storm: There is currently storm that runs along the eastern side of 83rd Ave NE and can be found on record drawing RD8. *NOTED.*

30. Per MMC 14.03.250, utilities are to be extended along the street frontages of the proposed project.

30.1. All utilities currently front the project. *NOTED.*

FRONTAGE IMPROVEMENTS

31. Frontage improvements are required per MMC 12.02A.090 on all projects. Frontage improvements are described as curbs, gutters, and sidewalks; underground storm drainage facilities; patching the street from its preexisting edge to the new curb line; and overlayment of the existing public street to its centerline.

31.1. 83rd Ave NE shall be build compliant with SP 3-201-004.

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FRONTAGE IMPROVEMENTS ARE SHOWN ON THE PLANS TO MEET SP 3-201-004

DEDICATION REQUIREMENTS

32. It appears that an additional 5' right-of-way is required for 83rd Ave NE.

DEDICATION SHOWN AND CALLED OUT ON THE PLANS.

33. The new roadways on site will require a 50 foot wide dedication.

50-FOOT DEDICATION SHOWN ON THE PLANS.

ACCESS

34. The minimum width of a residential driveway is 12-feet and the maximum is 26-feet. Curb cuts shall be limited to a 20 foot maximum.

20' CURB CUTS PROVIDED, BUT PLEASE NOTE THAT FOR NEARBY DRIVEWAYS THE DRIVEWAY FLARE WILL COMBINE EVEN THOUGH TWO 20' WIDE DRIVEWAYS ARE PROVIDED, ONE TO EACH LOT. EXAMPLE LOTS 1&2.

35. Per EDDS 3-302 bullet 5: A minimum corner clearance of 50 feet shall be maintained from the nearest edge of any access point to the edge of traveled way. When minimum corner clearances cannot be attained, the Engineer may require investigation to substantiate whether or not left turns should be prohibited into or out of the access point. See standard plan 3-301-001dimension A. (only applies to subdivisions off of an arterial)

DRIVEWAY LOCATIONS FOR LOTS 1 & 23 ARE SHOWN AS FAR FROM THE INTERSECTION WITH 83RD AVE NE AS POSSIBLE. THE LOT WIDTH DOES NOT ALLOW FOR A FULL 50' CLEARANCE, HOWEVER SINCE THIS IS A LOWER VOLUME ROAD AND THE DRIVEWAYS BEING SERVED ARE FOR SINGLE-FAMILY RESIDENCES, A REDUCTION IN THE CLEARANCE SHOULD NOT AFFECT THE SAFTEY OF THE ROADWAY. IN ADDITION, BOTH DRIVEWAYS ARE MORE THAN 50' FROM THE EDGE OF TRAVEL LANE IN THE FULL BUILD-OUT CONDITIONS FOR 83RD AVE NE WHICH CAN BE USED IN THE CONSIDERATION OF THE DRIVEWAY LOCATION PER EDDS.

36. The new roads shall be constructed to SP 3-202-002.

THE NEW INTERNAL ROAD HAS BEEN DESIGNED TO MEET THIS STANDARD. SECTION SHOWN ON SHEET 5.

37. Elbow intersections per SP 3-209-002 are allowable on local access streets only and are subject to intersection spacing requirements established under section 3-209 of the EDDS.

THE ELBOW HAS BEEN DESIGNED TO MEET THE REQUIREMENTS UNDER BOTH sp 3-209-02 & SECTION 3-209 OF EDDS.

DRAINAGE - All projects in the city of Marysville must comply with requirements stipulated under the MMC 14.15.040 and 14.15.050.

38. Stormwater drainage: The city has adopted the 2019 Ecology Manual. Projects above the 2,000 square feet and/ or 5,000 square feet threshold must comply with requirements stipulated in Volume I of the Stormwater Management Manual for Western Washington.

THE DRAINGE MITIGATION DESIGN FOR THIS PROJECT HAS BEEN PREPARED TO MEET THE 2019 DOE SWMMWW ALONG WITH CITY OF MARYVILLE CODE REQUIREMENTS.

39. The maximum allowed impervious surface coverage for the Zoning designation is 50%.

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THE DETENTION POND WAS ORIGINALLY SIZED FOR 70% LOT IMPERIOUS COVERAGE AND HAS NOW BEEN RECALCULATED FOR 50% MAX. LOT IMPERVIOUS COVERAGE.

STANDARD COMMENTS

40. Survey control datum NAVD-88 and NAD-83 are required to be used. Civil construction plans will not be accepted in any other datum. *NOTED.*

41. Trench restoration is to be completed in accordance with section 3-703 of the EDDS. A full lane or full street overlay may be required. *NOTED.*

42. The onsite grading and placement of any retaining walls must be compliant with section 22D.050.030 of the MMC. *NOTED.*

43. A right of way use permit for all work proposed within City right of way is required. Cost for the ROW permit is $648.00. ROW permit fees must be paid before right of way permit issuance. *NOTED.*

44. The applicant is responsible for identifying any existing well or septic systems on site or on adjacent properties. If there are any existing septic systems on site they need to be decommissioned based on the Snohomish Health District standards. If there are any wells on site they need to be decommissioned based on Department of Ecology standards. *NOTED.*

45. Please refer to MMC 22G.030.020 for applicable plan review and construction inspection fees. *NOTED.*

46. All civil construction plan submittals are to be routed directly to Kacey Simon, Civil Plan Reviewer. The first civil construction plan submittal is to consist of a completed grading permit application, a plan set, a copy of the drainage report and a copy of the geotechnical report. **Once the documents are ready to be submitted, we will provide you a link to where the materials can be uploaded to.**

Civil Plan Review Timing	
1st Review	5 weeks
2nd Review	3 weeks
3rd Review	3 weeks
Subsequent reviews will be 3 weeks	

47. Please be advised these comments are in reference to specific items and do not imply a full review of the proposed application. Additional comments which may change the design requirements will be provided during the civil construction plan review process.
NOTED.

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Brad Zahnow, Development Services Technician
360.363.8205 | bzahnow@marysvillewa.gov

48. **Utility Capital Improvement Fees -** Capital utility fees are assessed in accordance with the attached rate sheet. The "City" rates will be applicable to this project.

49. **Recovery (Latecomer) Fees -** No recovery fees are applicable to this project.

50. **Utility Main Fees -** Main fees for an existing water main within 83rd Ave NE will be assessed at $10.00/ft. of frontage.

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51. **ULID/LID Fees -** No ULID or LID fees are applicable to this project.

UTILITY CAPITAL IMPROVEMENT CHARGES 2023

RESIDENTIAL UNITS

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Residential DU*	Eff 1/1/06	$4,750/du	$5,490/du	$4,490/du	$4,890/du
Inspection		Plumb permit varies	Plumb permit	$100	$100
Admin/Filing Fee		$20	$20	$20	$20

*Dwelling unit includes single-family, multi-unit housing, apts, condos, manufactured homes and mobile homes. Main fees or latecomer fees may apply, depending on location.

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Hotel/Motel	Eff 1/1/06	$1,816/rm	$2,099/rm	$1,717/rm	$1,870/rm
RV Park Pads	Eff 1/1/06	$2,375/pad	$2,745/pad	$2,245/pad	$2,445/pad

SURFACE WATER / STORM DRAINAGE

Surface water capital fee – Eff 1/1/11	Residential - $95/du	Commercial - $95/3200sf of imp surface

METER SERVICES

Meter Size	Tapping Fee	Meter Drop Fee
5/8" x 3/4"	$1,050	$500
3/4" x 3/4"	$1,075	$525
1"	$1,200	$560
1.5"	$1,600	$750
2"	$1,900 min	$850
3", 4", 6", 8"	Time and Material - $3,500 min + $1K/inch	Included in tapping fee

Fire sprinkler systems may require a larger meter for adequate fire flow – consult your designer.

SNOHOMISH COUNTY – PUBLIC WORKS

Gurpreet Dhaliwal, Engineer III
425.388.3870 | gurpreet.dhaliwal@snoco.org

52. Snohomish County Public Works concurs with the distribution and the conclusion that this development will not impact any county capital improvement projects or county road with three or more directional peak hour trips. Therefore, no mitigation and no offer are required of this development to the county under the county/city interlocal agreement. *NOTED*

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CITY OF MARYSVILLE – BUILDING DEPARTMENT

Mike Snook, Building Official
360.363.8210| msnook@marysvillewa.gov

53. Applicant shall comply with any and or all provisions the 2018 Edition of the International Building, Residential, Mechanical, 2018 Uniform Plumbing Codes, and current Washington State Amendments, or 2021 International Codes and Uniform Plumbing code if submitted after March 15, 2024
54. All plans and permit applications will be required to be submitted electronically as part of their submittal process. One (1) complete set of building plans, structural calculations, and 2018 Washington State Energy Code work sheets. 2021 Washington State Energy Codes required if submitted after March 15, 2024.
55. Contact our office if you have questions in regards to permit applications, checklists and/or handouts that you and/or your design team will be preparing plans for on your project.
56. If any demolition of structures is proposed, and you are unsure if permit/s will be required for the removal of any existing structures. Please contact the Building Division at 360-363-8000, to ask any specific questions. An asbestos report will be required for each demo permit.
57. A Geotechnical report shall be submitted to the City for this project. This is to be an in-depth report to address the following:
    - Soil Classification
    - Required Drainage Systems
    - Soil Compaction Requirements
    - Type of Footings, Foundations, and Slabs Allowed
    - Erosion Control Requirements
    - Retaining Walls
    - Fill and Grade
    - Final Grade

    GEOTECHNICAL REPORT PROVIDED IN APPENDIX OF DRAINAGE REPORT.

58. The building structure will be required to be designed under the 2018 IBC, Chapter 16, and Structural Design Requirements. Or 2021 IBC, if submitted after March 15, 2024. The seismic zone criteria is to be established under the guidelines of a Washington State Licensed Architect and/or Structural Engineer.
59. Please provide scaled floor plans with square footage of each room, open areas, and all levels throughout the building.
60. Construction shall comply with the 2018 IBC, Chapter 5 “General Building Heights and Areas”, and any “Area Modifications”.
61. All Mechanical Equipment shall be screened from public view under MMC Provisions. Please indicate how this will be achieved on your building plan, elevation submittal sheets.
62. A Fire Sprinkler system may be required. The applicant is to verify which type of fire sprinkler with the Fire Marshal’s Office.

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63. All Electrical installations are to be permitted, inspected and approved through the City. The current code is NEC 2020 with WCEC Amendments, or 2023 NEC after January 1, 2024. A separate application and maybe plans will be required.
64. Special Inspection may be required. The list of the type of inspections shall be indicated on the plans by the Engineer of Record. The owner is to notify the City of the registered special inspection agency prior to permit issuance.
65. **Building application for plan review will be approximately 4-6 weeks for first-time plan review comments.**

CITY OF MARYSVILLE PUBLIC WORKS – OPERATIONS DEPARTMENT

Kim Bryant, Water Operations Supervisor
360.363.8163| kbryant@marysvillewa.gov

66. Connection to existing water main on 83rd Ave shall be a live tap on the 16" water main located on west side of road, currently plans show connection on the 24" JOA;

CONNECTION SHOWN AND CALLED OUT TO THE 16" MAIN ON THE WEST SIDE OF 83RD AVE NE

67. Relocate hydrant assemblies to behind sidewalk; *DONE*
68. Swap water service and hydrant assembly location on lot 23; *DONE*
69. Install water services for lots 5 and 6 perpendicular to water main; *DONE.*
70. Verify meter boxes located in temporary turn around are traffic rated; *NOTE ADDED TO SHEET 9.*
71. A blow off assembly will be required at end of new water main; *SHOWN AND CALLED OUT.*
72. Water details not shown. *WATER DETAILS WILL BE PROVIDED ON THE CONSTRUCTION PLAN SUBMITTAL AFTER PRELIMINARY PLAT APPROVAL.*

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SNOHOMISH COUNTY PUD

Mary Wickland
425.783.8465| MLWicklund@SNOPUD.com

73. The District presently has enough electric system capacity to serve the proposed development. However, the existing District facilities in the local area may require upgrading. Cost of any work, new or upgrade, to existing facilities that is required to connect this proposed development to the District electric system shall be in accordance with the applicable District policy. The developer will be required to supply the District with suitable locations/easements upon its property for any electrical facilities that must be installed to serve the proposed development. It is unlikely that easements will be granted on District-owned property, or consents granted within District transmission line corridors.
74. Please be advised that per WAC 296-24-960 the minimum worker safety clearance from any District distribution conductor is 10 feet. Therefore, the District requires a minimum 14-foot clearance from any structure to accommodate workers, scaffolding and ladders. Minimum worker safety clearance from 115kV transmission wires is 20 feet.
75. Any relocation, removal or undergrounding of District facilities to accommodate this project and the worker safety clearances shall be at the expense of the project developer and must be coordinated with the PUD in advance of final design.
76. There are wetlands on site. Please include any required utility work in the scope of all applicable land use/development/stormwater permits including for any planned over- or under- stream and wetland utility crossings.
77. The District policy requires the developer to provide a minimum 10-foot easement for underground electrical facilities that must be installed to serve the proposed development. In addition, the developer must maintain an 8-foot clearance between transformers and a 10-foot clearance between switch cabinets and any building/structures upon its property. Additional clearances may be required depending on the equipment in the area and accessibility of the equipment.

CITY OF MARYSVILLE PUBLIC WORKS – TRAFFIC DEPARTMENT

Jesse Hannahs, Traffic Engineering Manager
360.363.8287| jhannahs@marysvillewa.gov

78. Traffic impact fees will be required from the City and depending on trip generation/distribution, may be required from the County and State. *NOTED.*
79. A Traffic Impact Analysis (TIA) will be required. *PROVIDED BY OTHER CONSULTANT*
    - Single family homes Trip Generation shall be 1 PM peak Hour trip per unit consistent with development of Traffic Impact Fee (TIF) calculations.
    - Based upon aerial only, it appears that an existing single family home may be located upon property and would be removed.
    - A credit of 1 PM peak Hour trip may be applied if confirmed.

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- 22 or 23 PM Peak Hour trips shall be assumed for development depending on above comments regarding potential existing single family home.
- **Update to TIA; can be provided via an updated TIA or TIA addendum.**

80. **83rd Ave NE Frontage Improvements:** Lane transitions as proposed appear much too short and not per AASHTO standards for taper length/transition for a 35 mph roadway.

LANE TRANSITIONS HAVE BEEN REMOVED FROM THE DESIGN. CHANNELIZATION PROPOSED WILL NOW REPLACED THE EXISTING WESTERN FOG LINE AFTER CONSTRUCTION AND STRIPE FOR THE BIKE LANE.

81. **Proposed Residential Roadways:** 50' ROW residential roadway cross-section with 28' of asphalt width shall be required per EDDS Standard Plan 3-202-002.

INTERNAL ROAD LAID OUT TO MATCH THIS DETAIL. REFER TO SHEET 5.

82. **ADA Curb Ramps:** Rotate side street ADA ramps across 61st PL NE approximately 5' around radius to provide ramps closer to 83rd Ave NE.

82.1. Stop bar and stop sign are dependent on curb ramp locations as they cannot be in front of curb ramps with less compliance for stop is sign/bar are too far from arterial.

ADA RAMP LOCATION ADJUSTED AND STOP SIGN/BAR ADJUSTED.

83. Undergrounding of existing overhead utilities along frontage of 83rd Ave NE shall be required. *NOTED.*

84. Per EDDS 3-506, street lighting will be required as part of civil construction plans.

NOTED AND THIS WILL BE PROVIDED ON THE FUTURE CONSTRUTION PLANS.

- Proposed residential streets shall be designed as neighborhood collector/residential utilizing 100 watt equivalent LED fixtures.
- 83rd Ave NE shall be designed as minor arterial/residential utilizing 200 watt equivalent LED fixtures.
- Spacing of fixtures should be approximately 180'-220'.
- As part of civil construction approval process, proposed PUD street lighting locations will be provided by the City to the developer for submission to PUD and incorporation into the PUD site electrical plans.
- Contact Eddie Haugen of Snohomish County PUD at (425) 783-8276 or for more information regarding PUD design.

85. A Signing and Channelization plan shall be required as part of civil construction plans.

NOTED AND THIS WILL BE INCLUDED ON THE FUTURE CONSTRUCTION PLAN SUBMITTAL.

85.1. **Signing:** Any signs located upon development frontage will need to be identified and relocated as part of project.

- Signs within development:
- Stop sign upon EB approach of 61st PL NE to 83rd Ave NE.
- Dead End sign at entrance from 83rd Ave NE
- 25 mph speed limit sign 50'-100' after entrance from 83rd Ave NE
- Street Name signs at 90 degree corner of 61st PL NE and New N/S Street.

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- No Parking In Cul-De-Sac sign at entrance to temporary cul-de-sac.
- No parking with arrow signs 10'-20' to each side of outside of 90 degree corner.
- Without these parking restrictions it has been found that Sanitation has consistent challenges picking up garage.
- Type IV Object Markers (2) with Future Roadway Connection sign at northern end of dead end street.

85.2. **Channelization:**

- Stop bar upon EB approach of 61st PL NE to 83rd Ave NE. *PROVIDED ON PLANS.*
- 83rd Ave NE channelization shall not extend into the intersection beyond location of ADA curb ramps to cross 83rd Ave NE. *CORRECTED AND SHOWN ON PLANS.*
- 83rd Ave NE shall be channelized to the extent feasible for ultimate roadway cross-section of three lanes with bike lanes.

AS NOTED IN ITEM 80 ABOVE, THE PROPOSED CHANNELIZATION WILL NOT INCLUDE ANY LANE TRANSITIONS DUE TO THE LIMITED FRONTAGE AND TAPER LENGTHS REQUIRED. THE PROPOSAL IS TO REPLACE THE 4" WHITE FOG-LINE AND ANY OTHER EXISTING CHANNELIZATION DISTURBED BY THIS PROJECT. IN ADDITION, THE BIKE LANE WILL BE STRIPED IN THE FINAL LOCATION ADJACENT TO THE NEW CURB. THESE ARE THE ONLY FEASIBLE CHANNELIZATION IMPROVEMENTS FOR THE PROPOSED PROJECT.

Please let me know if there are any other questions or comments.

Thank you,

Joseph Smeby, P.E.
Omega Engineering, Inc.

February 29, 2024

RE: Civil Response Letter for Chapel Hill Subdivision.
PFN: PA 23-030

Staff,

This letter is intended to provide information regarding the changes to the civil plans and drainage report to address comments provided in a letter dated 1/25/24. All responses to City comments are provided in *ORANGE ALL CAPS ITALICS*.

SUBDIVISION COMMENTS

1. Include File Number PA23-030 on all future correspondence, in addition to all site, civil and landscape plans.

   FILE NUMBER ADDED TO COORESPONDENCE AND ALL CIVIL PLANS AND REPORTS

2. Amend plans to show the top and toe of all proposed walls, including the stormwater detention facility.

   TOP AND TOE ELEVATIONS ADDED TO ALL WALLS INCLUDED IN THE CURRENT DESIGN.

3. On the plat map under "City of Marysville Density Calculation" access easements are deducted. Please identify where the access easement is located.

   ADDRESSED BY OTHER CONSULTANT.

4. Per MMC 22G.090.670(5), interior lot lines should be composed of straight lines. The configuration proposed for Lot 15 would not meet this intent. Please revise lots to have Lot 14 include the panhandle with access to Lot 15 via a shared driveway/easement.

   ADDRESSED BY OTHER CONSULTANT.

   4.1. The plat map notes that mention which lots are to access from said panhandles do not appear to be correct. Revise to clarify which lots are to access via the proposed panhandles.

   4.2. The plat maps also looks as if the handles are to be separate tracts for access. Please revise to remove the dashed lines or clarify if these are to be separate tracts.

5. Per MMC 22C.070.070, Lot 14, 15, and 18 must have proposed dwellings oriented towards 83rd Ave NE, which would include a pedestrian access.

   ADDRESSED BY OTHER CONSULTANT.

LANDSCAPE PLAN COMMENTS

6. Significant trees, which include evergreen trees eight inches in diameter or greater and/or deciduous trees 12 inches in diameter or greater measured four and one-half feet above grade, shall be retained as follows:

   ADDRESSED BY OTHER CONSULTANT.

   6.1. Perimeter landscaped areas that do not constitute a safety hazard shall be retained.

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6.2. At the discretion of the community development director, the applicant shall be required to hire a certified arborist to evaluate trees proposed for retention, including those located within NGPA tracts (specifically along the fringes) or other areas as identified. The arborist shall make a written recommendation to the community development department with regard to the treatment of the treed area. In the event of an immediate hazard, this requirement shall be waived.

6.3. To provide the best protection for significant trees during the construction stage, the applicant shall install a temporary, five-foot-high, orange clearing limits construction fence in a line generally corresponding to the dripline of any significant tree(s) to be retained. All such fencing shall be installed and inspected by the community development department prior to commencement of site work.

6.4. At the discretion and approval of the community development director, where it is not feasible and/or desirable to retain the significant trees, the applicant may propose a planting plan on an alternative site or area, or payment into the city tree fund, that provides effective replacement of the functions and/or value lost through removal of the significant trees.

7. Stormwater management facilities are required to have a 5ft. L5 landscape buffer. Planting areas may incorporate no more than 30 percent deciduous plantings due to maintenance and pond performance constraints.

Please provide confirmation that the proposed planted buffer would meet this standard.

ADDRESSED BY OTHER CONSULTANT

CRITICAL AREA REVIEW

8. Based on the provide Critical Area Report, prepared by Wetland Resources, Buffer Width Averaging, as outlined in MMC 22E.010.100(5)(a) is being pursued. That said, the averaged buffer can in no case be less than 25% of the 75 ft. buffer width (or 56.25 ft.) per subsection (5)(c). Therefore, the entire area proposed to be disturbed wetland-ward of said reduced buffer line would be subject to variance criteria per MMC 22E.010.100(13).

ADDRESSED BY OTHER CONSULTANT.

8.1. Being as the proposed location of the dispersion facility is not within the allowable modified buffer area, a wetland variance per MMC 22E.010.100(13) would be required. The applicant would be required to provide justification for the proposed variance along with payment of the associated fees would be required.

THE OUTFALL LOCATION FROM THE DETENTION POND FOR THIS PROJECT IS DRIVEN BY THE SITE GRADES. THEREFORE, WE HAVE COORDINATED WITH WETLAND RESOURCES AND A VARIANCE WILL BE SUBMITTED FOR THE CURRENT POND OUTFALL DESIGN.

9. Per MMC 22E.100.380, retaining walls must be setback 15 ft. from the edge of critical area buffers. Therefore, the proposed retaining wall along the backside of Lots 8 – 13 as well as Tract 999 would not be allowed. Further, due to the vertical drop, fall protection fencing would be required to be constructed; per code, two-rail wetland fencing is required.

Please revise to remove the proposed retaining walls along the NGPA tract.

THE PROPOSED RETAINING WALLS HAVE BEEN LEFT AS SHOWN AND THE PROJECT BIOLOGIST WILL WORK WITH THE CITY TO OBTAIN THE NECESSARY VARIANCE/ADJUSTMENT.

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10. The areas of buffer addition, reduction, and restoration do not appear to match amongst the different plan sets. Please revise to ensure the correct buffer alteration areas are accurately depicted.

THE BUFFER AREAS ARE SHOWN BASED ON LAYOUT PROVIDED BY OTHER CONSULTANTS.

MARYSVILLE FIRE DISTRICT

Brian Merkley, Deputy Fire Marshal
360.363.8541 | bmerkley@mfdrfa.org

GENERAL INFORMATION

11. The project shall comply with current fire code requirements (2018 IFC) including WA State and local City of Marysville amendments to the fire code, city design standards, and all applicable NFPA standards, including IFC Chapter 33 and NFPA 241 construction codes. *NOTED.*

12. Fire marshal approval of fire access and fire hydrant/water supply systems is required as part of the civil construction plan review and approval process. *NOTED.*

WATER RELATED – GIS shows an existing 12 in. main along west side of 83rd Ave NE

13. **Lots 14, 15, and 18 will require 13D sprinkler systems due to access and distance from ROW.**

NOTE ADDED TO SHEET 9.

14. It is the developer's responsibility to see that adequate water for fire protection is attainable. The minimum required fire flow is determined using IFC Appendix B, and depends upon building sizes, construction types, and sprinkler systems. Proof of fire flow will be required. Letter from O'Keefe shows acceptable fire flow. *NOTED.*

15. Maximum hydrant spacing for the proposed SF use is 600 ft. Locations of proposed hydrants appear acceptable. *NOTED.*

16. Fire hydrants shall comply with city Water Design Standard 2-060 Hydrants, including 5" Storz fittings, with blue reflective hydrant markers to be provided in the roadways, located four inches off the centerline on the hydrant side of the road.

THIS DETAILED INFORMATION WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.

17. Fire hydrants shall be provided in approved locations. Fire hydrants on an approved water main extension are required within the site for this development. *NOTED.*

18. Fire hydrants with approved water supply must be in service prior to building construction. *NOTED.*

19. The location of fire hydrants requires fire marshal approval on civil construction plans. *NOTED.*

20. Future homes to be constructed may require residential sprinkler installation for a number of reasons, including: if homes are three or more stories tall, if fire flow from hydrants does not meet fire code requirements, if any part of homes is further than 200' from the public road ROW with no hydrant provided on-site, or to mitigate access deficiencies. *NOTED.*

21. Where residential fire sprinklers may be required the developer should install a water service per Standard Plan 2-090-001 Full ¾" x 1" Meter Service. Under this plan a 1" tap is made at the water main and 1" piping is run to the 1" meter setter. If in the end a ¾" water meter will suffice then all that is required is to install two reducer bushings with the ¾" water meter. A single service tap should be used where sprinklers are required, not a

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double service installation.

NOTED, AND THIS DESIGN WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.

ACCESS RELATED – Single access exists from 83rd Ave NE. Two autocourts are shown on the plan providing access to lots 14, 15, and 18.

22. Turnaround provision is required for dead-end access in excess of 150 feet long. Turnarounds shall comply with city standard plans. Temporary turnaround appears acceptable. *NOTED.*
23. An adequate access route for fire apparatus must be in service prior to any building construction.
    NOTED.
24. Access for firefighting operations along all sides of all buildings is required. A minimum 5' wide access is required for SF dwellings. All parts of building exteriors should be accessible for firefighting by an approved route around the building, and be within 150 feet of a minimum 20' wide fire apparatus access. Access appears acceptable. *NOTED.*
25. **"NO PARKING - FIRE LANE"** signs are required on both sides of all roads that are 26 feet wide or less. The signage shall be identified on the approved Civil Plans. (MMC 9.04.101, 2018 IFC Appendix D103.6.1)

    NOTED, AND THIS WILL BE PROVIDED ON THE FUTURE CONSTRUCTION PLANS.
26. The city address committee will determine road names and address numbers for the lots. *NOTED.*

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Kacey Simon, Civil Plan Reviewer
360.363.8280 | ksimon@marysvillewa.gov

UTILITIES

27. Sanitary sewer: Sewer is located to the north in the adjacent parking lot of the church and can be found on record drawing S775. An offsite easement must be obtained prior to approval if choosing to connect to the sewer in the church parking lot.

    NOTED, AND WE ARE SHOWING A CONNECTION TO THE CHURCH AND WORKING TO OBTAIN THE NECESSARY EASEMENT.
28. Water: a 12" ductile iron water main is located in 83rd Ave NE and can be found on record drawing W481. *NOTED AND THE CONNECTION FOR THE PROJECT IS SHOWN FROM THE 12" MAIN.*
29. Storm: There is currently storm that runs along the eastern side of 83rd Ave NE and can be found on record drawing RD8. *NOTED.*
30. Per MMC 14.03.250, utilities are to be extended along the street frontages of the proposed project.

    30.1. All utilities currently front the project. *NOTED.*

FRONTAGE IMPROVEMENTS

31. Frontage improvements are required per MMC 12.02A.090 on all projects. Frontage improvements are described as curbs, gutters, and sidewalks; underground storm drainage facilities; patching the street from its preexisting edge to the new curb line; and overlayment of the existing public street to its centerline.

    31.1. 83rd Ave NE shall be build compliant with SP 3-201-004.

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FRONTAGE IMPROVEMENTS ARE SHOWN ON THE PLANS TO MEET SP 3-201-004

DEDICATION REQUIREMENTS

32. It appears that an additional 5' right-of-way is required for 83rd Ave NE.

DEDICATION SHOWN AND CALLED OUT ON THE PLANS.

33. The new roadways on site will require a 50 foot wide dedication.

50-FOOT DEDICATION SHOWN ON THE PLANS.

ACCESS

34. The minimum width of a residential driveway is 12-feet and the maximum is 26-feet. Curb cuts shall be limited to a 20 foot maximum.

20' CURB CUTS PROVIDED, BUT PLEASE NOTE THAT FOR NEARBY DRIVEWAYS THE DRIVEWAY FLARE WILL COMBINE EVEN THOUGH TWO 20' WIDE DRIVEWAYS ARE PROVIDED, ONE TO EACH LOT. EXAMPLE LOTS 1&2.

35. Per EDDS 3-302 bullet 5: A minimum corner clearance of 50 feet shall be maintained from the nearest edge of any access point to the edge of traveled way. When minimum corner clearances cannot be attained, the Engineer may require investigation to substantiate whether or not left turns should be prohibited into or out of the access point. See standard plan 3-301-001dimension A. (only applies to subdivisions off of an arterial)

DRIVEWAY LOCATIONS FOR LOTS 1 & 23 ARE SHOWN AS FAR FROM THE INTERSECTION WITH 83RD AVE NE AS POSSIBLE. THE LOT WIDTH DOES NOT ALLOW FOR A FULL 50' CLEARANCE, HOWEVER SINCE THIS IS A LOWER VOLUME ROAD AND THE DRIVEWAYS BEING SERVED ARE FOR SINGLE-FAMILY RESIDENCES, A REDUCTION IN THE CLEARANCE SHOULD NOT AFFECT THE SAFTEY OF THE ROADWAY. IN ADDITION, BOTH DRIVEWAYS ARE MORE THAN 50' FROM THE EDGE OF TRAVEL LANE IN THE FULL BUILD-OUT CONDITIONS FOR 83RD AVE NE WHICH CAN BE USED IN THE CONSIDERATION OF THE DRIVEWAY LOCATION PER EDDS.

36. The new roads shall be constructed to SP 3-202-002.

THE NEW INTERNAL ROAD HAS BEEN DESIGNED TO MEET THIS STANDARD. SECTION SHOWN ON SHEET 5.

37. Elbow intersections per SP 3-209-002 are allowable on local access streets only and are subject to intersection spacing requirements established under section 3-209 of the EDDS.

THE ELBOW HAS BEEN DESIGNED TO MEET THE REQUIREMENTS UNDER BOTH sp 3-209-02 & SECTION 3-209 OF EDDS.

DRAINAGE - All projects in the city of Marysville must comply with requirements stipulated under the MMC 14.15.040 and 14.15.050.

38. Stormwater drainage: The city has adopted the 2019 Ecology Manual. Projects above the 2,000 square feet and/ or 5,000 square feet threshold must comply with requirements stipulated in Volume I of the Stormwater Management Manual for Western Washington.

THE DRAINGE MITIGATION DESIGN FOR THIS PROJECT HAS BEEN PREPARED TO MEET THE 2019 DOE SWMMWW ALONG WITH CITY OF MARYVILLE CODE REQUIREMENTS.

39. The maximum allowed impervious surface coverage for the Zoning designation is 50%.

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THE DETENTION POND WAS ORIGINALLY SIZED FOR 70% LOT IMPERIOUS COVERAGE AND HAS NOW BEEN RECALCULATED FOR 50% MAX. LOT IMPERVIOUS COVERAGE.

STANDARD COMMENTS

40. Survey control datum NAVD-88 and NAD-83 are required to be used. Civil construction plans will not be accepted in any other datum. *NOTED.*

41. Trench restoration is to be completed in accordance with section 3-703 of the EDDS. A full lane or full street overlay may be required. *NOTED.*

42. The onsite grading and placement of any retaining walls must be compliant with section 22D.050.030 of the MMC. *NOTED.*

43. A right of way use permit for all work proposed within City right of way is required. Cost for the ROW permit is $648.00. ROW permit fees must be paid before right of way permit issuance. *NOTED.*

44. The applicant is responsible for identifying any existing well or septic systems on site or on adjacent properties. If there are any existing septic systems on site they need to be decommissioned based on the Snohomish Health District standards. If there are any wells on site they need to be decommissioned based on Department of Ecology standards. *NOTED.*

45. Please refer to MMC 22G.030.020 for applicable plan review and construction inspection fees. *NOTED.*

46. All civil construction plan submittals are to be routed directly to Kacey Simon, Civil Plan Reviewer. The first civil construction plan submittal is to consist of a completed grading permit application, a plan set, a copy of the drainage report and a copy of the geotechnical report. **Once the documents are ready to be submitted, we will provide you a link to where the materials can be uploaded to.**

Civil Plan Review Timing	
1st Review	5 weeks
2nd Review	3 weeks
3rd Review	3 weeks
Subsequent reviews will be 3 weeks	

47. Please be advised these comments are in reference to specific items and do not imply a full review of the proposed application. Additional comments which may change the design requirements will be provided during the civil construction plan review process.
NOTED.

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Brad Zahnow, Development Services Technician
360.363.8205 | bzahnow@marysvillewa.gov

48. **Utility Capital Improvement Fees -** Capital utility fees are assessed in accordance with the attached rate sheet. The "City" rates will be applicable to this project.

49. **Recovery (Latecomer) Fees -** No recovery fees are applicable to this project.

50. **Utility Main Fees -** Main fees for an existing water main within 83rd Ave NE will be assessed at $10.00/ft. of frontage.

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51. **ULID/LID Fees -** No ULID or LID fees are applicable to this project.

UTILITY CAPITAL IMPROVEMENT CHARGES 2023

RESIDENTIAL UNITS

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Residential DU*	Eff 1/1/06	$4,750/du	$5,490/du	$4,490/du	$4,890/du
Inspection		Plumb permit varies	Plumb permit	$100	$100
Admin/Filing Fee		$20	$20	$20	$20

*Dwelling unit includes single-family, multi-unit housing, apts, condos, manufactured homes and mobile homes. Main fees or latecomer fees may apply, depending on location.

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Hotel/Motel	Eff 1/1/06	$1,816/rm	$2,099/rm	$1,717/rm	$1,870/rm
RV Park Pads	Eff 1/1/06	$2,375/pad	$2,745/pad	$2,245/pad	$2,445/pad

SURFACE WATER / STORM DRAINAGE

Surface water capital fee – Eff 1/1/11	Residential - $95/du	Commercial - $95/3200sf of imp surface

METER SERVICES

Meter Size	Tapping Fee	Meter Drop Fee
5/8" x 3/4"	$1,050	$500
3/4" x 3/4"	$1,075	$525
1"	$1,200	$560
1.5"	$1,600	$750
2"	$1,900 min	$850
3", 4", 6", 8"	Time and Material - $3,500 min + $1K/inch	Included in tapping fee

Fire sprinkler systems may require a larger meter for adequate fire flow – consult your designer.

SNOHOMISH COUNTY – PUBLIC WORKS

Gurpreet Dhaliwal, Engineer III
425.388.3870 | gurpreet.dhaliwal@snoco.org

52. Snohomish County Public Works concurs with the distribution and the conclusion that this development will not impact any county capital improvement projects or county road with three or more directional peak hour trips. Therefore, no mitigation and no offer are required of this development to the county under the county/city interlocal agreement. *NOTED*

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CITY OF MARYSVILLE – BUILDING DEPARTMENT

Mike Snook, Building Official
360.363.8210| msnook@marysvillewa.gov

53. Applicant shall comply with any and or all provisions the 2018 Edition of the International Building, Residential, Mechanical, 2018 Uniform Plumbing Codes, and current Washington State Amendments, or 2021 International Codes and Uniform Plumbing code if submitted after March 15, 2024
54. All plans and permit applications will be required to be submitted electronically as part of their submittal process. One (1) complete set of building plans, structural calculations, and 2018 Washington State Energy Code work sheets. 2021 Washington State Energy Codes required if submitted after March 15, 2024.
55. Contact our office if you have questions in regards to permit applications, checklists and/or handouts that you and/or your design team will be preparing plans for on your project.
56. If any demolition of structures is proposed, and you are unsure if permit/s will be required for the removal of any existing structures. Please contact the Building Division at 360-363-8000, to ask any specific questions. An asbestos report will be required for each demo permit.
57. A Geotechnical report shall be submitted to the City for this project. This is to be an in-depth report to address the following:
    - Soil Classification
    - Required Drainage Systems
    - Soil Compaction Requirements
    - Type of Footings, Foundations, and Slabs Allowed
    - Erosion Control Requirements
    - Retaining Walls
    - Fill and Grade
    - Final Grade

    GEOTECHNICAL REPORT PROVIDED IN APPENDIX OF DRAINAGE REPORT.

58. The building structure will be required to be designed under the 2018 IBC, Chapter 16, and Structural Design Requirements. Or 2021 IBC, if submitted after March 15, 2024. The seismic zone criteria is to be established under the guidelines of a Washington State Licensed Architect and/or Structural Engineer.
59. Please provide scaled floor plans with square footage of each room, open areas, and all levels throughout the building.
60. Construction shall comply with the 2018 IBC, Chapter 5 “General Building Heights and Areas”, and any “Area Modifications”.
61. All Mechanical Equipment shall be screened from public view under MMC Provisions. Please indicate how this will be achieved on your building plan, elevation submittal sheets.
62. A Fire Sprinkler system may be required. The applicant is to verify which type of fire sprinkler with the Fire Marshal’s Office.

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63. All Electrical installations are to be permitted, inspected and approved through the City. The current code is NEC 2020 with WCEC Amendments, or 2023 NEC after January 1, 2024. A separate application and maybe plans will be required.
64. Special Inspection may be required. The list of the type of inspections shall be indicated on the plans by the Engineer of Record. The owner is to notify the City of the registered special inspection agency prior to permit issuance.
65. **Building application for plan review will be approximately 4-6 weeks for first-time plan review comments.**

CITY OF MARYSVILLE PUBLIC WORKS – OPERATIONS DEPARTMENT

Kim Bryant, Water Operations Supervisor
360.363.8163| kbryant@marysvillewa.gov

66. Connection to existing water main on 83rd Ave shall be a live tap on the 16" water main located on west side of road, currently plans show connection on the 24" JOA;

CONNECTION SHOWN AND CALLED OUT TO THE 16" MAIN ON THE WEST SIDE OF 83RD AVE NE

67. Relocate hydrant assemblies to behind sidewalk; *DONE*
68. Swap water service and hydrant assembly location on lot 23; *DONE*
69. Install water services for lots 5 and 6 perpendicular to water main; *DONE.*
70. Verify meter boxes located in temporary turn around are traffic rated; *NOTE ADDED TO SHEET 9.*
71. A blow off assembly will be required at end of new water main; *SHOWN AND CALLED OUT.*
72. Water details not shown. *WATER DETAILS WILL BE PROVIDED ON THE CONSTRUCTION PLAN SUBMITTAL AFTER PRELIMINARY PLAT APPROVAL.*

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SNOHOMISH COUNTY PUD

Mary Wickland
425.783.8465| MLWicklund@SNOPUD.com

73. The District presently has enough electric system capacity to serve the proposed development. However, the existing District facilities in the local area may require upgrading. Cost of any work, new or upgrade, to existing facilities that is required to connect this proposed development to the District electric system shall be in accordance with the applicable District policy. The developer will be required to supply the District with suitable locations/easements upon its property for any electrical facilities that must be installed to serve the proposed development. It is unlikely that easements will be granted on District-owned property, or consents granted within District transmission line corridors.
74. Please be advised that per WAC 296-24-960 the minimum worker safety clearance from any District distribution conductor is 10 feet. Therefore, the District requires a minimum 14-foot clearance from any structure to accommodate workers, scaffolding and ladders. Minimum worker safety clearance from 115kV transmission wires is 20 feet.
75. Any relocation, removal or undergrounding of District facilities to accommodate this project and the worker safety clearances shall be at the expense of the project developer and must be coordinated with the PUD in advance of final design.
76. There are wetlands on site. Please include any required utility work in the scope of all applicable land use/development/stormwater permits including for any planned over- or under- stream and wetland utility crossings.
77. The District policy requires the developer to provide a minimum 10-foot easement for underground electrical facilities that must be installed to serve the proposed development. In addition, the developer must maintain an 8-foot clearance between transformers and a 10-foot clearance between switch cabinets and any building/structures upon its property. Additional clearances may be required depending on the equipment in the area and accessibility of the equipment.

CITY OF MARYSVILLE PUBLIC WORKS – TRAFFIC DEPARTMENT

Jesse Hannahs, Traffic Engineering Manager
360.363.8287| jhannahs@marysvillewa.gov

78. Traffic impact fees will be required from the City and depending on trip generation/distribution, may be required from the County and State. *NOTED.*
79. A Traffic Impact Analysis (TIA) will be required. *PROVIDED BY OTHER CONSULTANT*
    - Single family homes Trip Generation shall be 1 PM peak Hour trip per unit consistent with development of Traffic Impact Fee (TIF) calculations.
    - Based upon aerial only, it appears that an existing single family home may be located upon property and would be removed.
    - A credit of 1 PM peak Hour trip may be applied if confirmed.

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- 22 or 23 PM Peak Hour trips shall be assumed for development depending on above comments regarding potential existing single family home.
- **Update to TIA; can be provided via an updated TIA or TIA addendum.**

80. **83rd Ave NE Frontage Improvements:** Lane transitions as proposed appear much too short and not per AASHTO standards for taper length/transition for a 35 mph roadway.

LANE TRANSITIONS HAVE BEEN REMOVED FROM THE DESIGN. CHANNELIZATION PROPOSED WILL NOW REPLACED THE EXISTING WESTERN FOG LINE AFTER CONSTRUCTION AND STRIPE FOR THE BIKE LANE.

81. **Proposed Residential Roadways:** 50' ROW residential roadway cross-section with 28' of asphalt width shall be required per EDDS Standard Plan 3-202-002.

INTERNAL ROAD LAID OUT TO MATCH THIS DETAIL. REFER TO SHEET 5.

82. **ADA Curb Ramps:** Rotate side street ADA ramps across 61st PL NE approximately 5' around radius to provide ramps closer to 83rd Ave NE.

82.1. Stop bar and stop sign are dependent on curb ramp locations as they cannot be in front of curb ramps with less compliance for stop is sign/bar are too far from arterial.

ADA RAMP LOCATION ADJUSTED AND STOP SIGN/BAR ADJUSTED.

83. Undergrounding of existing overhead utilities along frontage of 83rd Ave NE shall be required. *NOTED.*

84. Per EDDS 3-506, street lighting will be required as part of civil construction plans.

NOTED AND THIS WILL BE PROVIDED ON THE FUTURE CONSTRUTION PLANS.

- Proposed residential streets shall be designed as neighborhood collector/residential utilizing 100 watt equivalent LED fixtures.
- 83rd Ave NE shall be designed as minor arterial/residential utilizing 200 watt equivalent LED fixtures.
- Spacing of fixtures should be approximately 180'-220'.
- As part of civil construction approval process, proposed PUD street lighting locations will be provided by the City to the developer for submission to PUD and incorporation into the PUD site electrical plans.
- Contact Eddie Haugen of Snohomish County PUD at (425) 783-8276 or for more information regarding PUD design.

85. A Signing and Channelization plan shall be required as part of civil construction plans.

NOTED AND THIS WILL BE INCLUDED ON THE FUTURE CONSTRUCTION PLAN SUBMITTAL.

85.1. **Signing:** Any signs located upon development frontage will need to be identified and relocated as part of project.

- Signs within development:
- Stop sign upon EB approach of 61st PL NE to 83rd Ave NE.
- Dead End sign at entrance from 83rd Ave NE
- 25 mph speed limit sign 50'-100' after entrance from 83rd Ave NE
- Street Name signs at 90 degree corner of 61st PL NE and New N/S Street.

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- No Parking In Cul-De-Sac sign at entrance to temporary cul-de-sac.
- No parking with arrow signs 10'-20' to each side of outside of 90 degree corner.
- Without these parking restrictions it has been found that Sanitation has consistent challenges picking up garage.
- Type IV Object Markers (2) with Future Roadway Connection sign at northern end of dead end street.

85.2. **Channelization:**

- Stop bar upon EB approach of 61st PL NE to 83rd Ave NE. *PROVIDED ON PLANS.*
- 83rd Ave NE channelization shall not extend into the intersection beyond location of ADA curb ramps to cross 83rd Ave NE. *CORRECTED AND SHOWN ON PLANS.*
- 83rd Ave NE shall be channelized to the extent feasible for ultimate roadway cross-section of three lanes with bike lanes.

AS NOTED IN ITEM 80 ABOVE, THE PROPOSED CHANNELIZATION WILL NOT INCLUDE ANY LANE TRANSITIONS DUE TO THE LIMITED FRONTAGE AND TAPER LENGTHS REQUIRED. THE PROPOSAL IS TO REPLACE THE 4" WHITE FOG-LINE AND ANY OTHER EXISTING CHANNELIZATION DISTURBED BY THIS PROJECT. IN ADDITION, THE BIKE LANE WILL BE STRIPED IN THE FINAL LOCATION ADJACENT TO THE NEW CURB. THESE ARE THE ONLY FEASIBLE CHANNELIZATION IMPROVEMENTS FOR THE PROPOSED PROJECT.

Please let me know if there are any other questions or comments.

Thank you,

Joseph Smeby

Joseph Smeby, P.E.
Omega Engineering, Inc.

PRELIMINARY PLAT OF CHAPEL HILL

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

ZONING NOTES:

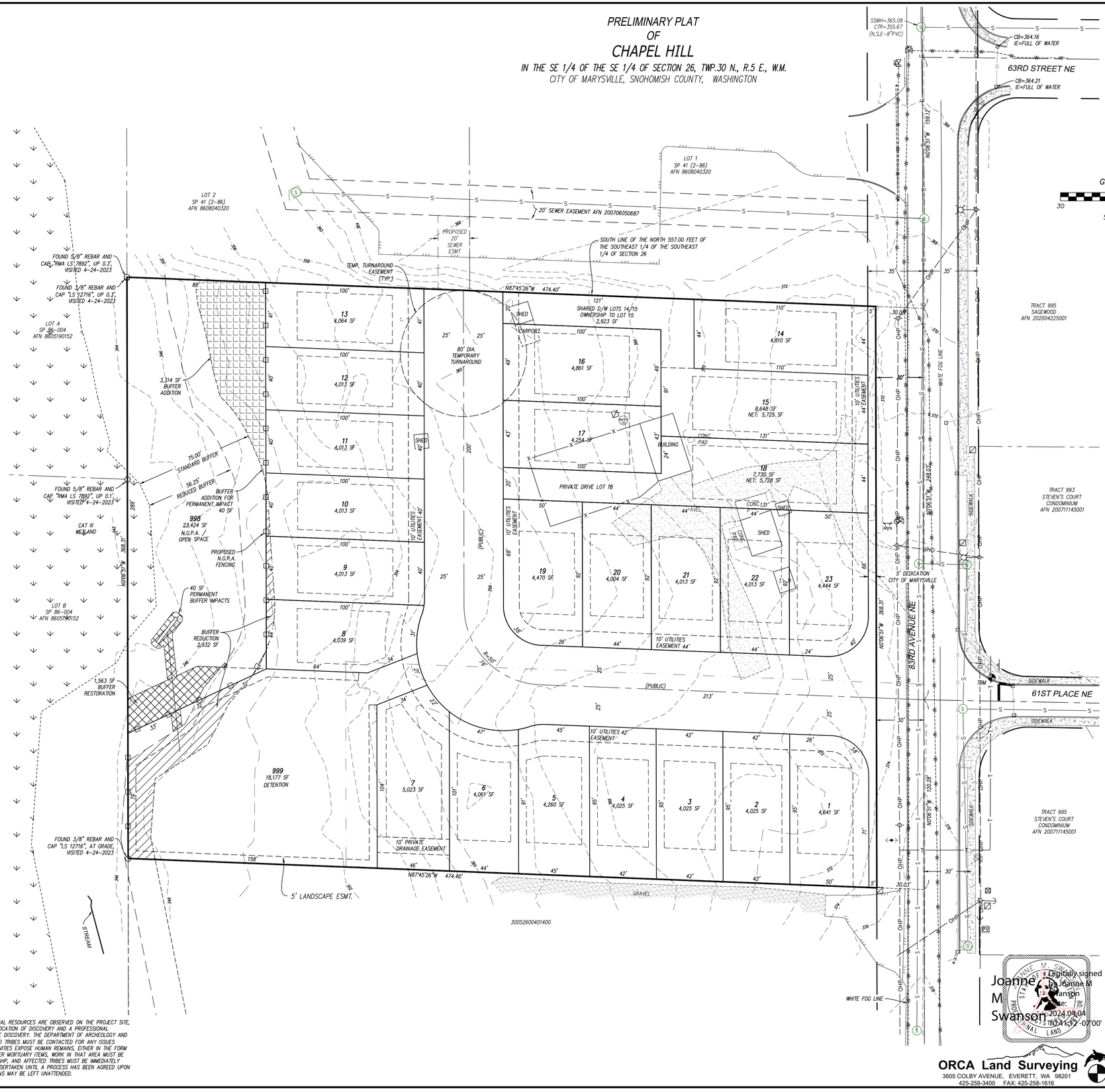
R-8
MINIMUM LOT AREA 4,000 SF
MINIMUM DUPLEX AREA 7,200 SF
MINIMUM LOT WIDTH 40'
MINIMUM LOT FRONTAGE ON PANHANDLE 20'
MAXIMUM BUILDING HEIGHT 30'
MAXIMUM BUILDING COVERAGE 50%
MAXIMUM IMPERVIOUS SURFACES 50%
FRONT YARD SETBACK 20'
STREET SETBACK 10'
REAR YARD SETBACK 20'
SIDE YARD SETBACK 5'
CORNER LOT SETBACK 10'

LEGEND

- BENCHMARK
- FOUND MONUMENT, AS NOTED
- FOUND REBAR, AS NOTED
- WV WATER VALVE
- WATER METER
- FIRE HYDRANT
- POWER/UTILITY POLE
- POWER POLE WITH STREET LIGHT
- UTILITY POLE WITH CONDUIT
- GUY ANCHOR
- JUNCTION BOX
- PV POWER VAULT
- POWER TRANSFORMER
- TPED TELEPHONE PEDESTAL / VAULT
- T TELEPHONE MANHOLE
- S SANITARY SEWER MANHOLE
- CATCH BASIN
- GV GAS VALVE
- GAS METER
- SIGN
- MAILBOX
- GRAVEL
- CONCRETE (WALKS, SLABS, CURB)
- UTILITY PAINT MARK

BUFFER AVERAGING:

SEE CRITICAL AREA STUDY PREPARED BY WETLAND RESOURCES FOR BUFFER AVERAGING AND MITIGATION MEASURES.



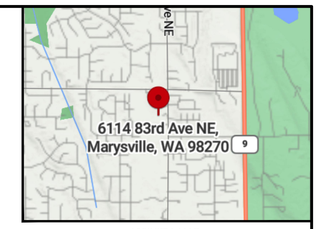
ARCHEOLOGICAL NOTE:

IF AT ANY TIME DURING CONSTRUCTION ARCHEOLOGICAL RESOURCES ARE OBSERVED ON THE PROJECT SITE, WORK SHALL BE TEMPORARILY SUSPENDED AT THE LOCATION OF DISCOVERY AND A PROFESSIONAL ARCHAEOLOGIST SHOULD DOCUMENT AND ASSESS THE DISCOVERY. THE DEPARTMENT OF ARCHEOLOGY AND HISTORIC PRESERVATION (DAHP) AND ALL CONCERNED TRIBES MUST BE CONTACTED FOR ANY ISSUES INVOLVING NATIVE AMERICAN SITES. IF PROJECT ACTIVITIES EXPOSE HUMAN REMAINS, EITHER IN THE FORM OF BURIALS OR ISOLATED BONES OR TEETH, OR OTHER MORTUARY ITEMS, WORK IN THAT AREA MUST BE STOPPED IMMEDIATELY. LOCAL LAW ENFORCEMENT, DAHP, AND AFFECTED TRIBES MUST BE IMMEDIATELY CONTACTED. NO ADDITIONAL EXCAVATION MAY BE UNDERTAKEN UNTIL A PROCESS HAS BEEN AGREED UPON BY THESE PARTIES, AND NO EXPOSED HUMAN REMAINS MAY BE LEFT UNATTENDED.

GRAPHIC SCALE

30 0 30 60

SCALE: 1" = 30'



VICINITY MAP
N.T.S.

OWNER/APPLICANT:
ROBINETT INVESTMENT COMPANY
2825 COLBY AVENUE, SUITE #304
EVERETT, WASHINGTON 98201
(425) 259-9000
EMAIL: GINGER@ROBINETTLAND.COM
CONTACT: GINGER AMUNDSON

PLANNER\CONTACT:
LAND RESOLUTIONS
ATTN: JEN HAUGEN
3605 COLBY AVENUE
EVERETT, WASHINGTON 98201
(425) 258-4438
JEN@ORCALANDSURVEYING.COM

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PAULJAYLA@GMAIL.COM

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ATTN: JOHN LAUFENBERG
9505 19TH AVE SE, SUITE 106
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(425) 337-3174
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOT 1 AND LOT 2, CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

PROJECT INFORMATION

SITE ADDRESS:	6114 83RD AVENUE NE MARYSVILLE, WASHINGTON 98270	
TAX NUMBER:	300526-004-037-00 AND 300526-004-043-00	
PROPOSED LAND USE	HIGH DENSITY SINGLE FAMILY RESIDENTIAL	
EXISTING ZONING:	R 6.5	
SEWAGE DISPOSAL	CITY OF MARYSVILLE SEWER DEPARTMENT	
WATER SUPPLY	CITY OF MARYSVILLE WATER DEPARTMENT	
SCHOOL DISTRICT	MARYSVILLE SCHOOL DISTRICT NO. 25	
FIRE DISTRICT	MARYSVILLE FIRE DISTRICT	
AVERAGE LOT SIZE	4,651 SF	0.11 ACRES
SMALLEST LOT SIZE	4,004 SF	0.09 ACRES

CITY OF MARYSVILLE DENSITY CALCULATION:

TOTAL SITE AREA	174,580 SF	4.01 ACRES
MINUS FLOOD PLAINS	0 SF	0.00 ACRES
MINUS UTILITY EASEMENTS OVER 30'	0 SF	0.00 ACRES
MINUS PUBLIC OWNED FACILITY & R.O.W.	27,517 SF	0.63 ACRES
MINUS STORM WATER DETENTION TRACTS OR EASEMENTS	18,177 SF	0.42 ACRES
MINUS ACCESS EASEMENTS	2,923 SF	0.07 ACRES
MINUS CRITICAL AREAS UNDER WATER	0 SF	0.00 ACRES
MINUS PANHANDLES	2,002 SF	0.05 ACRES
NET SITE AREA	123,717 SF	2.84 ACRES

SFR UNITS = 2.84 X 8 = 22.74
TOTAL = 23 UNITS MAXIMUM
WE ARE PROPOSING 23 UNITS WITH THIS APPLICATION.

PROJECT NOTES:

1) ONSITE DENSITY PROVISIONS PER MMC 22.E.010.360 ARE PROPOSED WITH THIS APPLICATION DUE TO CRITICAL AREAS ON SITE.
2) NEAREST FIRE HYDRANT IS LOCATED APPROXIMATELY 230' NORTH OF THE SOUTHEAST CORNER OF THE SITE ON THE WEST SIDE OF 83RD AVENUE NE, ALONG SITE FRONTAGE.
3) 10' UTILITIES EASEMENT ABUTTING ROAD FRONTAGE ON ALL LOTS AND TRACTS AT TIME OF RECORDING.
4) ALL LOT AREAS ARE GROSS AREAS UNLESS OTHERWISE NOTED.
5) PROJECT SHALL BE CONSTRUCTED IN ONE PHASE.
6) HOUSE AND DRIVEWAY LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS WITHIN PERMITTED BUILDING SETBACKS TO BE DETERMINED AT TIME OF BUILDING PERMIT.
7) ALL EXISTING STRUCTURES TO BE REMOVED.
8) FRONT BUILDING SETBACK 10' FACE OF BUILDING, 20' TO GARAGE.

EQUIPMENT & PROCEDURES

INSTRUMENTATION: LEICA TCRM1205 TOTAL STATION AND STONEX S900 GNSS

METHOD OF SURVEY: COMBINED FIELD TRAVERSE AND GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) OBSERVATION

PRECISION: MEETS OR EXCEEDS W.A.C. 332-130-090 REQUIREMENTS.

BASIS OF BEARING: THE EAST LINE OF THE SOUTHEAST 1/4, AS THE BEARING OF N 01°14'11" E, PER RECORD OF SURVEY, RECORDED UNDER A.F. NO. 9012075006. ROTATED TO (GNSS) OBSERVATIONS BEING N 0°06'51" W.

REFERENCES: RECORD OF SURVEY, A.F. NO. 9012075006

VERTICAL DATUM: NAVD 88, AS OBTAINED BY (GNSS) OBSERVATION. (CONVERSION TO NGVD29 - 3.734)

TBM - TEMPORARY BENCH MARK: MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

NOTES

1) THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT, AND DOES NOT PURPORT TO SHOW ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND/OR OCCUPATION WHICH MAY ENCUMBER TITLE TO OR USE THIS PROPERTY.
2) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT THE EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.
3) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

JOANNE M. SWANSON — STATE OF WASHINGTON — 22411 — REGISTERED PROFESSIONAL LAND SURVEYOR
Joanne M Swanson
Digitally signed by Joanne M Swanson
Date: 2024.04.04 15:10:41-12'00'

ORCA Land Surveying
3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
3605 Colby Avenue :: Everett, WA 98201
tele (425) 258-4438 :: fax (425) 258-1616

PRELIMINARY PLAT MAP OF CHAPEL HILL
CITY FILE NO. PA23-030

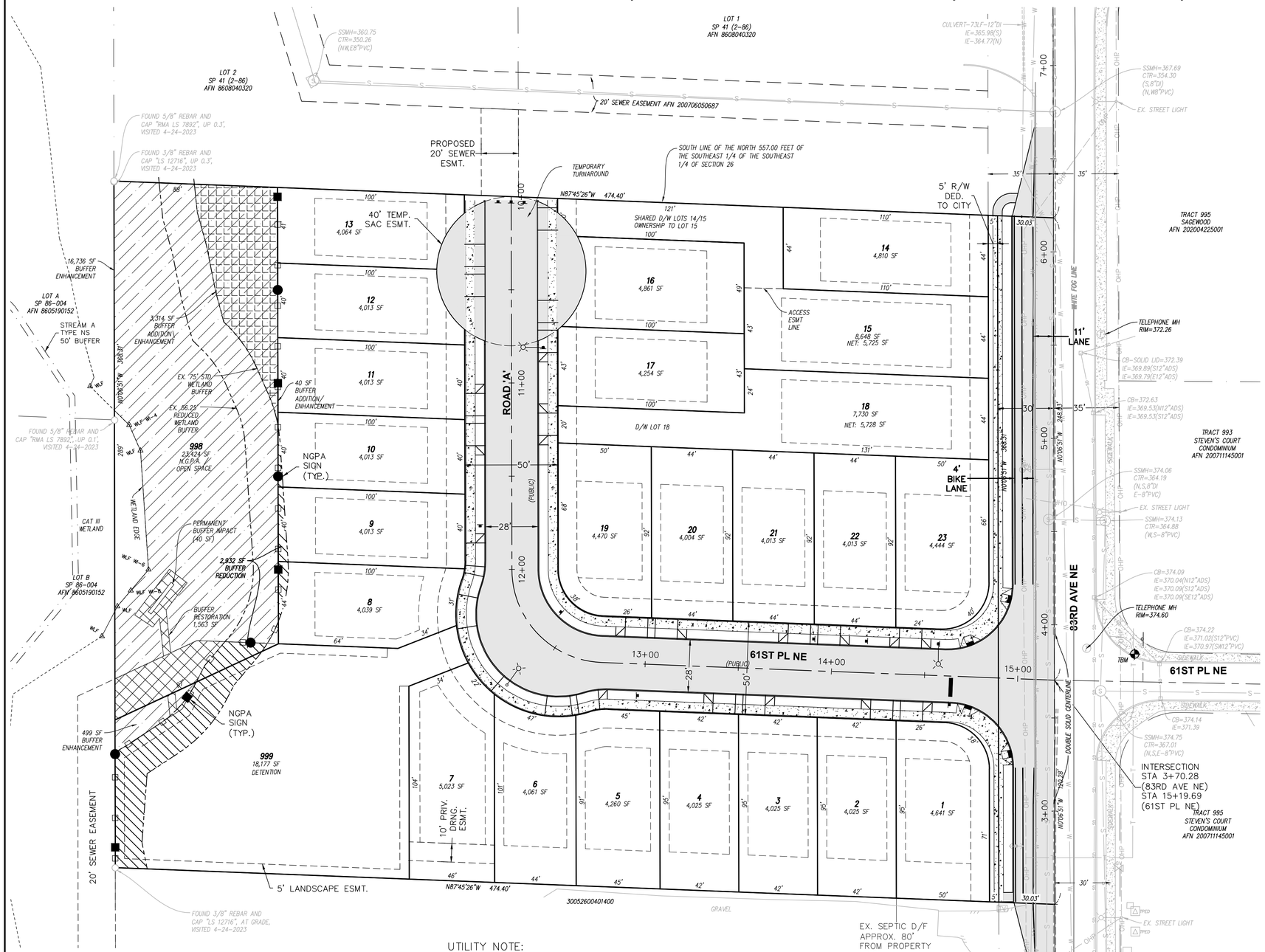
IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M. & CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

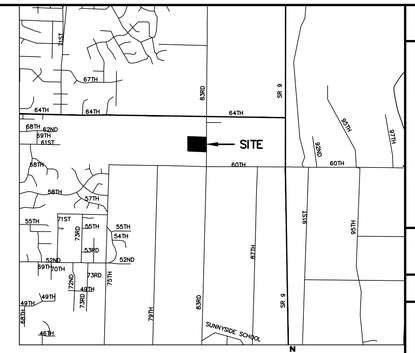
SHEET 1 OF 1

PROJECT: 2023-017 | DWG BY: JLH | DATE: 4/2/2024 | REV:

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.





PROJECT DESIGN TEAM

SURVEYOR
ORCA LAND SURVEYING
JOANNE M. SWANSON, PLS
3605 COLBY AVE
EVERETT, WA 98201
425.259.3400

APPLICANT
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425.259.9000
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CONTACT: GINGER AMUNDSON

PLANNER/CONTACT
LAND RESOLUTIONS
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EVERETT, WA 98201
425.258.4438
ATTN: JEN HAUGEN

OWNER
VAN CLEAVE BERKBIGLER
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MARYSVILLE, WA 98270

CIVIL ENGINEER
OMEGA ENGINEERING, INC.
JOSEPH SMEBY, PE
2707 WETMORE AVE.
EVERETT, WA 98201
425.903.4852
F: 425.259.1958

WETLAND ECOLOGIST:
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9505 19TH AVE SE, STE 106
EVERETT, WA 98208
EMAIL:
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOTS 1 & 2 OF CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER AUDITOR'S FILE NUMBER 9104180195, RECORDS OF SNOHOIMSH COUNTY, WASHINGTON.

EXCEPT THAT PORTION IF ANY LYING WITH DEED TO STATE OF WASHINGTON, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

DATUM NAVD 88 (CONVERSION TO NGVD29 – 3.734)

TEMP. BENCHMARK
MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK
AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

SITE DATA

SITE ADDRESS:	6114 83RD AVE NE, MARYSVILLE, WA 98270
TAX ACCOUNT NO.:	30052600403700
ZONING:	R 6.5
WATER SUPPLY:	CITY OF MARYSVILLE
SEWAGE DISPOSAL:	CITY OF MARYSVILLE
FIRE DISTRICT:	MARYSVILLE FIRE DISTRICT
GROSS SITE AREA:	4.01 ACRES (174,580 SF)

DRAWING INDEX

1) PROJECT COVER SHEET
2) EXISTING CONDITIONS
3) SWPPP
4) FRONTAGE PLAN & PROFILE
5) GRADING PLAN
6) DRAINAGE PLAN
7) ROAD 'A' PROFILE
8) POND DETAIL
9) SEWER & WATER PLAN
10) NOTES

PFN: PA23-030

Know what's below. Call two business days before you dig.

ARCHEOLOGICAL NOTE:

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UTILITY NOTE:

ALL NECESSARY POWER LINES, TELEPHONE WIRES, TELEVISION CABLES, FIRE ALARM SYSTEMS AND OTHER COMMUNICATION WIRES, CABLE OR LINES SHALL BE PLACED IN UNDERGROUND LOCATION EITHER BY DIRECT BURIAL OR BY MEANS OF CONDUIT OR DUCT. ALL SUCH UNDERGROUND INSTALLATIONS OR SYSTEMS SHALL BE APPROVED BY THE APPROPRIATE UTILITY COMPANY AND SHALL ADHERE TO ALL GOVERNING APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THE APPLICABLE CITY AND STATE REGULATIONS AND SPECIFIC REQUIREMENTS OF THE APPROPRIATE UTILITY PURSUANT TO MMC SECTION 22.G.090.710.

BUILDING SETBACKS:

FRONT: 20'
STREET: 10'
REAR YARD: 20'
SIDE YARD: 5'
CORNER LOT: 10'

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

R#	DATE	DESCRIPTION	BY

4/2/2024

COVER SHEET

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

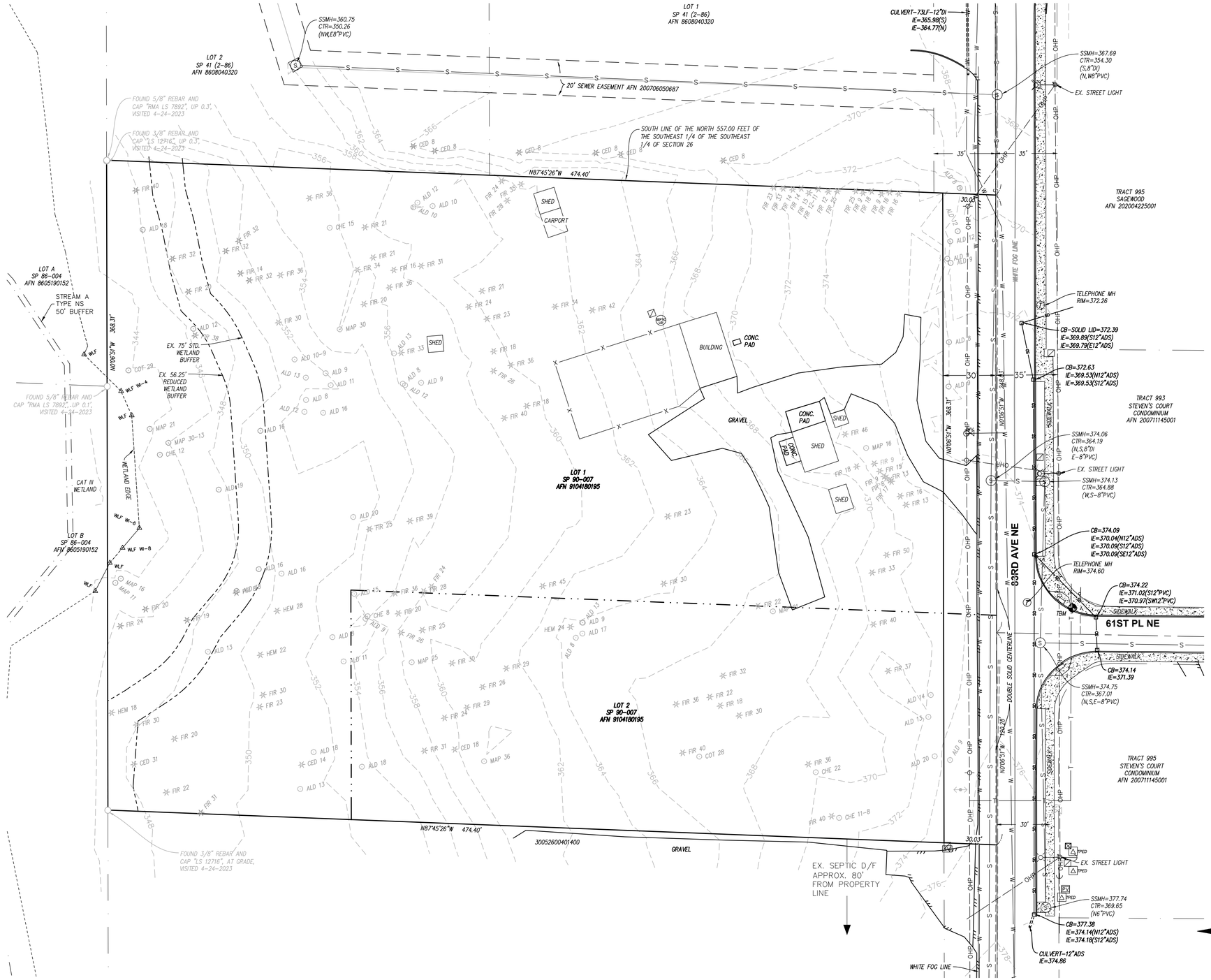
CHAPEL HILL

CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	4/2/2024
SCALE:	1" = 30'
DRAWING NO.	1 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



R#	DATE	DESCRIPTION	BY

JOSEPH M. ROMS — PROFESSIONAL ENGINEER — STATE OF WASHINGTON

4/2/2024

EXISTING CONDITIONS

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP
30 NORTH, RANGE 5 EAST, W.M.

811 Know what's below. Call two business days before you dig.

PFN: PA23-030

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

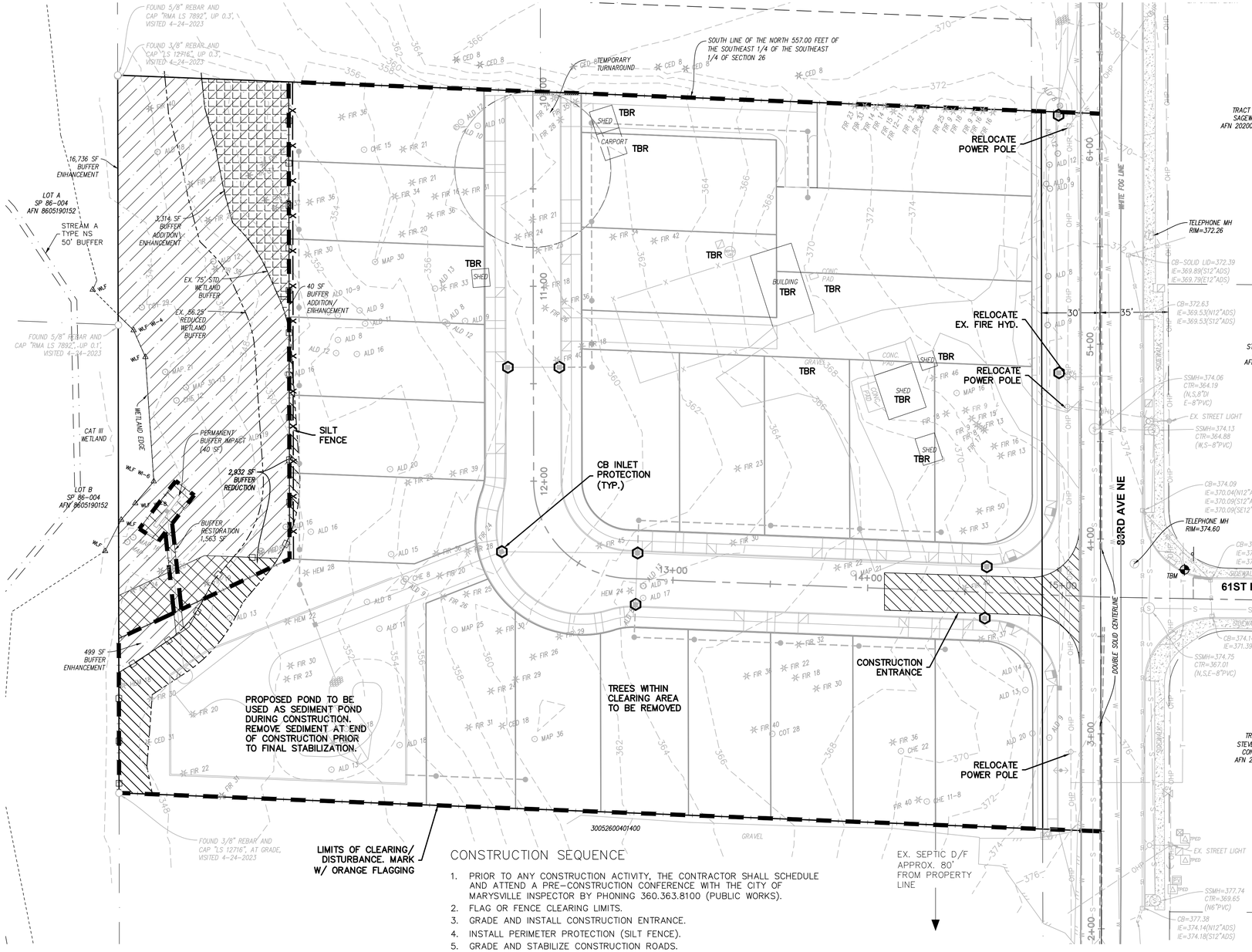
KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 30'	
DRAWING NO. 2 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



GRADING, EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL LIMITS OF CLEARING AND AREAS OF VEGETATION PRESERVATION AS PRESCRIBED ON THE PLANS SHALL BE CLEARLY FLAGGED IN THE FIELD AND OBSERVED DURING CONSTRUCTION.
2. ALL REQUIRED SEDIMENTATION AND EROSION CONTROL FACILITIES MUST BE CONSTRUCTED AND IN OPERATION PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE NATURAL DRAINAGE SYSTEM. THE CONTRACTOR SHALL SCHEDULE AN INSPECTION OF THE EROSION CONTROL FACILITIES PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION. ALL EROSION AND SEDIMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION AS DETERMINED BY THE CITY, UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND FINAL STABILIZATION HAS OCCURRED. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT, AND ADDITIONS TO THE EROSION AND SEDIMENTATION CONTROL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.
3. THE EROSION AND SEDIMENTATION CONTROL SYSTEM FACILITIES DEPICTED ON THESE PLANS ARE INTENDED TO BE MINIMUM REQUIREMENTS TO MEET ANTICIPATED SITE CONDITIONS. AS CONSTRUCTION PROGRESSES AND UNEXPECTED OR SEASONAL CONDITIONS DICTATE, FACILITIES WILL BE NECESSARY TO ENSURE COMPLETE SILTATION CONTROL ON THE SITE. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE PERMITTEE TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE THE MINIMUM REQUIREMENTS, AS MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES, AND/OR STORM DRAINAGE SYSTEMS.
4. APPROVAL OF THESE PLANS IS FOR GRADING, TEMPORARY DRAINAGE, EROSION AND SEDIMENTATION CONTROL ONLY. IT DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT STORM DRAINAGE DESIGN, SIZE OR LOCATION OF PIPES, RESTRICTORS, CHANNELS, OR RETENTION FACILITIES.
5. ANY DISTURBED AREA WHICH HAS BEEN STRIPPED OF VEGETATION AND WHERE NO FURTHER WORK IS ANTICIPATED FOR THE TIME PERIOD SET FORTH BY THE SWPPP, MUST BE IMMEDIATELY STABILIZED WITH MULCHING, GRASS PLANTING, OR OTHER APPROVED EROSION CONTROL TREATMENT APPLICABLE TO THE TIME OF YEAR IN QUESTION. DURING THE DRY SEASON (MAY 1 – SEPTEMBER 30) SOILS MAY BE EXPOSED AND UNWORKED FOR 7 DAYS. DURING THE WET SEASON (OCTOBER 1 – APRIL 30) SOILS MAY BE EXPOSED AND UNWORKED FOR 2 DAYS. GRASS SEEDING ALONE WILL BE ACCEPTABLE ONLY DURING THE DRY SEASON. SEEDING MAY PROCEED OUTSIDE THE SPECIFIED TIME PERIOD WHENEVER IT IS IN THE INTEREST OF THE PERMITTEE BUT MUST BE AUGMENTED WITH MULCHING, NETTING, OR OTHER TREATMENT APPROVED BY THE CITY.
6. IN CASE EROSION OR SEDIMENTATION OCCURS TO ADJACENT PROPERTIES, ALL CONSTRUCTION WORK WITHIN THE DEVELOPMENT THAT WILL FURTHER AGGRAVATE THE SITUATION MUST CEASE, AND THE OWNER/CONTRACTOR WILL IMMEDIATELY COMMENCE RESTORATION METHODS. RESTORATION ACTIVITY WILL CONTINUE UNTIL SUCH TIME AS THE AFFECTED PROPERTY OWNER IS SATISFIED.
7. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED BY TEMPORARY SEEDING AND MULCHING. HYDROSEEDING IS PREFERRED. NO TEMPORARY OR PERMANENT STOCKPILING OF MATERIALS OR EQUIPMENT SHALL OCCUR WITHIN CRITICAL AREAS OR ASSOCIATED BUFFERS, OR THE CRITICAL ROOT ZONE FOR VEGETATION PROPOSED FOR RETENTION.
8. NON COMPLIANCE WITH THE REQUIREMENTS FOR EROSION CONTROLS, WATER QUALITY, AND CLEARING LIMITS MAY RESULT IN REVOCATION OF PROJECT PERMIT, PLAN APPROVAL, AND BOND FORECLOSURES.
9. ALL EARTH WORK SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARDS. PRECONSTRUCTION SOILS INVESTIGATION MAY BE REQUIRED TO EVALUATE SOILS STABILITY.
10. IF CUT AND FILL SLOPES EXCEED A MAXIMUM OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL, A ROCK OR CONCRETE RETAINING WALL MAY BE REQUIRED. ALL ROCK RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT ARE TO BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER EXPERIENCED IN SOIL MECHANICS.
11. THE SURFACE OF ALL SLOPES SHALL BE COMPACTED. THIS MAY BE ACCOMPLISHED BY OVER-BUILDING THE SLOPES, THEN CUTTING BACK TO FINAL GRADES; OR BY COMPACTING EACH LIFT AS THE SLOPE IS BEING CONSTRUCTED. ALL SLOPES SHALL BE COMPACTED BY THE END OF EACH WORKING DAY.
12. UPON COMPLETION OF WORK, FINAL REPORTS MUST BE SUBMITTED TO THE CITY IN CONFORMANCE WITH THE CURRENT CITY ADOPTED INTERNATIONAL BUILDING CODE.

811 Know what's below. Call two business days before you dig.

CONSTRUCTION SEQUENCE

1. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF MARYSVILLE INSPECTOR BY PHONING 360.363.8100 (PUBLIC WORKS).
2. FLAG OR FENCE CLEARING LIMITS.
3. GRADE AND INSTALL CONSTRUCTION ENTRANCE.
4. INSTALL PERIMETER PROTECTION (SILT FENCE).
5. GRADE AND STABILIZE CONSTRUCTION ROADS.
6. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF MARYSVILLE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
7. RELOCATE SURFACE WATER CONTROLS OR EROSION CONTROL MEASURES, OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH CITY OF MARYSVILLE EROSION AND SEDIMENT CONTROL STANDARDS.
8. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR EQUIVALENT.
9. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE.
10. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
11. UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMP'S IF APPROPRIATE.
12. REMOVE ALL ACCUMULATED SEDIMENT FROM CONVEYANCE SYSTEM AND FINAL PONDS AND PREPARE FOR FINAL USE AS DETENTION/WET PONDS.

CONSTRUCTION ENTRANCE NOTE:
VACUUM SWEEPER TO BE ON-SITE DURING IMPORT AND EXPORT OF DIRT, GRAVEL AND OTHER MATERIALS.

TOPSOIL/STOCK PILE NOTE:
ALL MATERIAL GENERATED ON-SITE WILL BE STOCKPILED IN AREAS SHOWN AND ALL IMPORT MATERIAL WILL BE PLACED DAILY.

ALL STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING AT THE END OF EACH DAY. BMP C123

CLEARING/DISTURBANCE AREA NOTE:
SILT FENCE SHALL BE INSTALLED AS NEEDED TO PROTECT ADJACENT PROPERTIES AND ENSURE SEDIMENT LADEN RUNOFF DOES NOT LEAVE THE SITE OR ENTER ON-SITE CRITICAL AREAS.

LEGEND

- CLEARING LIMITS
- SILT FENCE
- CATCH BASIN (CB) INLET PROTECTION
- CONSTRUCTION ENTRANCE

GRADING QUANTITIES:

CUT = 4,000 C.Y.
FILL = 4,000 C.Y.

GRADING QUANTITIES CALCULATED USING AUTOCAD GRID SUBTRACTION METHOD COMPARING EXISTING GRADE TO FINISHED GRADE.

N

0 30 60
HORIZONTAL SCALE

PFN: PA23-030

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — 4/2/2024

SWPPP

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

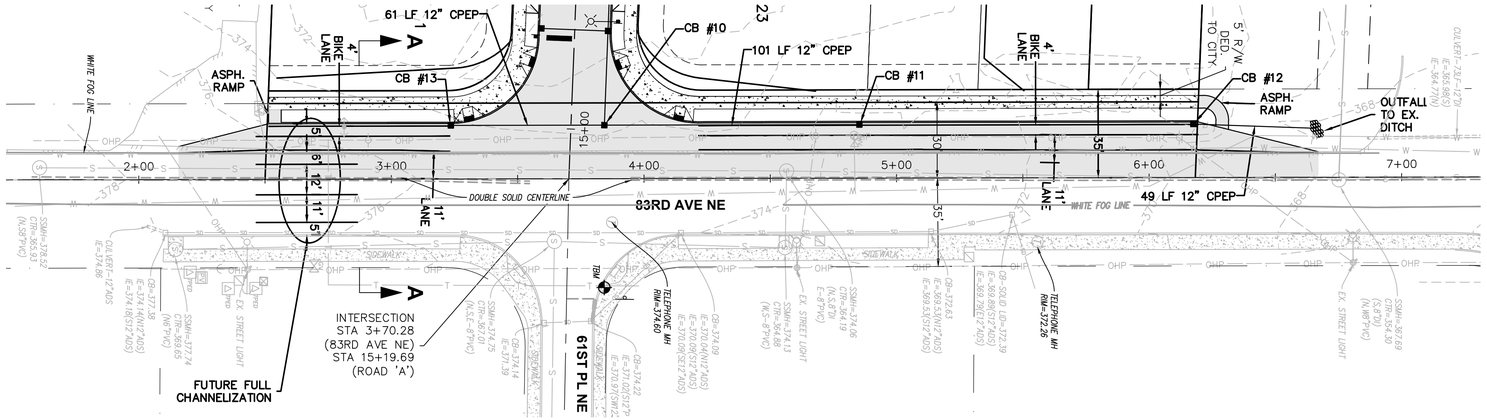
OMEGA ENGINEERING, INC.

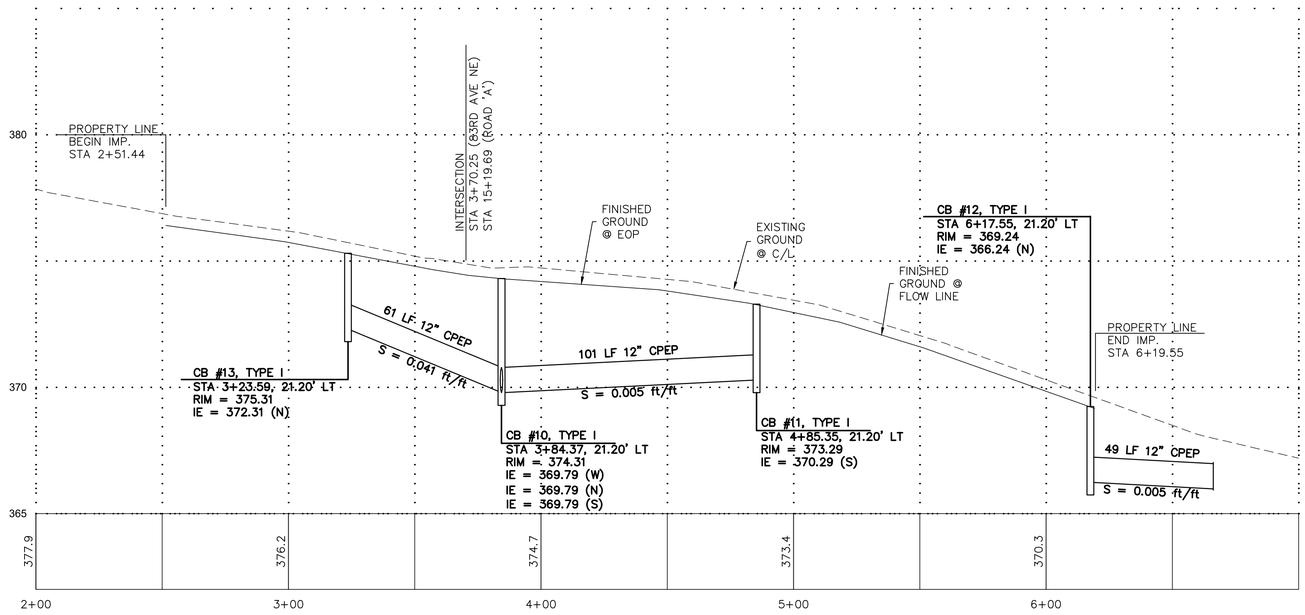
CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 30'	
DRAWING NO. 3 OF 10	

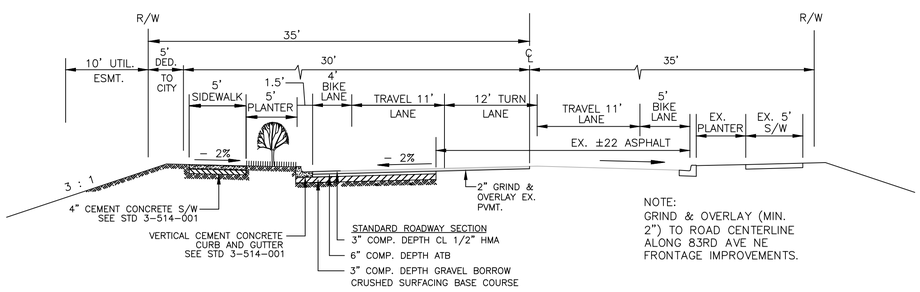
CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.

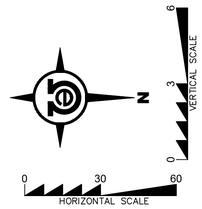




83RD AVE NE CENTERLINE PROFILE



SECTION A-A
83RD AVE NE
COM STD. PLAN 3–201–004



811 Know what's below. Call two business days before you dig.

PFN: PA23-030

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ROMS — PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 22400 — REGISTERED PROFESSIONAL ENGINEER
4/2/2024

FRONTAGE IMP.
83RD AVE NE
PLAN & PROFILE

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

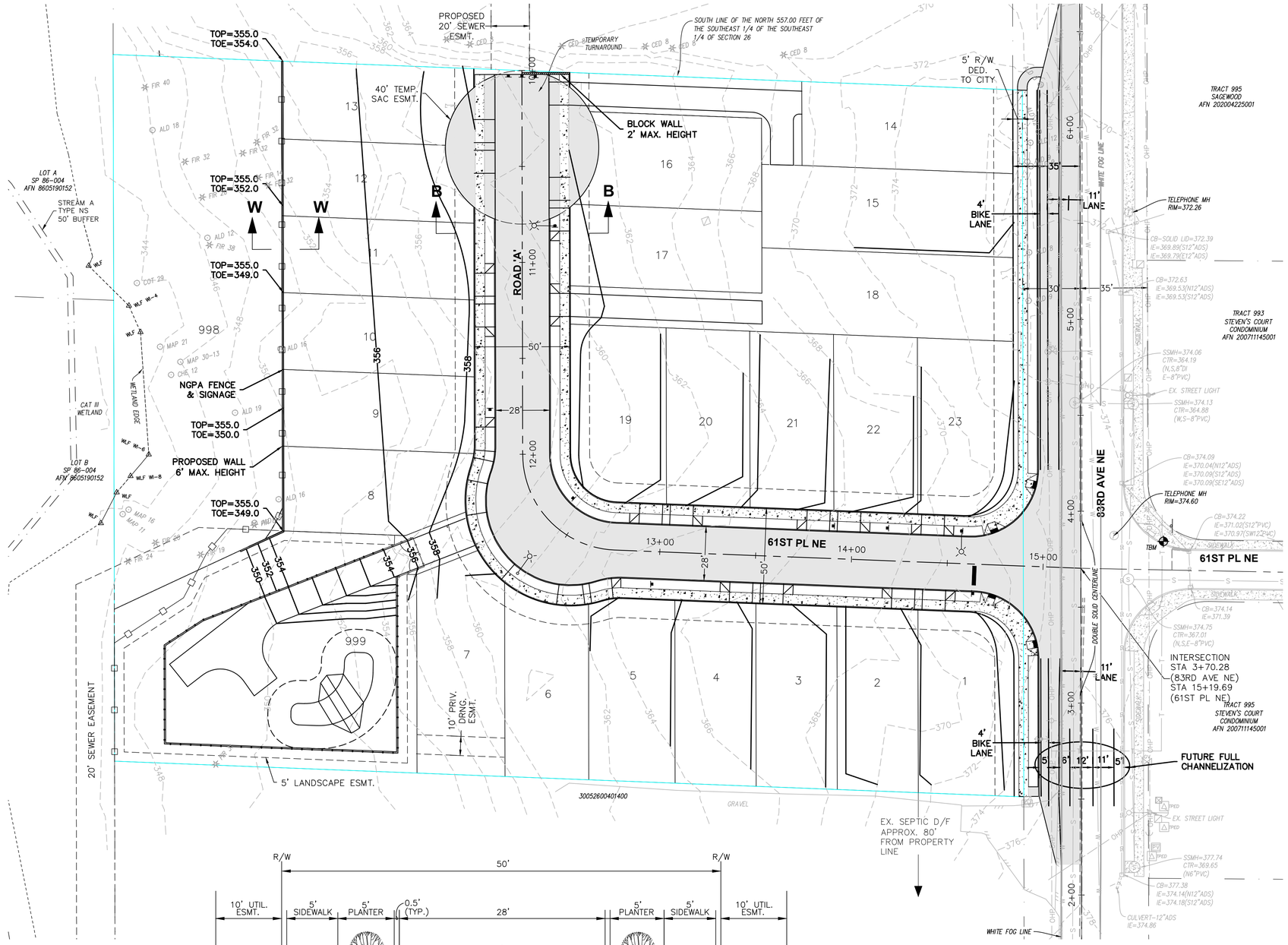
OMEGA ENGINEERING, INC.

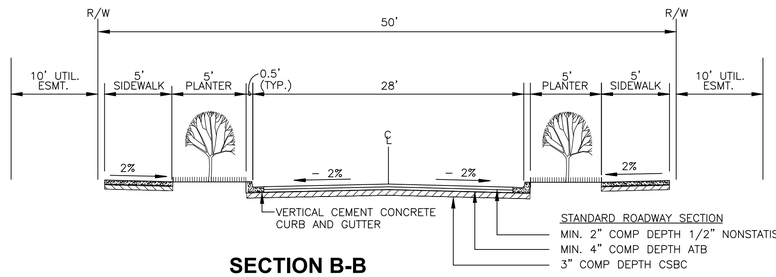
CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 30'	
DRAWING NO. 4 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.





SECTION B-B
ROAD 'A'
LOCAL ACCESS STREET
COM STD. PLAN 3-202-002
N.T.S.

N

0 30 60
HORIZONTAL SCALE

PFN: PA23-030

811 Know what's below. Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ROMS — 21009 — REGISTERED PROFESSIONAL ENGINEER — 4/2/2024

ROAD & GRADING

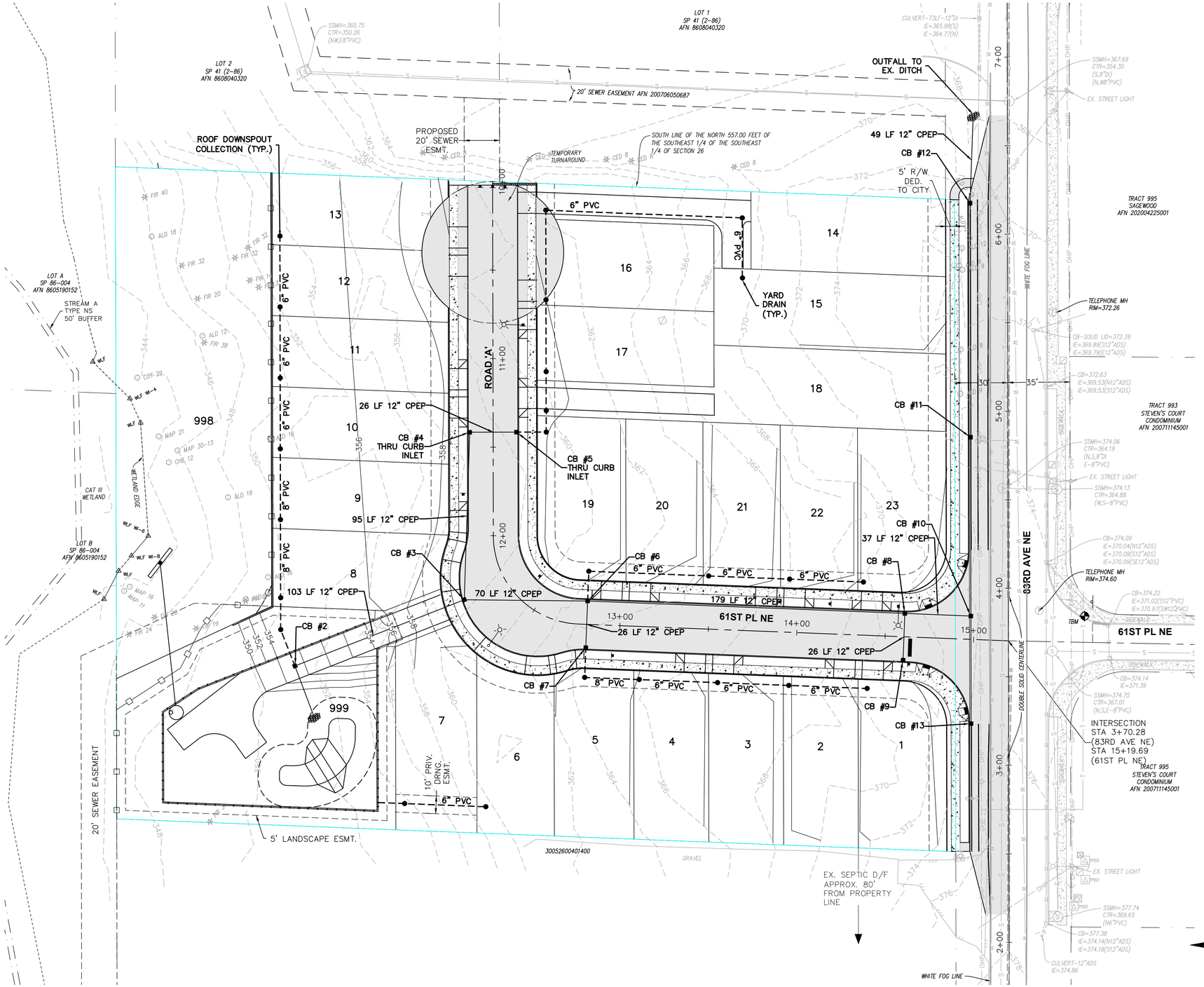
2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958
OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 30'	
DRAWING NO. 5 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



811
Know what's below.
Call two business
days before you dig.

PFN: PA23-030

CITY OF MARYSVILLE
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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — 4/2/2024

DRAINAGE PLAN

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

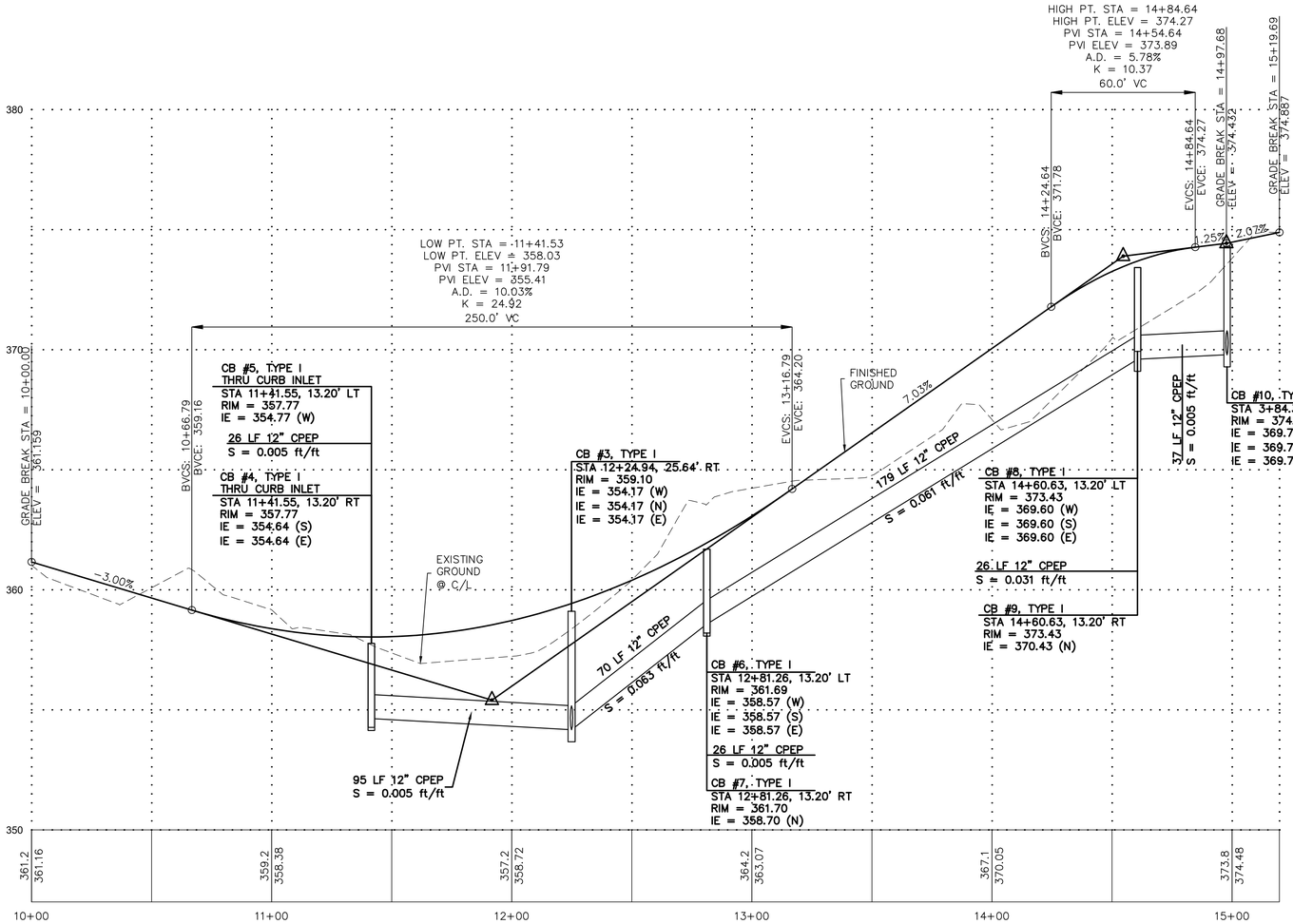
CHAPEL HILL

CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP
30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	4/2/2024
SCALE:	1" = 30'
DRAWING NO.	6 OF 10

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



61ST PL NE CENTERLINE PROFILE

0 30 60
HORIZONTAL SCALE

0 3 6
VERTICAL SCALE

811
Know what's below.
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JOSEPH M. ROMS — PROFESSIONAL ENGINEER — 4/2/2024

ROAD 'A' PROFILE

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

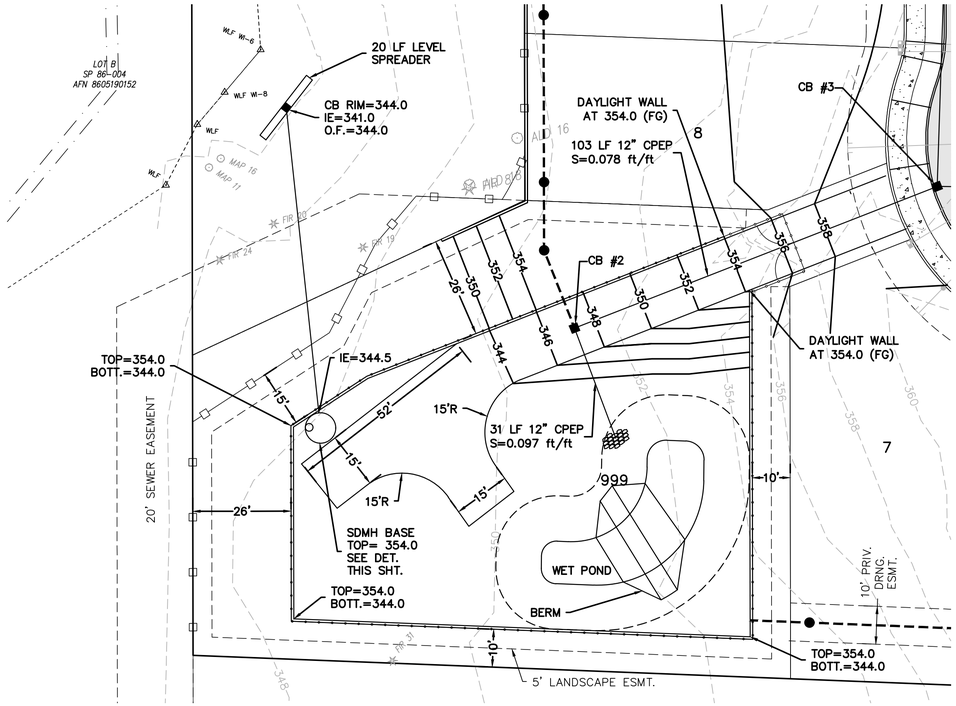
OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 30'	
DRAWING NO. 7 OF 10	

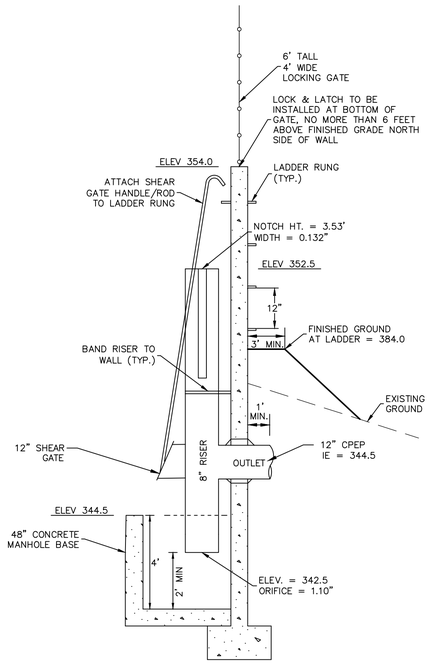
CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.

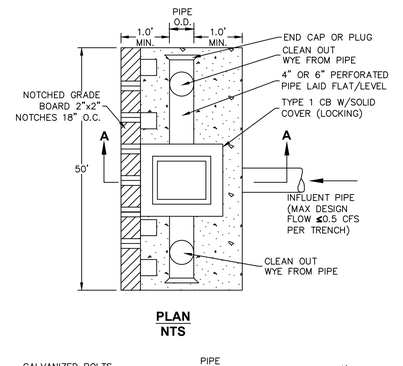


DETENTION PERFORMANCE CHART							
STORM EVENT	VOLUME STORAGE REQ. (CU FT)				MAXIMUM RELEASE RATES		
	DEAD	LIVE	DESIGNED	AS-BUILT	RATE	DESIGNED	AS-BUILT
2 YR	5,000	26,705	32,000	.	0.130	0.065	.
50 YR	.	42,780	50,000	.	0.440	0.176	.

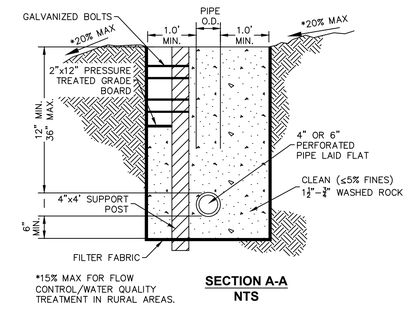
DESIGN IMPERVIOUS AREA PER LOT = 50%
ROADS & ACCESS TRACTS AS SHOWN



SDMH BASE/WALL SECTION
NOT TO SCALE

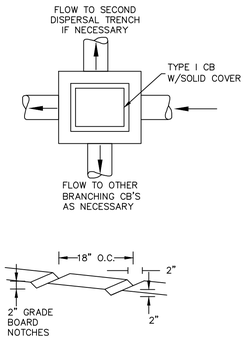


PLAN
NTS



*15% MAX FOR FLOW CONTROL/WATER QUALITY TREATMENT IN RURAL AREAS.

SECTION A-A
NTS



NOTES:

1. THIS TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE AND/OR EROSION.
2. TRENCHES MAY BE PLACED NO CLOSER THAN 50 FEET TO ONE ANOTHER. (100 FEET ALONG FLOWLINE)
3. TRENCH AND GRADE BOARD MUST BE LEVEL. ALIGN TO FOLLOW CONTOURS OF SITE.
4. SUPPORT POST SPACING AS REQUIRED BY SOIL CONDITIONS TO ENSURE GRADE BOARD REMAINS LEVEL.

DISPERSION TRENCH WITH NOTCHED GRADE BOARD
NOT TO SCALE

Know what's below.
Call two business days before you dig.

PFN: PA23-030

N

0 20 40
HORIZONTAL SCALE

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

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KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER — DATE

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R#	DATE	DESCRIPTION	BY

JOSEPH M. ADAMS — PROFESSIONAL ENGINEER — 4/2/2024

DETENTION POND DETAIL

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL

CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE: 4/2/2024	
SCALE: 1" = 20'	
DRAWING NO. 8 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.



FIRE SPRINKLER NOTE:

LOTS 14, 15 AND 18 REQUIRE 13D SPRINKLER SYSTEMS AND FULL 3/4"x1" METER SERVICE.

WATER METER NOTE:

WATER METER BOXES LOCATED WITHIN THE TEMPORARY TURNAROUND SHALL BE TRAFFIC RATED.

N

0 30 60

HORIZONTAL SCALE

Know what's below. Call two business days before you dig.

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CITY OF MARYSVILLE
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R#	DATE	DESCRIPTION	BY

JOSEPH W. JAMES — PROFESSIONAL ENGINEER — 4/2/2024

SEWER & WATER PLAN

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY:
23-0436	JMS
DATE:	
4/2/2024	
SCALE:	
1" = 30'	
DRAWING NO.	
9 OF 10	

CHAPEL HILL

SECTION 26, TOWNSHIP 30 N, RANGE 5 E, W.M.

GENERAL PLAN NOTES

1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF MARYSVILLE. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE DEVELOPMENT SERVICES CENTER TO BE ATTENDED BY ALL CONTRACTORS THAT WILL PERFORM WORK SHOWN ON THE APPROVED ENGINEERING PLANS, REPRESENTATIVES FROM ALL APPLICABLE UTILITY COMPANIES, THE PROJECT OWNER AND APPROPRIATE CITY STAFF. CONTACT DEVELOPMENT SERVICES AT (360-363-8100) TO SCHEDULE THE MEETING. THE CONTRACTOR IS RESPONSIBLE TO HAVE THEIR OWN SET OF APPROVED PLANS AT THE MEETING.

2. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT THE CONTRACTOR SHALL OBTAIN A "PUNCH LIST" PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER, SANITARY SEWER AND STORM SYSTEMS.

3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (HEREINAFTER REFERRED TO AS THE "STANDARD SPECIFICATIONS"), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER, LATEST EDITION, UNLESS SUPERSEDED OR AMENDED BY THE CITY OF MARYSVILLE CITY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (HEREINAFTER REFERRED TO AS THE "CITY STANDARDS").

4. ALL WORK WITHIN THE DEVELOPMENT AND CITY RIGHT-OF-WAY SHALL BE SUBJECT TO THE INSPECTION OF THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE.

5. PRIOR TO ANY SITE CONSTRUCTION INCLUDING CLEARING/LOGGING OR GRADING, THE SITE CLEARING LIMITS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR (OR PROJECT ENGINEER) AS REQUIRED BY THESE PLANS. THE PROJECT SURVEYOR'S NAME AND PHONE NUMBER IS **ORCA LAND SURVEYING 425.259.3400**.

6. THE DEVELOPER, CONTRACTOR AND PROJECT ENGINEER IS RESPONSIBLE FOR WATER QUALITY AS DETERMINED BY THE MONITORING PROGRAM ESTABLISHED BY THE PROJECT ENGINEER. THE PROJECT ENGINEER'S NAME AND PHONE NUMBER IS **OMEGA ENGINEERING, INC. 425.903.4852**.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS FOR UTILITY, ROAD, AND RIGHT-OF-WAY CONSTRUCTION. THE CONTRACTOR FOR THIS PROJECT IS_____, CONTACT PERSON IS_____, PHONE___ , MOBILE PHONE_____, EMERGENCY PHONE _____.

8. THE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP) BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED SWPPP PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND FINAL STABILIZATION HAS OCCURRED. SEDIMENT LADEN WATERS SHALL NOT ENTER THE CITY STORMWATER DRAINAGE SYSTEM OR A NATURAL DRAINAGE SYSTEM.

9. THE CONTRACTOR SHALL KEEP TWO SETS OF PLANS ON SITE AT ALL TIMES FOR RECORDING RECORD DRAWING INFORMATION; ONE SET SHALL BE SUBMITTED TO THE PROJECT ENGINEER, AND ONE SET SHALL BE SUBMITTED TO THE CITY ENGINEER AT COMPLETION OF CONSTRUCTION AND PRIOR TO FINAL ACCEPTANCE OF WORK.

10. PRIOR TO CONSTRUCTION THE OWNER AND/OR CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE CITY ENGINEER WHEN CONFLICTS EXIST BETWEEN THE PLANS AND FIELD CONDITIONS. CONFLICTS SHALL BE RESOLVED (INCLUDING PLAN AND PROFILE REVISIONS) AND RESUBMITTED FOR APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.

11. ANY REVISIONS MADE TO THESE PLANS, OR CHANGES TO THE DESIGN MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE CITY PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS.

12. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (811) AT LEAST TWO WORKING DAYS IN ADVANCE. PRIOR TO CONSTRUCTION THE OWNER AND/OR CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE CITY ENGINEER WHEN CONFLICTS EXIST BETWEEN THE PLANS AND FIELD CONDITIONS. CONFLICTS SHALL BE RESOLVED (INCLUDING PLAN AND PROFILE REVISIONS) AND RESUBMITTED FOR APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.

13. CITY OF MARYSVILLE HORIZONTAL DATUM SHALL BE NAD 83, AND THE VERTICAL DATUM SHALL BE NAVD 88, IN WASHINGTON STATE PLANE COORDINATES (FEET), WASHINGTON NORTH ZONE 4601. A LIST OF BENCHMARKS IS AVAILABLE THROUGH THE PUBLIC WORKS DEPARTMENT.

14. TEMPORARY STREET PATCHING SHALL BE ALLOWED FOR AS APPROVED BY THE CITY ENGINEER. TEMPORARY STREET PATCHING SHALL BE PROVIDED BY PLACEMENT AND COMPACTION OF ATB OR CLASS B ASPHALT CONCRETE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AS REQUIRED.

15. PROVIDE TRAFFIC CONTROL PLAN(S) IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS REQUIRED.

16. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THESE APPROVED PLANS ON CONSTRUCTION SITE AT ALL TIMES.

17. ANY STRUCTURE AND/OR OBSTRUCTION THAT REQUIRES REMOVAL OR RELOCATION RELATING TO THIS PROJECT SHALL BE DONE SO AT THE DEVELOPER'S EXPENSE.

18. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE ELEVATIONS AND LOCATIONS OF HIDDEN UTILITIES. ALL VISIBLE ITEMS SHALL BE THE ENGINEER'S RESPONSIBILITY. LOCATION OF UTILITIES SHOWN ON CONSTRUCTION PLANS ARE BASED ON BEST RECORDS AVAILABLE AND ARE SUBJECT TO VARIATION. FOR ASSISTANCE IN UTILITY LOCATION, CALL 1-800-424- 5555.

19. THE CONTRACTOR SHALL INSTALL, REPLACE, OR RELOCATE ALL SIGNS, AS SHOWN ON THE PLANS OR AS AFFECTED BY CONSTRUCTION, PER CITY STANDARDS.

20. POWER, STREET LIGHT, CABLE, AND TELEPHONE LINES SHALL BE IN A TRENCH LOCATED WITHIN A 10-FOOT UTILITY EASEMENT ADJACENT TO PUBLIC RIGHT-OF-WAY. RIGHT-OF-WAY CROSSINGS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION FROM OTHER UTILITIES (SEWER, WATER, AND STORM) OF 5 FEET.

21. ALL CONSTRUCTION SURVEYING FOR EXTENSIONS OF PUBLIC FACILITIES SHALL BE DONE UNDER THE DIRECTION OF A WASHINGTON STATE LICENSED LAND SURVEYOR OR A WASHINGTON STATE LICENSED PROFESSIONAL CIVIL ENGINEER.

22. DURING CONSTRUCTION, ALL PUBLIC STREETS ADJACENT TO THIS PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM ON-SITE CONSTRUCTION, AND EXISTING STRUCTURES SHALL BE PROTECTED AS DIRECTED BY THE CITY.

23. CERTIFIED RECORD DRAWINGS ARE REQUIRED PRIOR TO PROJECT ACCEPTANCE.

24. A NPDES STORMWATER GENERAL PERMIT MAY BE REQUIRED BY THE DEPARTMENT OF ECOLOGY FOR THIS PROJECT. FOR INFORMATION VISIT THE DEPARTMENT OF ECOLOGY WEB SITE WWW.ECY.WA.GOV/PROGRAMS/WQ/STORMWATER/CONSTRUCTION/.

25. ANY DISTURBANCE OR DAMAGE TO CRITICAL AREAS AND ASSOCIATED BUFFERS, OR SIGNIFICANT TREES DESIGNATED FOR PRESERVATION AND PROTECTION SHALL BE MITIGATED IN ACCORDANCE WITH A MITIGATION PLAN REVIEWED AND APPROVED BY THE CITY'S PLANNING DIVISION. PREPARATION AND IMPLEMENTATION OF THE MITIGATION PLAN SHALL BE AT THE DEVELOPER'S EXPENSE.

26. A GRADING PERMIT ISSUED PURSUANT TO THE CURRENT ADOPTED INTERNATIONAL BUILDING CODE, AND APPROVAL OF THE TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE OBTAINED FROM THE COMMUNITY DEVELOPMENT DEPARTMENT PRIOR TO ANY ON-SITE GRADING WORK NOT EXPRESSLY EXEMPT BY THE CURRENT ADOPTED INTERNATIONAL BUILDING CODE.

27. PRIOR TO COMMENCEMENT OF FRAMING, FINAL DRAINAGE INSPECTION AND APPROVAL OF THE ROOF LEADER AND POSITIVE FOOTING SYSTEMS SHALL BE COMPLETED BY THE BUILDING DEPARTMENT. CALL 360-363-8100 TO SCHEDULE THE INSPECTION.

STORMWATER NOTES

1. DURING CONSTRUCTION, ALL EXISTING AND NEWLY INSTALLED DRAINAGE STRUCTURES SHALL BE PROTECTED FROM SEDIMENTS.
2. ALL STORM MANHOLES SHALL CONFORM TO CITY STANDARD DETAIL NO.4-08-009. FLOW CONTROL MANHOLE/OIL WATER SEPARATOR SHALL CONFORM TO CITY STANDARD DETAIL NO. 4-040-004.

3. MANHOLE RING AND COVER SHALL CONFORM TO CITY STANDARD DETAIL 4-08-009 AND 4-080-15 THRU 4-080-24. THE COVER SHALL BE MARKED WITH "STORM" OR "DRAIN" IN 2-INCH RAISED LETTERS. MINIMUM WEIGHT OF THE FRAME SHALL BE 210 POUNDS. MINIMUM WEIGHT OF THE COVER SHALL BE 150 POUNDS.

4. CATCH BASINS SHALL BY TYPE I UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE. TYPE I CATCH BASINS SHALL CONFORM TO CITY STANDARD DETAIL NO.4-080-007 AND 4- 080-008 AND SHALL BE USED ONLY FOR DEPTHS LESS THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.

5. CATCH BASINS TYPE II SHALL CONFORM TO CITY STANDARD DETAIL NO. 4-08-009 AND SHALL BE USED FOR DEPTHS GREATER THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.

6. CAST IRON OR DUCTILE IRON FRAME AND GRATE SHALL CONFORM TO CITY STANDARD DETAIL NO.4-080-022.

   GRATE SHALL BE MARKED WITH "DRAINS TO STREAM". SOLID CATCH BASIN LIDS (SQUARE UNLESS NOTED AS ROUND) SHALL CONFORM TO WSDOT STANDARD PLAN B-30.20-02 (OLYMPIC FOUNDRY NO. SM60, SM52, OR SM44 OR EQUAL). VANED GRATES SHALL BE REQUIRED ON ALL STORM STRUCTURES WHEN ROADWAY PROFILE IS GREATER THAN 3% AND SHALL CONFORM TO WSDOT STANDARD PLAN B-30.30-01 (OLYMPIC FOUNDRY NO. SM60V OR EQUAL). GRATES LOCATED IN THE GUTTER FLOW LINE SHALL BE DEPRESSED 0.1 FEET BELOW PAVEMENT LEVEL.

7. ALL CATCH BASINS AND MANHOLES LOCATED OUTSIDE OF PAVED AREAS, SHALL BE PLACED IN A SIX FOOT SQUARE BY FOUR INCH THICK CONCRETE PAD.

8. ALL CATCH BASINS AND MANHOLES SHALL HAVE LOCKING LIDS. ROLLED GRATES ARE NOT APPROVED FOR USE OUTSIDE OF THE CITY RIGHT-OF-WAY OR FOR USE WITH TYPE II MANHOLES.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL MANHOLE, INLET AND CATCH BASIN FRAMES AND GRATES TO GRADE JUST PRIOR TO CURB INSTALLATION AND/OR PAVING.

10. TRENCHING, BEDDING, AND BACKFILL FOR PIPE SHALL CONFORM TO CITY STANDARD DETAIL NO. 3-703-002 AND-003.

11. TRENCH BACKFILL OF NEW UTILITIES AND STORMWATER DRAINAGE SYSTEM FEATURES SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (MODIFIED PROCTOR) UNDER ROADWAYS AND 90% MAXIMUM DENSITY (MODIFIED PROCTOR) OFF ROADWAYS. COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH SECTIONS 7-08.3(3) AND 2-03.3(14)C – METHOD B AS DEFINED IN THE CURRENT EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. FOR PERMEABLE PAVEMENT AND OTHER STORMWATER BMP'S DESIGNED TO INFILTRATE SUBGRADE COMPACTION SHOULD BE "FIRM AND UNYIELDING" (QUALITATIVE), AND 90- 92% STANDARD PROCTOR (QUANTITATIVE). DO NOT ALLOW HEAVY COMPACTION DUE TO HEAVY EQUIPMENT OPERATION. THE SUBGRADE SHOULD NOT BE SUBJECT TO TRUCK TRAFFIC.

12. STORM PIPE SHALL BE A MINIMUM OF 10 FEET AWAY FROM BUILDING FOUNDATIONS AND/OR ROOF LINES.

13. AFTER ALL OTHER UTILITIES ARE INSTALLED AND PRIOR TO ASPHALT WORK, ALL STORM PIPE SHALL PASS A LOW PRESSURE AIR TEST IN ACCORDANCE WITH SECTION 7-04.3(1) E & F OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PIPE RUNS SHALL BE TESTED WITH [PIPE LOADED AND COMPACTED TO FINISH GRADE. PRODUCTS USED TO SEAL THE INSIDE OF THE PIPE ARE NOT TO BE USED TO OBTAIN THE AIR TEST.

14. ALL TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES, AND PROTECTIVE MEASURES FOR CRITICAL AREAS, PRESERVED NATIVE VEGETATION AND SIGNIFICANT TREES SHALL BE INSTALLED PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES.

15. STORMWATER FACILITIES WITH SIDE SLOPES STEEPER THAN 3:1 OR WITH A MAXIMUM WATER DEPTH GREATER THAN 3 FEET SHALL REQUIRE A POWDER OR VINYL COATED CHAIN LINK PERIMETER FENCE PER STANDARD PLANS 3-501-007 AND -008. SIDE SLOPE AVERAGING SHALL NOT BE ALLOWED. ALL INLET AND OUTFALL PIPES SHALL HAVE A TRASH RACK INSTALLED AND A MORTARED RIPRAP HEADWALL. REFER TO STORM DRAINAGE NOTE 21.

16. PRIOR TO SIDEWALK CONSTRUCTION; LOT DRAINAGE SYSTEMS, STUB-OUTS AND ANY BEHIND SIDEWALK DRAINS MUST BE INSTALLED AS REQUIRED. PIPE SHALL BE PVC 3034, OR SDR-35. STUB-OUTS SHALL BE MARKED WITH A 2" X 4" WITH 3 FEET VISIBLE ABOVE GRADE AND MARKED "STORM". LOCATIONS OF THESE INSTALLATIONS SHALL BE SHOWN ON THE RECORD DRAWING CONSTRUCTION PLANS SUBMITTED TO THE CITY.

17. STORM WATER RETENTION/DETENTION FACILITIES, STORM DRAINAGE PIPE AND CATCH BASINS SHALL BE FLUSHED AND CLEANED BY THE DEVELOPER PRIOR TO; CITY OF MARYSVILLE FINAL ACCEPTANCE OF THE PROJECT AND; UPON COMMENCEMENT AND COMPLETION OF THE 2-YEAR WARRANTY PERIOD FOR THE STORM DRAINAGE SYSTEM.

18. UNLESS OTHERWISE NOTED, ALL STORM SEWER PIPE SHALL BE; (CP) NON-REINFORCED CONCRETE, ASTM C-14; (RCP) REINFORCED CONCRETE FOR CONCRETE PIPE DIAMETERS 24" OR GREATER, ASTM C-76; OR (CMP) CORRUGATED METAL. CMP TO BE; GALVANIZED STEEL WITH TREATMENT I ASPHALT COATING OR BETTER; OR CORRUGATED ALUMINUM; OR AASHTO M274-70 ALUMINIZED STEEL. ALL PIPES SHALL BE INSTALLED WITH RUBBER GASKETS AS PER MANUFACTURERS RECOMMENDATIONS.

   COVERAGE REQUIREMENTS FOR 12" DIAMETER PIPE:
   BACKFILL OVER PIPE LESS THAN 12" REQUIRES RCP CLASS IV. BACKFILL OVER PIPE LESS THAN 24" REQUIRES RCP MINIMUM.
   BACKFILL OVER PIPE GREATER THAN 24" REQUIRES 16 GAGE CMP MINIMUM.

19. CORRUGATED POLYETHYLENE PIPE (CPP):

   A. ALL PIPE SHALL BE SMOOTH INTERIOR. CPP SHALL BE DOUBLE-WALLED. ALL PIPE SHALL MEET AASHTO AND ASTM SPECIFICATIONS.
   B. UPON REQUEST BY THE CITY INSPECTOR, ALL PIPE RUNS SHALL PASS THE LOW PRESSURE AIR TEST REQUIREMENTS OF SECTION 7-04.3(1) E & F OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PIPE RUNS SHALL BE TESTED WITH PIPE LOADED AND COMPACTED TO FINISH GRADE.
   C. UPON REQUEST BY THE CITY INSPECTOR, PIPE SHALL BE SUBJECT TO MANDREL TESTING (MANDREL SIZE = 90% OF NOMINAL PIPE DIAMETER).
   D. PIPE SHALL BE STORED ON SITE IN SHIPPING BUNKS ON A FLAT LEVEL SURFACE. THIS REQUIREMENT WILL BE STRICTLY ENFORCED; FAILURE TO COMPLY MAY RESULT IN REJECTION OF THE PIPE AND/OR FUTURE RESTRICTION ON USE OF MATERIAL.
   E. MINIMUM DEPTH OF COVER SHALL BE 2 FEET.
   F. COUPLINGS SHALL BE INTEGRAL BELL AND SPIGOT OR DOUBLE BELL SEPARATE COUPLINGS. SPLIT COUPLINGS WILL NOT BE ALLOWED.
   G. BACKFILL SHALL COMPLY WITH SECTION 7-08.3(3) OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION MODIFIED AS FOLLOWS:

      THE SECOND PARAGRAPH OF SECTION 7-08.3(3) IS DELETED AND REPLACED WITH THE FOLLOWING:
      THE MATERIAL USED FOR BACKFILLING AROUND AND TO A POINT 1 FOOT ABOVE THE TOP OF THE PIPE SHALL BE CLEAN EARTH OR SAND, FREE FROM CLAY. ANY GRAVEL OR STONES INCLUDED IN THE BACKFILL SHALL PASS THROUGH A 1 INCH SIEVE.

20. ALL NON-PERFORATED METAL PIPE SHALL HAVE NEOPRENE GASKETS AT THE JOINTS. O-RING GASKETS MAY BE USED FOR TYPE-F COUPLING BAND.

21. CULVERT ENDS SHALL BE BEVELED TO MATCH SIDE SLOPES. FIELD CUTTING OF CULVERT ENDS IS PERMITTED WHEN APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE.

22. ALL FIELD CUT CULVERT PIPE SHALL BE TREATED AS REQUIRED IN THE STANDARD SPECIFICATIONS OR GENERAL SPECIAL PROVISIONS.

23. ALL PIPE SHALL BE PLACED ON STABLE EARTH. IF IN THE OPINION OF THE CITY INSPECTOR, THE EXISTING TRENCH FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED WITH GRAVEL BEDDING TO SUPPORT THE PIPE.

24. ALL LANDSCAPED AND LAWN AREAS, EXCEPT AREAS WITHIN THE DRIPLINE OF PRESERVED TREES, SHALL BE AMENDED PER BMP T5.13 POST CONSTRUCTION SOIL QUALITY AND DEPTH IN CHAPTER 5, VOLUME V OF THE STORMWATER MANUAL.

ROADWAY NOTES

1. MONUMENTS SHALL BE INSTALLED AT ALL STREET INTERSECTIONS, AT ANGLE POINTS, AND POINTS OF CURVATURE IN EACH STREET. ALL BOUNDARY MONUMENTS MUST BE INSTALLED ACCORDING TO THE WASHINGTON STATE SUBDIVISION LAWS.
2. CURB AND GUTTER INSTALLATION SHALL CONFORM TO CITY STANDARD DETAIL 3-514.

3. SIDEWALKS AND DRIVEWAYS SHALL BE INSTALLED AS LOTS ARE BUILT ON. SIDEWALKS AND DRIVEWAYS SHALL CONFORM TO CITY STANDARD DETAIL 3-303-001 AND -002. IF ASPHALT IS DAMAGED DURING REPLACEMENT OF CURB AND GUTTER, THE REPAIR SHALL CONFORM TO CITY STANDARD DETAIL 3-514-001.

4. THE SURROUNDING GROUND (5 FEET BEYOND THE BASE) FOR ALL POWER TRANSFORMERS, TELEPHONE/TV PEDESTALS, AND STREET LIGHT MAIN DISCONNECTS SHALL BE GRADED TO A POSITIVE 2 PERCENT SLOPE FROM TOP OF CURB.

5. SIGNAGE AND TRAFFIC CONTROL DEVICES ARE SAFETY ITEMS AND SHALL BE INSTALLED PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY OR PLAT APPROVAL. HOWEVER, IN LARGER DEVELOPMENTS, EXACT LOCATIONS OF STOP AND YIELD SIGNS MAY NEED TO BE DETERMINED AFTER FULL BUILDOUT WHEN TRAFFIC PATTERNS HAVE BEEN ESTABLISHED. IN THIS CASE, CONTRACTOR SHALL PROVIDE INDICATED "CITY-PLACED" SIGNS, SIGNPOSTS, AND BRACKETS TO THE CITY SIGN SPECIALIST (425) 328-7954 FOR LATER INSTALLATION BY THE CITY. ALL SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6. PRIOR TO ANY SIGN OR STRIPING INSTALLATION OR REMOVAL THE CONTRACTOR SHALL CONTACT THE CITY SIGN SPECIALIST (425) 328-7954 TO ARRANGE FOR AN ON-SITE MEETING TO DISCUSS PLACEMENT AND UNIFORMITY.

7. NEW OR REVISED STOP SIGNS OR YIELD SIGNS SHALL BE ADVANCE WARNED USING THE PROCEDURE OUTLINED IN THE MUTCD. ADVANCE WARNING SIGNS AND FLAGS SHALL BE MAINTAINED BY INSTALLER FOR 30 DAYS AND THEN REMOVED.

HYDROSEEDING GENERAL NOTES

1. CONSTRUCTION ACCEPTANCE: WILL BE SUBJECT TO A WELL-ESTABLISHED GROUND COVER THAT FULFILLS THE REQUIREMENTS OF THE APPROVED CONSTRUCTION PLANS AND CITY OF MARYSVILLE STANDARDS.
2. ALL DISTURBED AREAS SUCH AS RETENTION FACILITIES, ROADWAY BACKSLOPES, ETC., SHALL BE SEEDED WITH A PERENNIAL GROUND COVER GRASS TO MINIMIZE EROSION. GRASS SEEDING WILL BE DONE USING AN APPROVED HYDROSEEDER OR AS OTHERWISE APPROVED BY THE CITY OF MARYSVILLE.
3. PREPARATION OF SURFACE: ALL AREAS TO BE SEEDED SHALL BE PREPARED IN A MANNER CONSISTENT WITH BMP T5.13 POST CONSTRUCTION SOIL QUALITY AND DEPTH IN CHAPTER 5 OF VOLUME V OF THE STORMWATER MANUAL.
4. IMMEDIATELY FOLLOWING FINISH GRADING PERMANENT VEGETATION SHALL BE APPLIED CONSISTENT WITH THE DESIGN AND MAINTENANCE STANDARDS FOR TEMPORARY AND PERMANENT SEEDING IN THE CITY ADOPTED DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON.
5. ALL HYDROSEEDING FIRMS SHALL HAVE A PRINTOUT OF THE APPLICATION RATE FOR EACH JOB READILY AVAILABLE FOR INSPECTION BY THE CONSTRUCTION INSPECTION DIVISION OF COMMUNITY DEVELOPMENT.
6. THE CITY OF MARYSVILLE CONSTRUCTION INSPECTION DIVISION OF COMMUNITY DEVELOPMENT SHALL BE NOTIFIED OF POTENTIAL HYDROSEEDING PRIOR TO THE COMMENCEMENT OF SAME TO ENSURE COMPLIANCE OF THESE SPECIFICATIONS.

PFN: PA23-030

Know what's below.
Call two business days before you dig.

CITY OF MARYSVILLE
CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED FOR GENERAL COMPLIANCE WITH THE APPLICABLE CITY OF MARYSVILLE CODES AND ORDINANCES. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), AND CORPS OF ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

KEN MCINTYRE, P.E., DEVELOPMENT SERVICES MANAGER DATE

THESE APPROVED CONSTRUCTION PLANS EXPIRE AFTER A PERIOD OF 60 MONTHS FROM THE DATE SHOWN ABOVE, OR UPON EXPIRATION OF PRELIMINARY PLAT OR SITE PLAN APPROVAL, PER MMC 22A.040.030.

R#	DATE	DESCRIPTION	BY

JOSEPH M. SWAYZE, PROFESSIONAL ENGINEER — 4/2/2024

NOTES

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

CHAPEL HILL
CITY OF MARYSVILLE, Washington
PORTION OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M.

PROJ. NO.	DSN. BY
23-0436	JMS

DATE: 4/2/2024

SCALE: N.T.S.

DRAWING NO. 10 OF 10

GENERAL NOTES

THE GENERAL CONTRACTOR IS TO PROVIDE SUBGRADES 4" BELOW HARD SURFACES PLUS/MINUS .1 FOOT.

ALL ROUGH GRADING SHALL BE POSITIVE, DRAINING AWAY FROM ALL STRUCTURES.

ALL STONES LARGER THAN 1.5" DIAMETER SHALL BE REMOVED FROM THE GROWING MEDIUM.

TOPSOIL SHALL BE PLACED AT A MINIMUM DEPTH OF 4" IN ALL LAWN AND BED AREAS.

TOPSOIL SHALL BE TILLED INTO THE EXISTING SUBGRADE TO ELIMINATE SOIL INTERFACE PROBLEMS.

TOPSOIL SHALL BE TOPSOILS NW 3-WAY MIX OR APPROVED EQUAL.

ALL BED AREAS TO RECEIVE 2" OF FINE GROUND FIR OR HEMLOCK BARK, COMPOSITION MULCHES ARE NOT AN ACCEPTABLE ALTERNATIVE.

TREES AND SHRUBS ARE TO BE PLANTED AT A DEPTH 3/4" HIGHER THAN THE LEVEL THAT THEY WERE GROWN IN THE NURSERY.

BARK MULCH IS NOT TO BE PLACED ABOVE THE ROOT CROWN.

ALL PLANTS SHALL AT LEAST CONFORM TO THE MINIMUM STANDARD ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

LAWN AREAS ARE TO BE HYDROSEEDED WITH A PACIFIC NORTHWEST LAWN MIX PER MANUFACTURER'S SPECIFICATIONS, OR APPROVED EQUAL. REMOVE ALL STONES LARGER THAN 1" FROM LAWN AREAS.

SUBSTITUTIONS ARE STRONGLY DISCOURAGED. IF PLANT AVAILABILITY IS A PROBLEM, CONTACT THE LANDSCAPE ARCHITECT FOR SOURCES OR ACCEPTABLE ALTERNATIVES.

IF THE SITE WORK IS DIFFERENT THAN SHOWN ON THE LANDSCAPE PLAN, OR POOR SOILS AND DEBRIS ARE DISCOVERED, REQUIRING CHANGES TO THE LANDSCAPE PLAN, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION.

THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE LANDSCAPE DURING INSTALLATION, UNTIL FINAL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.

THE LANDSCAPE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR, FROM THE TIME OF FINAL ACCEPTANCE.

DURING THE WARRANTY PERIOD, THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT DEATH CAUSED BY UNUSUAL CLIMATIC CONDITIONS, VANDALISM, THEFT, FIRE, OR POOR MAINTENANCE PRACTICES. THE LANDSCAPE ARCHITECT SHALL HAVE SOLE AUTHORITY TO DETERMINE THE CAUSE OF DEATH.

PLANT COUNTS PROVIDED ARE ESTIMATES ONLY. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ALL FINAL AREA AND COUNTS.

IRRIGATION ASSESSMENT

SUPPLEMENTAL HAND WATERING MAY BE NECESSARY FOR THE FIRST GROWING SEASON TO ESTABLISH PLANTINGS, BUT MAY NOT BE NECESSARY IN SUBSEQUENT YEARS.

LANDSCAPE PLANTING SCHEDULE

TREES

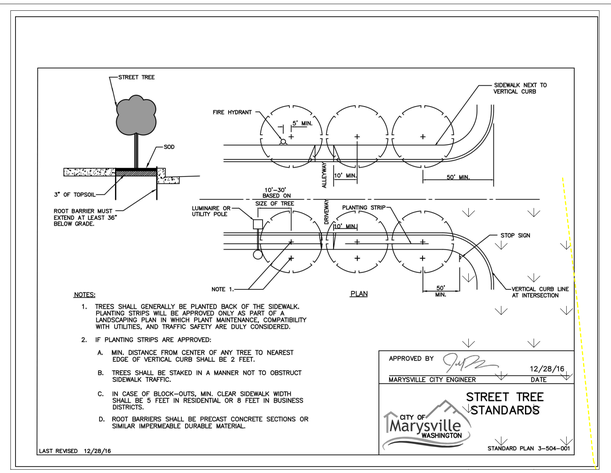
SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	22	Acer rubrum 'Karpick' / Red Maple	1 ¾" CAL.	B&B
	8	Tilia cordata / Little Leaf Linden	1 ¾" CAL.	B&B
	24	Thuja plicata 'Excelsa' / Excelsa Cedar	6' MIN. HT.	B&B
	18	Pinus nigra / Austrian Pine	6' MIN. HT.	B&B

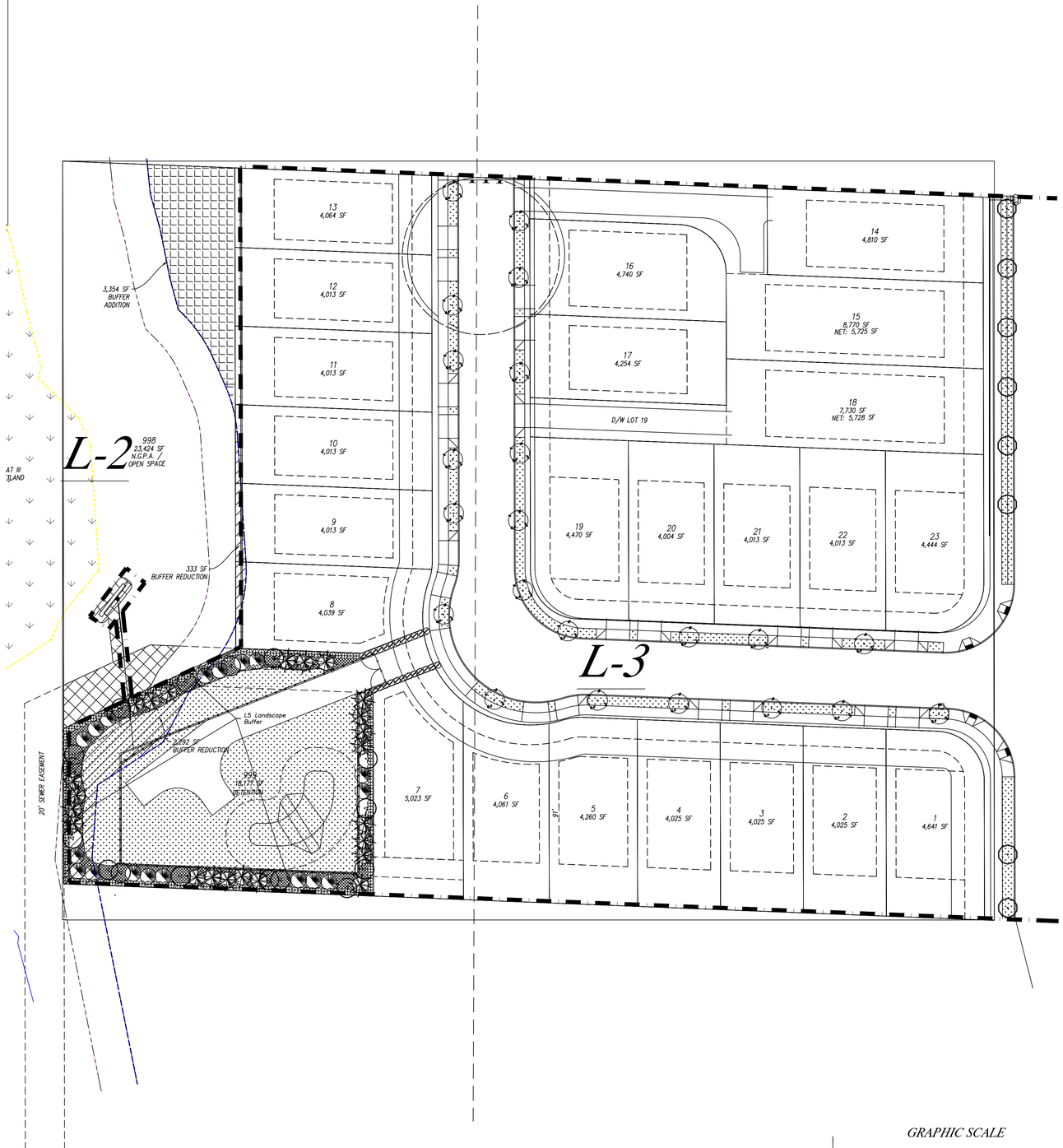
SHRUBS

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	161	Prunus lusitanica / Portugal Laurel	21" MIN. HT.	CON. GRWN, 3' O.C.
	25	Prunus laurocerasus 'Otto Luyken' / Otto Luyken Laurel	21" MIN. HT.	CON. GRWN, 3' O.C.

GROUNDCOVER

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
		Hydroseeded Lawn		
		Cotoneaster microphylla / Littleleaf Cotoneaster	1 gallon	36" on center





GRAPHIC SCALE

N

30 0 15 30 60

(IN FEET)
1"=30'

DATE		REVISION	BY
11.22.23	1	SITE PLAN CHANGES	PJ
3.4.24	2	POND LAYOUT / BUFFER	PJ

Paul Jay
Landscape Architect
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e. pauljaylla@gmail.com

State of Washington registered Landscape Architect
Paul Jay
certificate no. 566

Chapel Hill Plat

for: Robinett Brothers LLC

LANDSCAPE PLAN

APPLICANT:
Land Solutions

DATE:
8.9.23

PJLA JOB NO.:

DRAWN BY: PJ

CHECKED BY: PJ

LANDSCAPE PLAN

SHEET
L-1
OF 3

Mar 04, 2024 - 3:40pm Paul E:\SrvData\Company\Projects\2023 cape cod\Chapel Hill\Plans\LP11.22.23.dwg Layout Name: L-1 COVER

GENERAL NOTES

THE GENERAL CONTRACTOR IS TO PROVIDE SUBGRADES 4" BELOW HARD SURFACES PLUS/MINUS .1 FOOT.

ALL ROUGH GRADING SHALL BE POSITIVE, DRAINING AWAY FROM ALL STRUCTURES.

ALL STONES LARGER THAN 1.5" DIAMETER SHALL BE REMOVED FROM THE GROWING MEDIUM.

TOPSOIL SHALL BE PLACED AT A MINIMUM DEPTH OF 4" IN ALL LAWN AND BED AREAS.

TOPSOIL SHALL BE TILLED INTO THE EXISTING SUBGRADE TO ELIMINATE SOIL INTERFACE PROBLEMS.

TOPSOIL SHALL BE TOPSOILS NW 3–WAY MIX OR APPROVED EQUAL.

ALL BED AREAS TO RECEIVE 2" OF FINE GROUND FIR OR HEMLOCK BARK, COMPOSITION MULCHES ARE NOT AN ACCEPTABLE ALTERNATIVE.

TREES AND SHRUBS ARE TO BE PLANTED AT A DEPTH 3/4" HIGHER THAN THE LEVEL THAT THEY WERE GROWN IN THE NURSERY.

BARK MULCH IS NOT TO BE PLACED ABOVE THE ROOT CROWN.

ALL PLANTS SHALL AT LEAST CONFORM TO THE MINIMUM STANDARD ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

LAWN AREAS ARE TO BE HYDROSEEDED WITH A PACIFIC NORTHWEST LAWN MIX PER MANUFACTURER'S SPECIFICATIONS, OR APPROVED EQUAL. REMOVE ALL STONES LARGER THAN 1" FROM LAWN AREAS.

SUBSTITUTIONS ARE STRONGLY DISCOURAGED. IF PLANT AVAILABILITY IS A PROBLEM, CONTACT THE LANDSCAPE ARCHITECT FOR SOURCES OR ACCEPTABLE ALTERNATIVES.

IF THE SITE WORK IS DIFFERENT THAN SHOWN ON THE LANDSCAPE PLAN, OR POOR SOILS AND DEBRIS ARE DISCOVERED, REQUIRING CHANGES TO THE LANDSCAPE PLAN, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION.

THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE LANDSCAPE DURING INSTALLATION, UNTIL FINAL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.

THE LANDSCAPE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR, FROM THE TIME OF FINAL ACCEPTANCE.

DURING THE WARRANTY PERIOD, THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT DEATH CAUSED BY UNUSUAL CLIMATIC CONDITIONS, VANDALISM, THEFT, FIRE, OR POOR MAINTENANCE PRACTICES. THE LANDSCAPE ARCHITECT SHALL HAVE SOLE AUTHORITY TO DETERMINE THE CAUSE OF DEATH.

PLANT COUNTS PROVIDED ARE ESTIMATES ONLY. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ALL FINAL AREA AND COUNTS.

IRRIGATION ASSESSMENT

SUPPLEMENTAL HAND WATERING MAY BE NECESSARY FOR THE FIRST GROWING SEASON TO ESTABLISH PLANTINGS, BUT MAY NOT BE NECESSARY IN SUBSEQUENT YEARS.

LANDSCAPE PLANTING SCHEDULE

TREES

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	22	Acer rubrum 'Karpick' / Red Maple	1 ¾" CAL.	B&B
	8	Tilia cordata / Little Leaf Linden	1 ¾" CAL.	B&B
	24	Thuja plicata 'Excelsa' / Excelsa Cedar	6' MIN. HT.	B&B
	18	Pinus nigra / Austrian Pine	6' MIN. HT.	B&B

SHRUBS

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	161	Prunus lusitanica / Portugal Laurel	21" MIN. HT.	CON. GRWN, 3' O.C.
	25	Prunus laurocerasus 'Otto Luyken' / Otto Luyken Laurel	21" MIN. HT.	CON. GRWN, 3' O.C.

GROUNDCOVER

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
		Hydroseeded Lawn		
		Cotoneaster microphylla / Littleleaf Cotoneaster	1 gallon	36" on center

LANDSCAPE MAINTENANCE NOTES:

22C.120.180 Landscaping – Maintenance.
(1) All landscaped areas and plants required by this chapter must be permanently maintained in a healthy growing condition in order to accomplish the purpose for which they were required.

(2) Dead or diseased plants must be replaced within 30 days of notification, or as soon as practical in regard to freezing weather, or complex situations involving the removal and replacement of large trees.

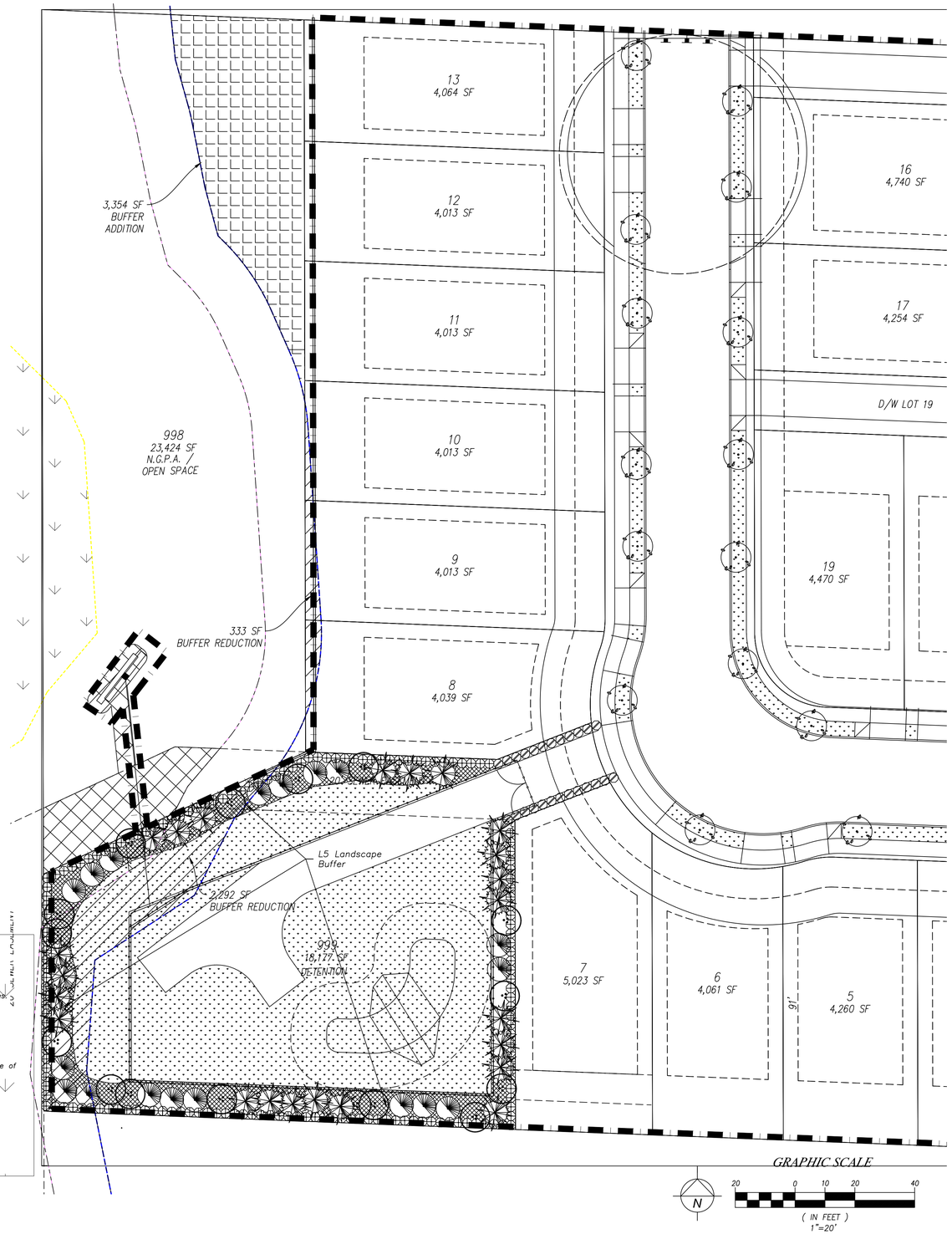
(3) All landscaped areas must be kept free of debris and weeds.

(4) Plant material must not interfere with public utilities, restrict pedestrian or vehicular access, or constitute a traffic hazard.

(5) Planted areas next to pedestrian walkways and sidewalks shall be maintained or plant material chosen to maintain a clear zone between three and eight feet from ground level.

(6) The owners, their agents and assigns are responsible for providing, protecting, and maintaining all landscaping material in a healthy and growing condition, replacing it when necessary, and keeping it free of refuse and debris.

(7) All fencing, walls and other features used for screening purposes shall be kept free of litter, debris, and weeds. (Ord. 2852 § 10 (Exh. A), 2011).



DATE		REVISION	BY
11.22.23	1	SITE PLAN CHANGES	PJ
3.4.24	2	POND LAYOUT / BUFFER	PJ

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State of
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Paul Jay
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Chapel Hill Plat

for: Robinett Brothers LLC

LANDSCAPE PLAN

APPLICANT:
Land Solutions

DATE:
8.9.23

PJLA JOB NO.:

DRAWN BY: PJ

CHECKED BY: PJ

LANDSCAPE PLAN

SHEET
L-2
OF 3

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GENERAL NOTES

THE GENERAL CONTRACTOR IS TO PROVIDE SUBGRADES 4" BELOW HARD SURFACES PLUS/MINUS .1 FOOT.

ALL ROUGH GRADING SHALL BE POSITIVE, DRAINING AWAY FROM ALL STRUCTURES.

ALL STONES LARGER THAN 1.5" DIAMETER SHALL BE REMOVED FROM THE GROWING MEDIUM.

TOPSOIL SHALL BE PLACED AT A MINIMUM DEPTH OF 4" IN ALL LAWN AND BED AREAS.

TOPSOIL SHALL BE TILLED INTO THE EXISTING SUBGRADE TO ELIMINATE SOIL INTERFACE PROBLEMS.

TOPSOIL SHALL BE TOPSOILS NW 3-WAY MIX OR APPROVED EQUAL.

ALL BED AREAS TO RECEIVE 2" OF FINE GROUND FIR OR HEMLOCK BARK, COMPOSITION MULCHES ARE NOT AN ACCEPTABLE ALTERNATIVE.

TREES AND SHRUBS ARE TO BE PLANTED AT A DEPTH 3/4" HIGHER THAN THE LEVEL THAT THEY WERE GROWN IN THE NURSERY.

BARK MULCH IS NOT TO BE PLACED ABOVE THE ROOT CROWN.

ALL PLANTS SHALL AT LEAST CONFORM TO THE MINIMUM STANDARD ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

LAWN AREAS ARE TO BE HYDROSEEDED WITH A PACIFIC NORTHWEST LAWN MIX PER MANUFACTURER'S SPECIFICATIONS, OR APPROVED EQUAL. REMOVE ALL STONES LARGER THAN 1" FROM LAWN AREAS.

SUBSTITUTIONS ARE STRONGLY DISCOURAGED. IF PLANT AVAILABILITY IS A PROBLEM, CONTACT THE LANDSCAPE ARCHITECT FOR SOURCES OR ACCEPTABLE ALTERNATIVES.

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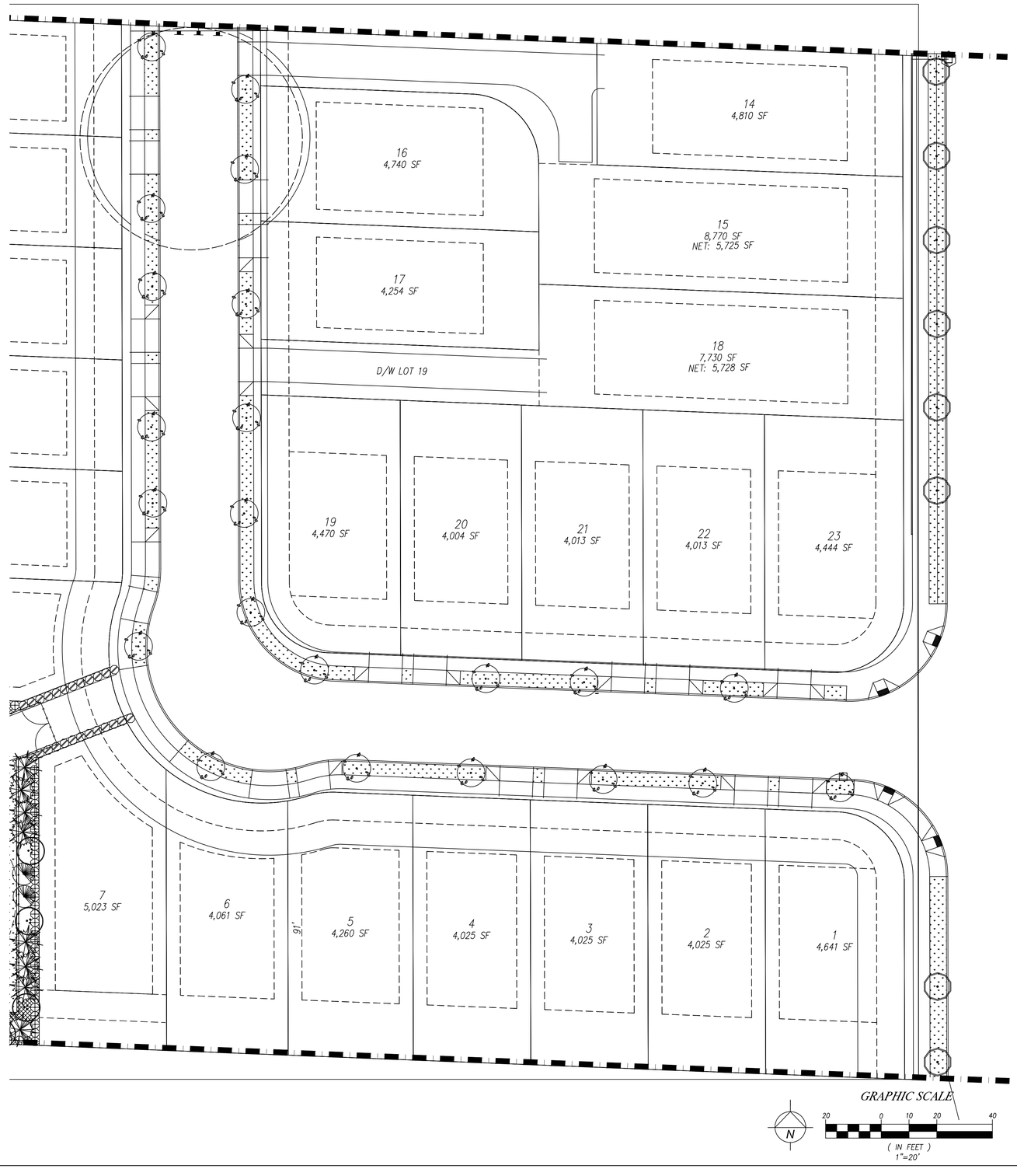
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CHECKED BY: PJ

LANDSCAPE PLAN

SHEET
L-3
OF 3

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CRITICAL AREA STUDY
AND
BUFFER MITIGATION PLAN

FOR

CHAPEL HILL
MARYSVILLE, WA

Wetland Resources, Inc. Project #23040
City of Marysville File Number: PA23-030

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

Revision 1: March 28, 2024

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1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) completed a site investigation on February 24 and May 17, 2023, to locate and evaluate jurisdictional wetlands and streams on and near the subject property. The 4-acre site is composed of two parcels (30052600403700 and 30052600404300), located at 6114 83rd Ave NE, within the city limits of Marysville, Washington (Section 26, Township 30N, Range 5E, W.M.). The property is situated within the Allen Creek Sub-basin of the Snohomish River Basin, Water Resources Inventory Area (WRIA) 7.

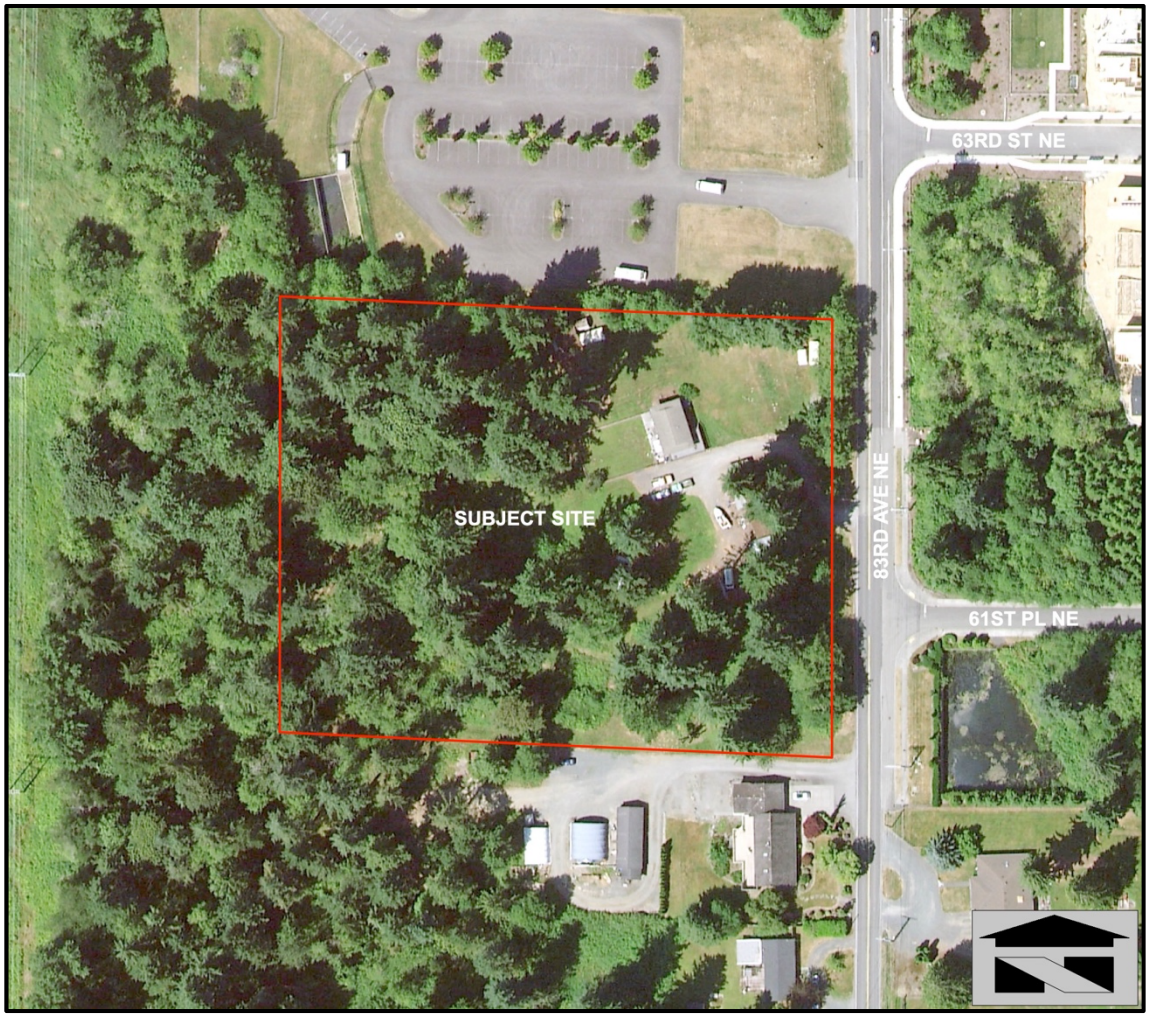


Figure 1 – Aerial view of the subject property and surrounding area.

1.1 SITE DESCRIPTION

The subject property is developed with a single-family residence, several outbuildings, and a gravel driveway/parking area. The site is accessed from the east via 83rd Ave NE. Vegetation is comprised of two distinct communities, including forested areas in the western portion and maintained lawn in the eastern portion of the site. Vegetation within the forested areas consists of Western red cedar (*Thuja plicata*), black cottonwood (*Populus balsamifera*), big leaf maple (*Acer macrophyllum*), Douglas fir (*Pseudotsuga menziesii*), salmonberry (*Rubus spectabilis*), Himalayan

blackberry (*Rubus armeniacus*), osoberry (*Oemleria cerasiformis*), cascara (*Frangula purshiana*), bracken fern (*Pteridium aquilinum*), sword fern (*Polystichum munitum*), lady fern (*Athyrium filix-femina*), creeping buttercup (*Ranunculus repens*), and reed canarygrass (*Phalaris arundinacea*). The area around the residence and lawn consists of mixed grasses (*Agrostis* spp.) with several dispersed trees, including Western red cedar, Douglas fir, red alder (*Alnus rubra*) and Himalayan blackberry near 83rd Ave NE. Topography has a gradual slope downward to the west.

Surrounding land use consists of a church and parking lot to the north, high density residential developments to the west and east, and low-density residential to the south.

WRI identified one on-site wetland (Wetland A) and one off-site stream (Stream A) during the site investigations. The wetland was rated under the *Washington Department of Ecology's Wetland Rating System for Western Washington (2014)* pursuant to Marysville Municipal Code (MMC) 22E.010.060. Wetland A is classified as a Category III wetland. Per MMC 22E.010.100, Category III wetlands receive standard buffers of 75-feet. Stream A is classified as a Type Ns, seasonal, non-fish bearing stream. Per MMC 22E.010.220(1)(a), Type Ns streams receive standard buffers of 50 feet.

1.2 PROJECT DESCRIPTION

The applicant is proposing to demolish the existing structures and construct a 23-lot single-family residential development, with access, utilities, and associated infrastructure. No impacts to critical areas will occur, however, temporary and permanent impacts are proposed to the buffer of Wetland A. To accommodate the proposed development, the applicant is proposing to utilize buffer width averaging and buffer enhancement as mitigation. Full descriptions of buffer impacts, mitigation, and enhancement are provided in Section 6 of this report.

2.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, public resources were reviewed to gather background information on the subject property and the surrounding area regarding critical areas. The following sources were examined:

- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory: This resource does not depict and wetlands on the subject property. A wetland is depicted approximately 200 feet off-site to the northwest.
- USDA/Natural Resources Conservation Service (NRCS) Web Soil Survey: This resource maps the soils underlying the subject property as Tokul gravelly medial loam (0 to 8 percent slopes) and Tokul gravelly medial loam (8 to 15 percent slopes). Neither of these soils is listed as hydric.
- WDFW Priority Habitat and Species (PHS) Interactive Map: This resource does not depict any wetlands or streams on the subject property. A wetland is mapped approximately 200 feet off-site to the northwest.
- Snohomish County Planning and Development Services (PDS) map: This resource does not depict and wetlands or streams on the subject property. A wetland is depicted

approximately 200 feet off-site to the northwest and an untyped stream is depicted approximately 130 feet off-site to the east, east of 83rd Avenue NE.

- WDFW SalmonScape: SalmonScape does not depict any streams on or within 300 feet of the subject property.
- City of Marysville Critical Areas Map: This resource does not depict any wetlands or streams on the subject property. A wetland is mapped approximately 200 feet off-site to the northwest.

3.0 WETLAND AND STREAM DETERMINATION

3.1 DETERMINING THE ORDINARY HIGH WATER MARK METHODOLOGY

The ordinary high-water mark (OHWM) of streams and other waterbodies is determined using the methodology described in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et. al. 2016). Identified streams are classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030, and MMC 22E.010.210.

3.2 WETLAND DETERMINATION METHODOLOGY

Wetland conditions were evaluated and delineated using routine methodology described in the *Corps of Engineers Wetlands Delineation Manual* (*Final Report*; January 1987), except where superseded by the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (*Version 2.0*, referred to as 2010 Regional Supplement). Our findings are consistent with these manuals. The following criteria descriptions were used in the boundary determination:

1.) Examination of the site for hydrophytic vegetation (species present and percent cover);

2.) Examination of the site for hydric soils;

3.) Determining the presence of wetland hydrology

3.2.1 Hydrophytic Vegetation Criteria

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

3.2.2 Soils Criteria and Mapped Description

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils. According to NRCS Web Soil Survey, the soil on the parcel is Norma loam and Alderwood-Urban land complex, 2 to 8 percent slopes.

3.2.3 Hydrology Criteria

The 2010 Regional Supplement defines wetland hydrology as "areas that are inundated (flooded or ponded) or the water table is less than or equal to 12 inches below the soil surface for 14 or more consecutive days during the growing season at a minimum frequency of 5 years in 10." During the early growing season, wetland hydrology determinations are made based on physical observation of surface water, a high-water table, or saturation in the upper 12 inches. Outside of the early growing season, wetland hydrology determinations are made based on physical evidence of recent inundation or saturation (i.e. water marks, surface soil cracks, water-stained leaves).

3.3 BOUNDARY DETERMINATION FINDINGS

One on-site wetland (Wetland A) and one off-site stream (Stream A) were observed during the site investigations. The wetland and stream have been classified under the HGM (Brinson 1993) and Cowardin (Cowardin 1979) classification systems. Pursuant to MMC 22E.010.060, Wetland A has been rated using the *Washington Department of Ecology Wetland Rating System for Western Washington (2014).*

3.3.1 Wetland A

HGM class: Depressional
Cowardin classification: Palustrine, Forested Wetland, Broad-leaved Deciduous, Seasonally Flooded
Wetland Classification: Category III
City of Marysville Standard Buffer: 75 feet

Wetland A is a large, depressional system located along the western property line. A majority of the wetland lies off-site to the west in a utility corridor. Stream A flows south to north within the off-site portion of the wetland. Vegetation observed in Wetland A includes black cottonwood (*Populus balsamifera*; FAC), salmonberry (*Rubus spectabilis*; FAC), Himalayan blackberry (*Rubus armeniacus*; FAC), lady fern (*Athyrium filix-femina*; FAC), creeping buttercup (*Ranunculus repens*; FAC), and reed canarygrass (*Phalaris arundinacea*; FACW). Dominant vegetation within the wetland is rated as facultative (FAC) or wetter and therefore comprises a hydrophytic plant community.

Soils within Wetland A are generally black (10YR 2/1) throughout the upper profile. Although the soil profile does not meet a specific hydric soil indicator, the low chroma is indicative of wetland conditions. Soils within Wetland A were saturated to the surface, and the water table was observed at 3 inches at the time of investigation. These conditions meet the criteria for the Wetland Hydrology Indicators "High Water Table" (A2) and "Saturation" (A3).

Wetland A is classified as a Category III wetland with a habitat score of 5 points. Pursuant to MMC 22E.010.100(4), Category III wetlands receive standard buffers of 75 feet.

3.3.2 Non-wetland Areas

Vegetation in non-wetland areas consists of black cottonwood (*Populus balsamifera;* FAC), Douglas fir (*Pseudotsuga menziesii;* FACU), cascara (*Frangula purshiana;* FACU), salmonberry (*Rubus spectabilis*; FAC), osoberry (*Oemleria cerasiformis*; FACU), bracken fern (*Pteridium aquilinum*; FACU), sword fern (*Polystichum munitum*; FACU), Himalayan blackberry (*Rubus armeniacus*; FAC) and creeping buttercup (*Ranunculus repens*; FAC). Dominant vegetation within the non-wetland areas is rated as facultative upland (FACU) and therefore does not comprise a hydrophytic plant community

Soils in the non-wetland areas are generally dark brown (10YR 3/3) silty loam in the upper six inches. From six to 16 inches below, soils are generally dark yellowish brown (10YR 4/6) sandy loam with five percent dark yellowish brown (10YR 3/6) redoximorphic features. Soils were dry at the time of investigation. Non-wetland soils did not meet any hydric soil or wetland hydrology indicators.

3.3.3 Stream A

Cowardin classification: Intermittent, Streambed, Mud
City of Marysville Standard Buffer: 50 feet

Stream A is a non-fish-bearing seasonal stream located entirely within the boundary of Wetland A. The stream flows from south to north, with a substrate consisting of mud and organic materials. Water was observed flowing within the stream at the time of the February and May 2023 site visits. None of the publicly available resources in Section 2 above map Stream A or hydrological connections to other water bodies. The stream is a Type Ns and receives a standard buffer of 50 feet pursuant to MMC 22E.010.220(1)(a).

4.0 WILDLIFE

Species expected to use the site include eastern cottontail (*Sylvilagus floridanus*), black-tailed deer (*Odocoileus hemionus columbianus*), shrews (*Sorex spp.*), moles (*Scapanus spp.*), bats (*Myotis spp.*), raccoon (*Procyon lotor*), squirrels (*Sciurus carolinensis*, *Tamiasciurus douglasii*), deer mouse (*Peromyscus maniculatus*), Virginia opossum (*Didelphis virginiana*), and coyote (*Canis latrans*). Amphibian species that may utilize the site include: pacific tree frog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), and northwestern salamander (*Ambystoma gracile*). Bird species likely to utilize the site include Dark-eyed Junco (*Junco hyemalis*), American Robin (*Turdus migratorius*), Stellar's Jay (*Cyanocitta stellar*i), and Crow (*Corvus brachyrhynchos*). This list is not meant to be all-inclusive of species that use the site, but is representative of common wildlife in the Marysville area. No threatened or endangered species are known to be associated with this site.

5.0 PROPOSED BUFFER MODIFICATIONS

To accommodate the proposed development, the applicant is proposing to utilize buffer averaging and provide buffer enhancement and restoration as mitigation for permanent and temporary buffer impacts.

Reduction of the buffer through buffer averaging is proposed within the outer 25 percent of the Wetland A buffer, as allowed by MMC 22E.010.100(5). Buffer averaging will reduce 2,932 square feet and add 3,314 square feet of buffer. The buffer addition area will be planted with native vegetation to bring the buffer into compliance with MMC 22E.010.100(3).

Temporary impacts will occur for the installation of utilities and a stormwater dispersion trench. Due to topography and soil conditions, the stormwater dispersion trench is required to be located the toe of slope near the wetland (see drainage report). No impacts will occur within the wetland. To accommodate the utility lines and dispersion trench, 1,563 square of temporary impacts and 40 square feet of permanent impacts is proposed within the buffer. Temporary impacts will be restored with native shrub plantings and permanent impacts will be mitigated at a ratio of 1:1 with 40 square feet of additional buffer.

Due to the required location of the stormwater dispersion trench, a small portion of Wetland A buffer will require a reduction beyond the 25 percent limit allowed by MMC 22E.010.220(4)(b) and MMC 22E.010.100(5)(c). The applicant requests a variance form the standard wetland buffer requirements, as specified in MCC 22E.010.100(13). Refer to Section 5.4 for a discussion of wetland buffer variance criteria.

Summary of Buffer Impacts and Mitigation

Impact Type	Impact Area (sq. ft.)	Mitigation Type	Mitigation Area (sq. ft.)	Mitigation Ratio
Buffer Reduction	2,932	Buffer Addition	3,314	1.1:1
Temporary Buffer	1,563	Buffer Restoration	1,563	1:1
Permanent Buffer	40	Buffer Addition	40	1:1

Additionally, the buffer of Wetland A is sparsely vegetated, contains invasive species and is fragmented by cleared paths. To bring the buffer into compliance with MMC 22E.010.100(3), the applicant is proposing to enhance 17,322 square feet of degraded buffer area.

5.1 BUFFER AVERAGING

Buffer width averaging is proposed within the outer 25 percent of the Wetland A buffer to accommodate the development and utilities. Buffer width averaging requirements are provided in MMC 22E.010.100(5)(a) and (5)(c). Text from the referenced code sections are below in italics with applicant responses following each in standard text.

> *(5)(a) Buffer width averaging shall be allowed only where the applicant demonstrates to the community development department that the averaging will not impair or reduce the habitat, water quality purification and enhancement, storm water detention, ground water recharge, shoreline protection and erosion protection and other functions of the wetland and buffer…*

To accommodate the proposed development, a total of 2,932 square feet of buffer is proposed to be reduced, and averaged with 3,314 square feet of additional buffer. The buffer addition area will be enhanced with native species. The enhanced buffer addition area will provide greater water quality, hydrologic, and habitat functions compared to the sparsely vegetated area proposed for buffer reduction. A full description of the functions and values provided by the proposed mitigation is below in Section 9 of this report.

… that lower-intensity land uses would be located adjacent to areas where buffer width is reduced…

Buffer averaging reductions are proposed in two places within the southwestern portion of the site to accommodate three lots, a utility easement, and detention facility. The reduced buffer areas are located adjacent to the backyards of the residences and the detention facility where lower-intensity uses will occur.

…and that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging;

A total of 2,932 square feet of buffer reduction and 3,314 square feet of buffer addition are proposed. The total on-site area within the buffer will be slightly larger under the buffer averaging proposal. No reduction of total buffer area is proposed.

(5)(c) Notwithstanding the reductions permitted in subsections (5)(a) and (b) of this section, buffer widths shall not be reduced by more than 25 percent of the required buffer.

Utilizing buffer width averaging, the maximum buffer width reduction proposed is 25 percent of the required buffer. However, to accommodate the stormwater dispersion trench, the applicant proposes to reduce the buffer beyond the 25 percent limit in one small area (40 square feet). In order to accomplish this, the applicant proposes adding 40 square feet of buffer to account for the impact and a variance from the standard wetland buffer provisions. Please refer to Section 5.4 below for a discussion of the wetland buffer variance criteria.

5.2 PERMANENT BUFFER IMPACT AND MITIGATION

A small amount of permanent impact to the buffer for Wetland A (40 square feet) is unavoidable due to the need to place a quarry spall stormwater dispersion trench at an appropriate elevation. Per MMC 22E.010.100(10), stormwater management facilities are allowed within the outer 25 percent of wetland buffers. Due to the need to locate the dispersion trench at an appropriate elevation downslope of the detention pond, the dispersion trench is proposed approximately 14 feet from the wetland at its closest point. While this is not within the outer 25 percent of the wetland buffer, it is as far from the wetland as possible given the topography and soil conditions of the site.

5.3 TEMPORARY BUFFER IMPACTS AND MITIGATION

The applicant proposes to install utilities and a stormwater dispersion trench within the wetland buffer. Per MMC 22E.010.100(9), utilities may be allowed within wetlands and wetland buffers so long as there is no alternative location available and there will be no adverse impacts to the wetland. The civil engineer has indicated that the trench cannot be placed further from the wetland due to topography and soil conditions. Placement of the stormwater dispersion trench is proposed within the inner 75 percent of the standard wetland buffer. The applicant is proposing a variance from the standard wetland buffer requirements in order to allow this buffer impact, as specified in MMC 22E.010.220(13). Refer to Section 5.4 for a discussion of buffer variance criteria.

To accommodate the utilities and dispersion trench in the buffer, 1,563 square feet of temporary buffer impacts are proposed. All areas of temporary impacts will be restored with native shrub plantings. See Section 6.3 for details of the buffer restoration measures.

5.4 WETLAND BUFFER WIDTH VARIANCE

The proposed dispersion trench will permanently impact 40 square feet and temporarily impact 1,563 square feet of wetland buffer. The Wetland A buffer impact areas are currently degraded due to a network of wide trails fragmenting the buffer and invasive species cover, including Himalayan blackberry.

Under standard code provision, the MMC allows a 25 percent maximum buffer reduction for wetlands pursuant to MMC 22E.010.100(5)(b). Given the site constraints associated with locating the dispersion trench, the applicant requests a variance from standard wetland buffer width requirements. The variance request, along with a discussion about how variance criteria are met, are provided below.

The proposed dispersion trench will impact a small area (40 sq. ft.) of the buffer previously degraded by wide trails and invasive species. This proposal will not result in adverse impacts to the on-site wetland and, due to proposed buffer enhancement, will provide higher functioning buffers after installation.

A variance from buffer width requirements may be granted, pursuant to MCC 22E.010.100 (13), if specific criteria (a) through (e) are met as follows:

> *(a) There are special circumstances applicable to the subject property or to the intended use such as shape, topography, location or surroundings that do not apply generally to other properties and which support the granting of a variance from buffer width requirements; and*
>
> The location of the proposed stormwater dispersion trench is constrained due to topography of the site. The stormwater pond is proposed in the lower, southwest corner of the site, and the outfall for the pond needs to be located at a lower elevation while still being outside of the wetland. Hence, the dispersion pad must be located within the inner portion of the buffer to provide positive drainage from the pond while maintaining hydrology to the wetland.

(b) Such buffer width variance is necessary for the preservation and enjoyment of a substantial property right or use possessed by other similarly situated property but which because of special circumstances is denied to the property in question; and

The buffer width reduction is necessary to enjoy the right to use the property for residential development, in the same manner as other similar properties that are not constrained by the on-site wetlands and buffers.

(c) The granting of such buffer width variance will not be materially detrimental to the public welfare or injurious to the property or improvement; and

The buffer width reduction will not be materially detrimental to the public welfare or injurious to the property or improvement. The proposed dispersion trench will be designed under appropriate civil engineering standards to adequately serve the development. The dispersion trench will be located in an area with limited access by residents and will not interfere with the on-site wetland.

(d) The granting of the buffer width variance will not materially affect the subject wetland.

Prior to construction, erosion control measures will be installed to protect the wetland and its buffer. After project construction, any temporary impacts to the wetland buffer will be restored with native vegetation at the same time that other portions of the buffer will be enhanced. Enhancement of the wetland buffer will increase habitat conditions on site.

(e) Best available science, as set forth in MMC 22E.010.040, shall be taken into consideration in the granting of a buffer width variance.

Best available science has been applied through an analysis of existing wetland and buffer functions, proposed project actions, and post-construction conditions/functions. An assessment of these functions and values is provided in section 7.0 of this report.

6.0 BUFFER ENHANCEMENT AND RESTORATION

Buffer enhancement and restoration will include removing invasive species, such as Himalayan blackberry, from the buffer and installing a diverse array of native species. The following lists include the native plants that will be installed for buffer enhancement and restoration. Plant spacing complies with MMC 22E.010.10(3).

6.1 BUFFER ENHANCEMENT PLAN

Pursuant to MMC 22E.010.100(3), where existing buffer area vegetation provides minimal vegetative cover and cannot provide the minimum water quality or habitat cover or in areas where invasive species provide the dominant cover, buffer enhancement shall be provided. The existing buffer is currently degraded due to a network of wide trails fragmenting the buffer and invasive species cover, including Himalayan blackberry. Therefore, buffer enhancement is required within

the buffer of Wetland A. To bring the buffer of Wetland A into compliance, 20,578 square feet of buffer will be enhanced with native vegetation.

Planting Area A is 3,354 square feet, Planting Area B is 16,736 square feet, and Planting Area C is 488 square feet.

Buffer Enhancement Planting Area A (3,354 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	20
Red alder	*Alnus rubra*	1 gallon	10'	20
Salmonberry	*Rubus spectabilis*	1 gallon	5'	30
Snowberry	*Symphoricarpos albus*	1 gallon	5'	30
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	30
Vine maple	*Acer circinatum*	1 gallon	5'	30

Buffer Enhancement Planting Area B (16,736 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	98
Red alder	*Alnus rubra*	1 gallon	10'	98
Salmonberry	*Rubus spectabilis*	1 gallon	5'	146
Snowberry	*Symphoricarpos albus*	1 gallon	5'	146
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	146
Vine maple	*Acer circinatum*	1 gallon	5'	146

Buffer Enhancement Planting Area C (488 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	3
Red alder	*Alnus rubra*	1 gallon	10'	3
Salmonberry	*Rubus spectabilis*	1 gallon	5'	5
Snowberry	*Symphoricarpos albus*	1 gallon	5'	5
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	5
Vine maple	*Acer circinatum*	1 gallon	5'	5

6.2 BUFFER RESTORATION PLAN

To mitigate for 1,563 square feet of temporary buffer impacts, the impact area will be restored with native shrub plantings. Trees are not proposed within this area to prevent future damage to utilities from root growth.

Buffer Restoration Planting (1,563 SF)

Common Name	*Scientific Name*	*Size*	*Spacing*	*Quantity*
Salmonberry	*Rubus spectabilis*	1 gallon	5'	18
Snowberry	*Symphoricarpos albus*	1 gallon	5'	18
Osoberry	*Oemleria cerasiformis*	1 gallon	5'	18
Vine maple	*Acer circinatum*	1 gallon	5'	18

6.3 FENCING AND SIGNAGE

Pursuant to MMC 22E.010.370, two-rail fencing and signs designating the presence of a critical area will be constructed along the perimeter of the buffer. A fence and sign detail is provided below.

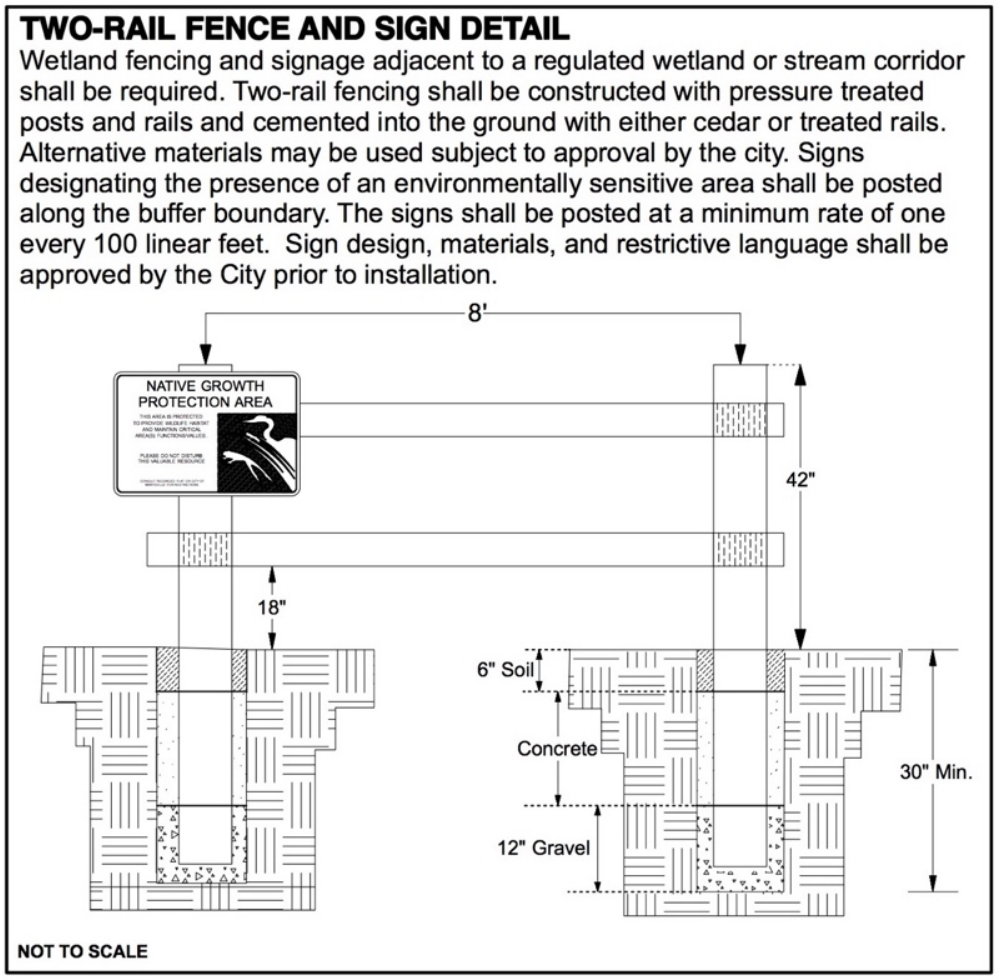


Figure 2 – Two-rail Fence and NGPA Sign Detail.

7.0 WETLAND FUNCTIONS AND VALUES ASSESSMENT

7.1 METHODOLOGY

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the on-site wetland, but is typical for assessments of similar systems common to western Washington.

Functions and Values Components

Wetlands in western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are stormwater storage and flood flow attenuation, water quality improvement, and fish and wildlife habitat. An assessment of these functions for the project site is provided below.

7.2 Existing Buffer Conditions

The existing on-site buffer area is comprised of sparse native forest with a shrub understory. The buffer is fragmented with a network of wide trails and large areas of Himalayan blackberry. The existing buffer conditions provide minimal buffer functions due to fragmented habitat, extensive invasive species cover, and is sparsely vegetated with native shrubs.

7.3 Post-Mitigation Functions and Values

The applicant is proposing buffer modifications including buffer width averaging and buffer enhancement. The buffer enhancement plan includes removing invasive plants and installing native trees and shrubs. The enhanced buffer will increase the structural and species diversity within the buffer and thus the water quality, hydrologic, and habitat functions performed by the buffer will be improved.

Temporary impacts to the buffer of Wetland A for utilities and a stormwater dispersion trench will be revegetated to increase buffer functions in an already partially degraded area due to invasive species. Native shrub species will be planted throughout the disturbed areas, which will return the buffer to its pre-construction condition. Trees are not proposed within the temporary impact area to prevent future damage to utility structures from root growth. Temporary impacts will result in a discountable temporal loss in functions provided by the buffer. Once the restoration plants establish, buffer functions will be fully restored.

Overall, the buffer averaging, buffer enhancement, and buffer restoration plan will improve the functions and values provided by the on-site buffer areas.

8.0 Project Monitoring Program

8.1 Inspection and Reporting Requirements

1. Initial compliance/as-built report at completion of construction
2. Inspection and brief status report 30 days after planting
3. Inspection and brief status report early in the first growing season
4. Inspection and brief status report and the end of the first growing season
5. Inspection and brief status report early in the second growing season
6. Inspection and brief status report and the end of the second growing season
7. Annual site inspection (once per year in the fall) in years 3-5
8. Annual reports (one report submitted in the fall of each monitored year) for years 3-5

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

Monitoring

Monitoring shall be conducted in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation. The monitoring period is proposed to last for five years, however, if the site meets the Year 5 performance standards in earlier years, the monitoring program can be completed early. If the site does not meet the Year 5 performance standards at the end of Year 5, contingency actions may be necessary, and monitoring may be extended one year at a time until the Year 5 performance standards are met.

Vegetation Monitoring

Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points shall be identified in the field and on the monitoring map in the first monitoring report. Each sampling point or transect shall detail tree, shrub, and herbaceous aerial coverage. During Years 3 through 5, vegetation monitoring shall occur between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Photo points

Photo points shall be established in the buffer enhancement area. Photographs will be taken from these points to visually record the condition of the restoration/enhancement area. Photos shall be taken between May 15 and September 30 (prior to leaf drop), unless otherwise specified. Photo points shall be identified on the monitoring map in the first monitoring report.

Monitoring Report Contents

During Years 3 through 5, monitoring reports shall be submitted by October 31 of each year. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
5. Observed wildlife, including amphibians, avians, and others
6. Assessment of nuisance / exotic biota and recommendations for management
7. Descriptions of any structural repair or replacement (i.e. fencing, signs, etc.)
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

8.2 PROJECT SUCCESS & COMPLIANCE

Criteria for Success
Upon completion of the proposed mitigation project, an inspection by a qualified wetland professional shall be made to determine plan compliance. An as-built report will be supplied to the City of Marysville within thirty (30) days after the completion of planting to show compliance with the mitigation plan. The qualified wetland professional will perform condition monitoring of the plantings and provide reports according to the approved schedule.

Goal
To mitigate the impacts to functions and values from the proposed development.

Objectives
Objective 1: To establish a diverse, native plant community in the buffer that will persist and create an appropriate vegetative matrix.

Objective 2: To have significant native vegetative cover throughout the buffer.

Objective 3: To remove and replace existing invasive species and limit the establishment and spread of those species in the buffer.

Definition of Success
The mitigation project goal will be deemed successful when objectives are met, as evidenced through the observation of set performance standards.

Performance Standards
The objectives will be considered successfully met when the following performance standards are observed throughout the enhancement area:

Performance Standard 1
End of Year 1: at least 90 percent survival of installed species and no more than 5 percent cover by invasive plant species.

Performance Standard 2
End of Year 3: at least 80 percent survival of installed plant species and no more than 10 percent cover by invasive plant species.

Performance Standard 3
End of Year 5: at least 70 percent survival of installed plant species and no more than 10 percent cover by invasive plant species.

In the event that a performance standard is not met by the time specified, maintenance and/or contingency actions shall be implemented promptly to work toward meeting the standard.

*If Year 5 performance standards are met by the end of Year 3 or Year 4, the City may consider the project to be successful and terminate the monitoring period at that time.

8.3 MAINTENANCE

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

Duration and Extent
In order to achieve performance standards, the permittee shall be responsible for maintaining the mitigation area for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, cutting down competing grasses, and any other measures needed to ensure plant survival.

Survival
The permittee shall be responsible for the health of 100 percent of all newly installed plants for one growing season after installation has been accepted by the City of Marysville. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 14 of the following year). For fall installation (if required), the growing season will begin the following spring. The permittee shall replace any plants that are failing, weak, defective in manner of growth, dead, or missing during the first growing season.

Installation Timing for Replacement Plants
Replacement plants shall be installed between November 1 and March 15, unless otherwise determined.

Standards for Replacement Plants
Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by a qualified professional.

Replanting
Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted.

Herbicides / Pesticides
Unless deemed absolutely necessary by the consulting biologist and/or the City, chemical controls shall not be used in the mitigation area, critical areas, or their buffers. Any chemical controls used shall be applied by a licensed applicator following all label instructions.

Irrigation / Watering
Water shall be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above-ground irrigation

system shall provide water at a rate of one inch (1") of water twice per week for year one and one inch (1") per week during year two. Adjustments to this schedule may be recommended by the wetland professional during the monitoring period.

General
The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

8.4 CONTINGENCY PLAN

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

8.5 PROJECT NOTES

Pre-Construction Meeting
Mitigation projects are typically more complex to install than can be described in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There shall be a pre-construction meeting on this site between the Permittee, consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections
A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Marysville representative and/or the consulting professional will make these decisions during construction and any changes will be reflected in the As-built report.

8.6 PLANTING NOTES

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

Pre-Planting Meeting
Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to discuss the intent of the project and resolve any questions. During this meeting, a discussion regarding plant spacing and locations of plant species shall occur.

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

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

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

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

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

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

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

Flagging
All mitigation plantings shall be clearly flagged with highly visible flagging tape at the time of the installation. Clear identification of mitigation plants will aide in future assessments of performance standards during monitoring visits.

Timing of Planting
Unless otherwise determined by the consulting biologist and City staff, initial planting shall occur between October 15 and March 15. Overall, the earlier plants go into the ground during the dormant period the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

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

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

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

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

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

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

Arrangement and Spacing
The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the wetland professional and/or City staff.

Inspection(s)
A wetland professional shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Mulch
All landscaped areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 to 4 inches of organic compost or certified weed free straw after planting. A layer of woodchips will be placed around the base of each plant in a 3-foot radius and at a depth of 2 to 4 inches. Mulch and woodchips shall not be allowed to contact plant stems in order to avoid plant decay and rot.

9.0 PERFORMANCE AND MAINTENANCE BONDING

Performance and/or maintenance bonds, or other assurance device(s), shall be provided to the City of Marysville, in an amount to be determined by the City. The following is an estimate of the costs associated with the mitigation measures.

One-gallon plants	1,038 x $15.00/plant, installed	$15,570.00
Split rail fencing	$10/foot x 416 feet	$4,160.00
Critical area signage	$30/sign x 5 signs	$150.00
Mulch	$50.00/CY x 30.10 CY	$1,505.10
Monitoring	$2,000.00/year x 5 years	$10,000.00
Maintenance	$2,500.00/year x 5 years	$12,500.00
Total Estimated Costs		**$43,885.10**

10.0 USE OF THIS REPORT

This Critical Area Study and Buffer Mitigation Plan is supplied to Robinett Brothers, LLC, as a means of determining on-site wetland conditions, as required during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

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

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

Wetland Resources, Inc.



Shaun Sweeney
Associate Ecologist

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APPENDIX A:
WETLAND DETERMINATION DATA FORMS

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

Project/Site: WRI#23040 83RD Ave NE City/County: Marysville, Snohomish Sampling Date: 5/17/2023

Applicant/Owner: Marty Robinett with Robinett Brothers LLC State: WA Sampling Point: S1

Investigator(s): SS Section, Township, Range: Sec.26, Twp.30, Rge5

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none Slope (%): ~1%

Subregion (LRR): LRR A Lat: 48.058754 Long: -122.121958 Datum: NAD83

Soil Map Unit Name: Tokul gravelly medial loam, 0 to 8 percent slopes NWI classification: PEM1C

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? Yes ☑ No ☐ Hydric Soil Present? Yes ☑ No ☐ Wetland Hydrology Present? Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5^m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	45	Y	FAC
2. *Acer macrophyllum	10	-	FACU
3.			
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3^m)			
1. Rubus spectabilis	50	Y	FAC
2. *Oemleria cerasiformis	20	-	FACU
3. Rubus armeniacus	15	Y	FAC
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: 1^m)			
1. Athyrium filix-femina	15	Y	FAC
2. Ranunculus repens	10	Y	FAC
3. Phalaris arundinacea	5	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 1^m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

* Species rooted outside of the wetland.

SOIL

Sampling Point: S1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					SiSaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators 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:

Although the soil profile does not meet a hydric soil indicator, the low chroma is indicative of wetland conditions.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ 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)

Secondary Indicators (2 or more required)

- ☐ 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): 3 inches

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): suface

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: WRI#23040 83RD Ave NE City/County: Marysville, Snohomish Sampling Date: 5/17/2023

Applicant/Owner: Marty Robinett with Robinett Brothers LLC State: WA Sampling Point: S2

Investigator(s): SS Section, Township, Range: Sec.26, Twp.30, Rge5

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR A Lat: 48.051703 Long: -122.121204 Datum: NAD83

Soil Map Unit Name: Tokul gravelly medial loam, 0 to 8 percent slopes NWI classification: None

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?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5^m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	40	Y	FACU
2. Populus balsamifera	35	Y	FAC
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3^m)			
1. Frangula purshiana	45	Y	FAC
2. Rubus spectibilis	30	Y	FAC
3. Oemleria cerasoformis	15	N	FACU
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: 1^m)			
1. Rubus armeniacus	15	Y	FAC
2. Pteridium aquilinum	10	Y	FACU
3. Polystichum munitum	5	N	FACU
4. Ranunculus repens	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: 1^m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: S2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					SiLo	
6-16	10YR 4/6	95	10YR 3/6	5	C	M	SiLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ 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)

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators 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:

Soils were dry at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ 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)

Secondary Indicators (2 or more required)

- ☐ 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): 0

Water Table Present? Yes ☐ No ☑ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): 0

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

APPENDIX B:
DEPARTMENT OF ECOLOGY WETLAND RATING FORMS AND FIGURES

Wetland name or number **A**

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2/24/2023

Rated by JL Trained by Ecology? ✔ Yes ___No Date of training 9/2014

HGM Class used for rating DEPRESSIONAL Wetland has multiple HGM classes?___Y ✔ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map Snohomish County

OVERALL WETLAND CATEGORY III (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

✔ **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H [M] L	H M [L]	H [M] L	
Landscape Potential	[H] M L	[H] M L	H M [L]	
Value	[H] M L	H [M] L	H [M] L	TOTAL
Score Based on Ratings	**8**	**6**	**5**	**19**

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number **A**

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	A1
Hydroperiods	D 1.4, H 1.2	A1
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	A1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	A1
Map of the contributing basin	D 4.3, D 5.3	A2
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	A2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	A3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	A4

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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 *(can be added to another figure)*	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 (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	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	

Wetland name or number **A**___

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

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

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is 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.

Wetland name or number **A**

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.*

Wetland name or number **A**

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. Characteristics of surface water outflows from the wetland: ☐ Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☑ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	**2**
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions).* Yes = 4 [No = 0]	**0**
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): ☐ Wetland has persistent, ungrazed, plants > 95% of area points = 5 ☑ Wetland has persistent, ungrazed, plants > ½ 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	**3**
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* ☐ Area seasonally ponded is > ½ total area of wetland points = 4 ☑ Area seasonally ponded is > ¼ total area of wetland points = 2 ☐ Area seasonally ponded is < ¼ total area of wetland points = 0	**2**
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ___ **12-16 = H** ✔ **6-11 = M** ___ **0-5 = 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: ✔ **3 or 4 = H** ___ **1 or 2 = M** ___ **0 = 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 (*answer YES if there is a TMDL for the basin in which the unit is found*)? [Yes = 2] No = 0	**2**
Total for D 3 Add the points in the boxes above	**3**

Rating of Value If score is: ✔ **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

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
- ☑ 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

2

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
- ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5
- ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3
- ☐ 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

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.*

- ☐ The area of the basin is less than 10 times the area of the unit points = 5
- ☑ The area of the basin is 10 to 100 times the area of the unit points = 3
- ☐ The area of the basin is more than 100 times the area of the unit points = 0
- ☐ Entire wetland is in the Flats class points = 5

3

Total for D 4 — Add the points in the boxes above — **5**

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** ✔ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland 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	**1**
Total for D 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ✔ **3 = H** ___ **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

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

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.*
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):

- ☐ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2
- ☑ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1
- ☐ Flooding from groundwater is an issue in the sub-basin. points = 1
- ☐ 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
- ☐ There are no problems with flooding downstream of the wetland. points = 0

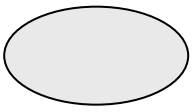
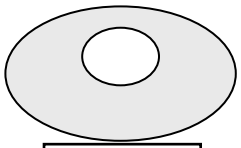
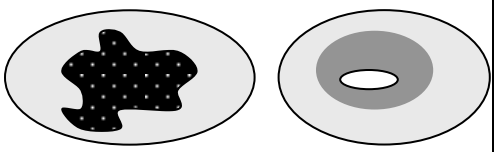
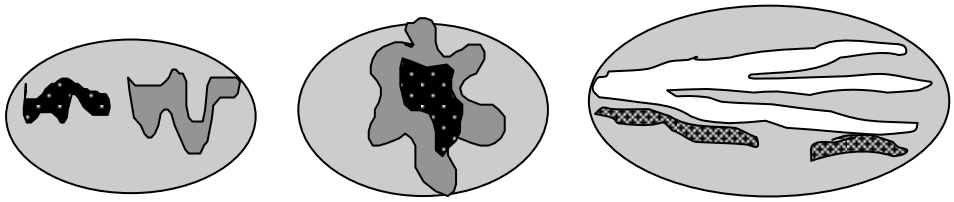
1

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: ___ **2-4 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
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.* ____Aquatic bed __✔__Emergent __✔__Scrub-shrub (areas where shrubs have > 30% cover) __✔__Forested (areas where trees have > 30% cover) *If the unit has a Forested class, check if:* __✔__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 4 structures or more: points = 4 3 structures: points = 2 2 structures: points = 1 1 structure: points = 0	**4**
H 1.2. Hydroperiods 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*). ____Permanently flooded or inundated __✔__Seasonally flooded or inundated ____Occasionally flooded or inundated __✔__Saturated only ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** ____**Freshwater tidal wetland** 4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 type present: points = 0 **2 points** **2 points**	**1**
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *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*** If you counted: > 19 species 5 - 19 species < 5 species points = 2 points = 1 points = 0	**1**
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	**1**

Wetland name or number **A**

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ✔ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ✔ Standing snags (dbh > 4 in) within the wetland ✔ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**3**
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If score is: ___ **15-18 = H** ✔ **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 0 **+** [(% moderate and low intensity land uses)/2] 4 **=** 4 % If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ✔ < 10% of 1 km Polygon points = 0	**0**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 12 **+** [(% moderate and low intensity land uses)/2] 15 **=** 27 % ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ✔ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	**1**
H 2.3. Land use intensity in 1 km Polygon: If ✔ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	**-2**
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** ✔ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
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.* Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ✔ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☐ Site does not meet any of the criteria above points = 0	**1**

Rating of Value If score is: ___ **2 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

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).*

☐ **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.

Wetland name or number **A**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

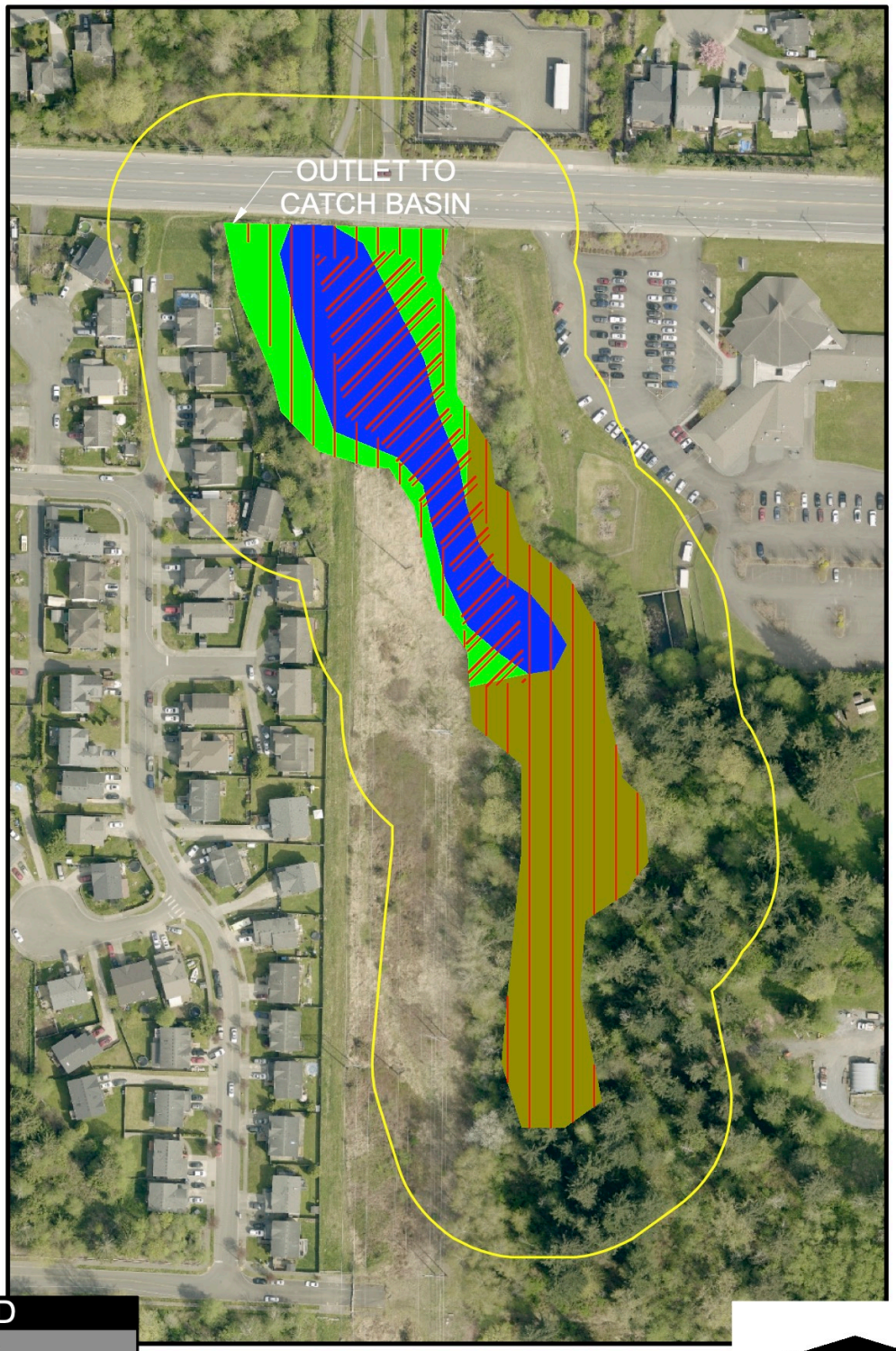
Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** 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? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ 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 *Spartina*, see page 25) ☐ 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. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. 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? Yes **– Go to SC 2.2** No **– Go to SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a 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 Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a 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? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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? Yes – Go to **SC 3.3** 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 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? Yes – Go to **SC 3.3** No = **Is not a bog** 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? Yes = **Is a Category I bog** No – Go to **SC 3.4** **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. 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? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number **A**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **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. ☐ **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). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ 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 *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** 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)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**N/A**

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ROBINETT BROS - CHAPEL HILL
WETLAND RATING FIGURE 1 - WETLAND A



LEGEND

- SCRUB-SHRUB
- EMERGENT VEGETATION
- FORESTED VEGETATION
- SATURATED ONLY
- SEASONALLY FLOODED
- 150' FROM WL BOUNDARY

Scale 1" = 200'

0 200 400

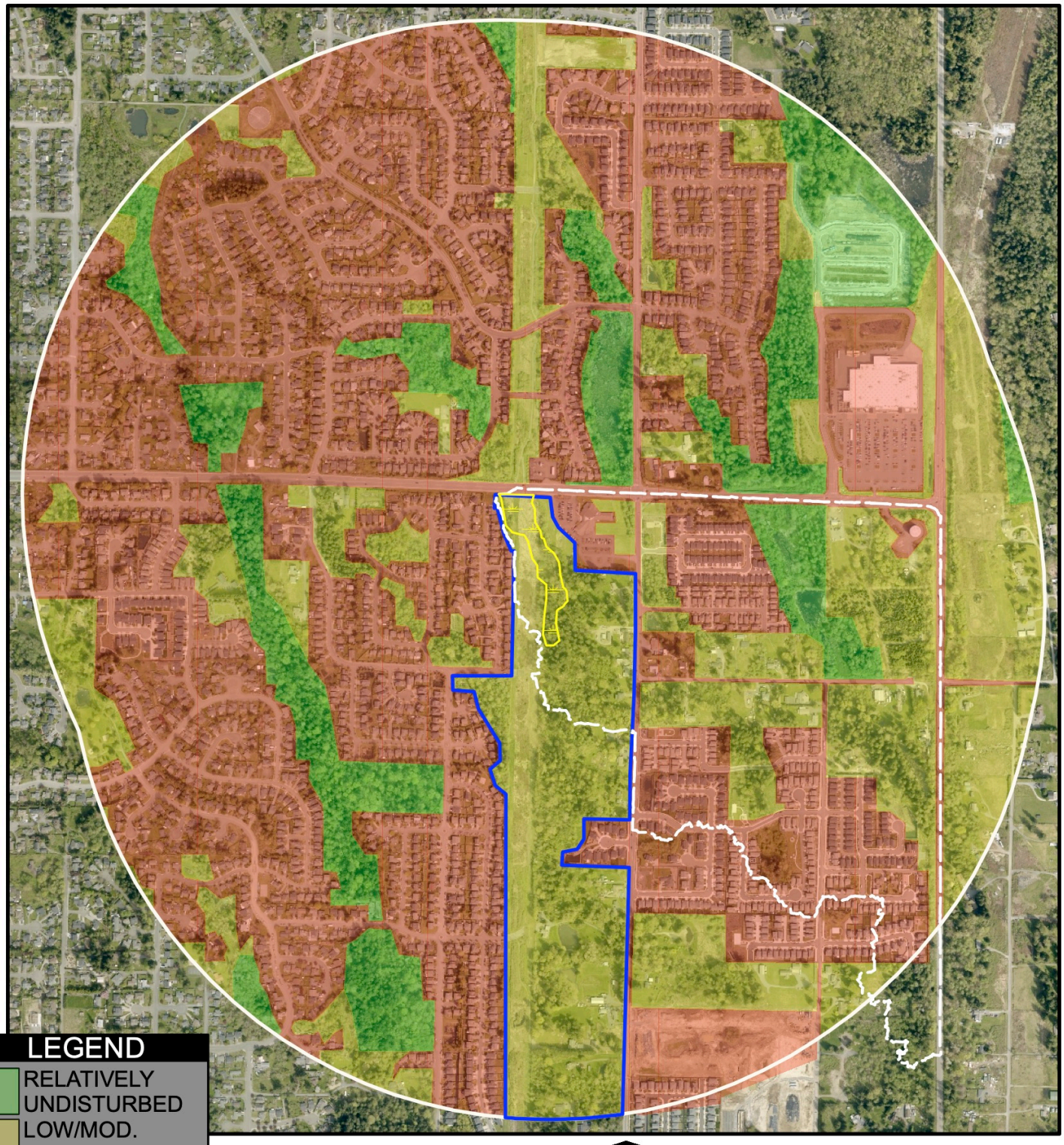
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Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

WETLAND RATING
Wetland A

Figure A-1
WRI Job #
Rated b

ROBINETT BROS - CHAPEL HILL

WETLAND RATING FIGURE 2 - WETLAND A



LEGEND

- RELATIVELY UNDISTURBED
- LOW/MOD. INTENSITY
- HIGH INTENSITY
- ACCESSIBLE HABITAT
- WETLAND
- 1 KM FROM WETLAND
- CONTRIBUTING BASIN

Scale 1" = 1,000'

0 1,000 2,000

CONTRIBUTING BASIN AREA RELATIVE TO WETLAND UNIT IS 43:1

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WETLAND RATING

Wetland A

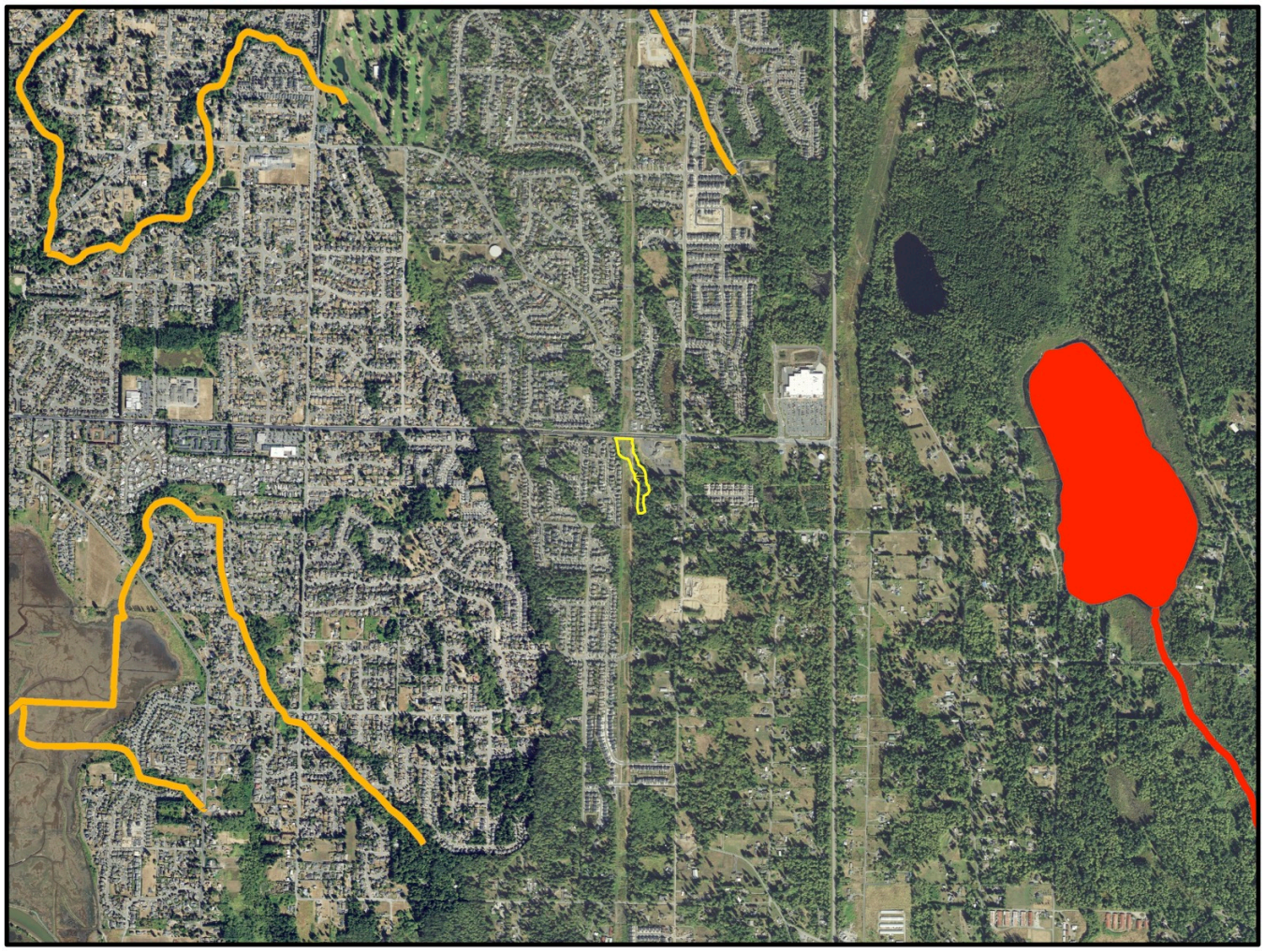
Figure A-2

WRI Job #

Rated

ROBINETT BROS - CHAPEL HILL

WETLAND RATING FIGURE 3 - WETLAND A



LEGEND

WETLAND

AQUATIC RESOURCES ON THE 303(d) LIST

Scale 1" = 2,500'

0 2,500 5,000

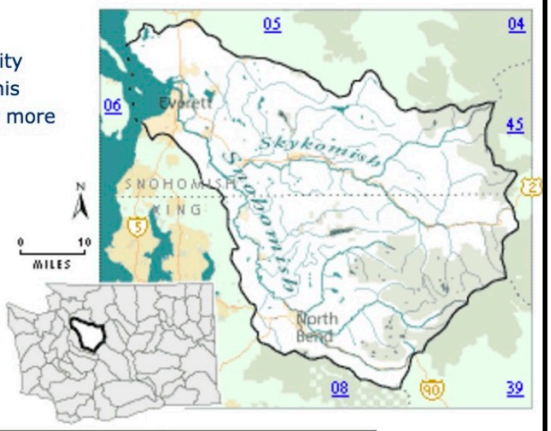
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WETLAND RATING
Wetland A

Figure A-3
WRI Job #
Rated

WRIA 7: Snohomish

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- King
- Snohomish

Waterbody Name	Pollutant(s)	Status**	TMDL Lead
Lake Loma	Total Phosphorus	Straight to implementation project under development	Tricia Shoblom 425-649-7288
Snohomish River	French Creek / Pilchuck River • Dissolved Oxygen • Temperature	Under development	Ralph Svrjcek 425-649-7165
	Dioxin	EPA approved	Ralph Svrjcek 425-649-7165
	Estuary • Ammonia • BOD	EPA approved	Ralph Svrjcek 425-649-7165
	Tributaries • Fecal Coliform Tributaries: • Allen Creek • Quilceda Creek • French Creek • Woods Creek • Pilchuck River • Marshlands (Wood Creek) {2}	EPA approved	Ralph Svrjcek 425-649-7165
	Snoqualmie River • Ammonia-N • BOD (5-day) • Fecal Coliform Temperature	EPA approved EPA approved Has an implementation plan	Ralph Svrjcek 425-649-7165

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

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WETLAND RATING
Wetland A

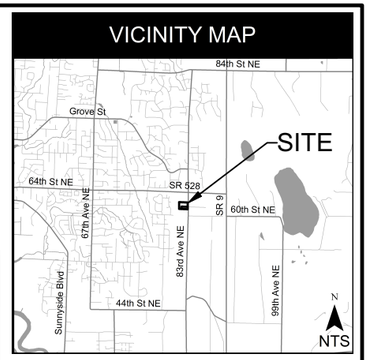
Figure A-4
WRI Job #
Rated

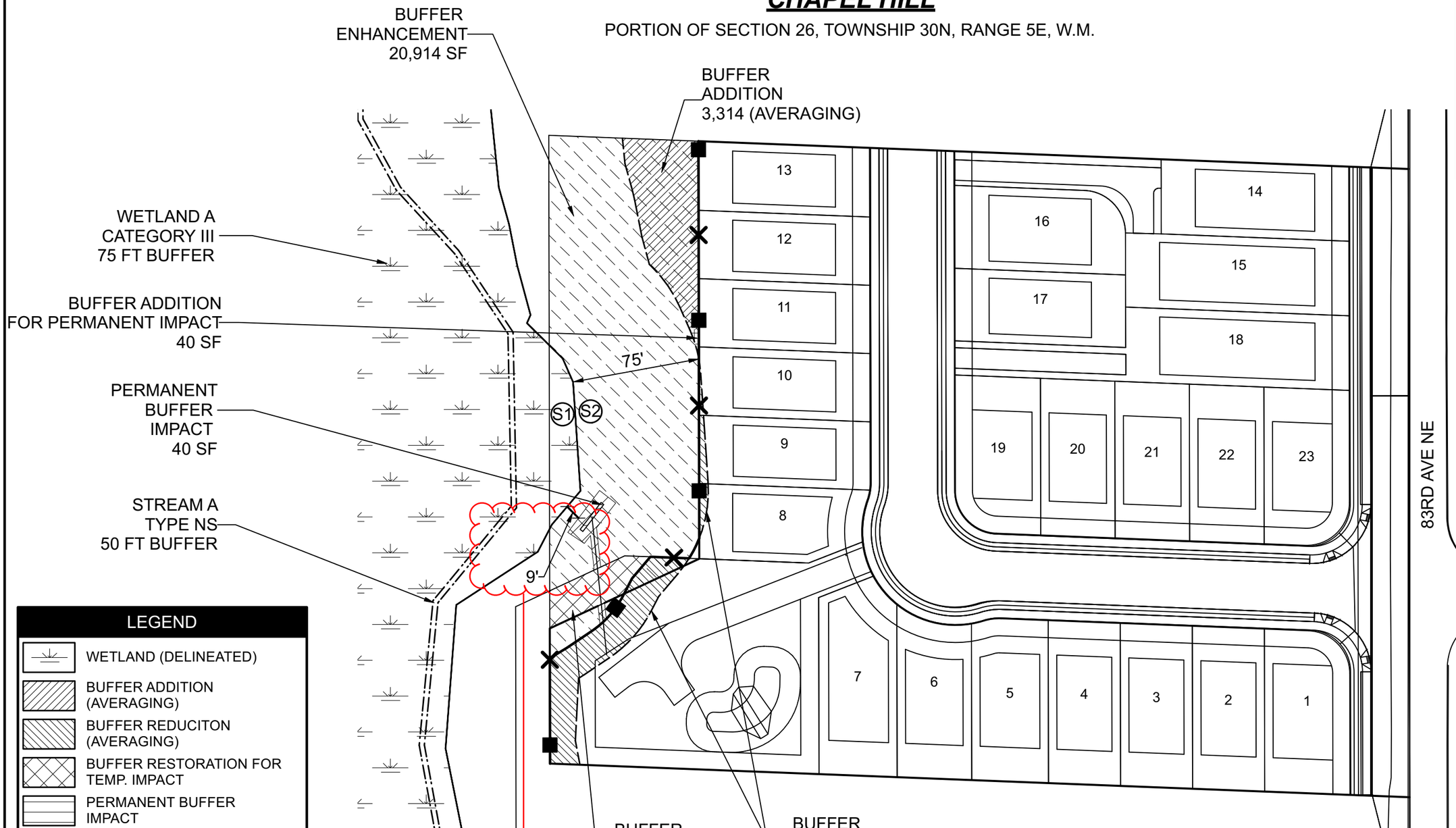
APPENDIX C:
CRITICAL AREA STUDY AND MITIGATION MAPS (1-2/2)

CRITICAL AREAS STUDY AND BUFFER MITIGATION MAP

CHAPEL HILL

PORTION OF SECTION 26, TOWNSHIP 30N, RANGE 5E, W.M.





LEGEND

- WETLAND (DELINEATED)
- BUFFER ADDITION (AVERAGING)
- BUFFER REDUCITON (AVERAGING)
- BUFFER RESTORATION FOR TEMP. IMPACT
- PERMANENT BUFFER IMPACT
- BUFFER ADDITION FOR PERMANENT IMPACT
- BUFFER ENHANCEMENT
- STREAM OHWM (ESTIMATED)
- STANDARD BUFFER
- FENCE AND SIGNAGE
- (S1) DATA SITE (S1-S2)

Scale 1" = 60'

0 30 60 90 120

Per email correspondence with John Lufenberg of WRI, dated 6.6.2024, The trench is still 14 feet from the wetland at its closest point. The temporary impacts around the trench are estimated at 5 feet, which is where the 9 foot measurement came from.

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett,Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

CRITICAL AREA STUDY AND BUFFER MITIGATION MAP
CHAPEL HILL
Marysville, WA

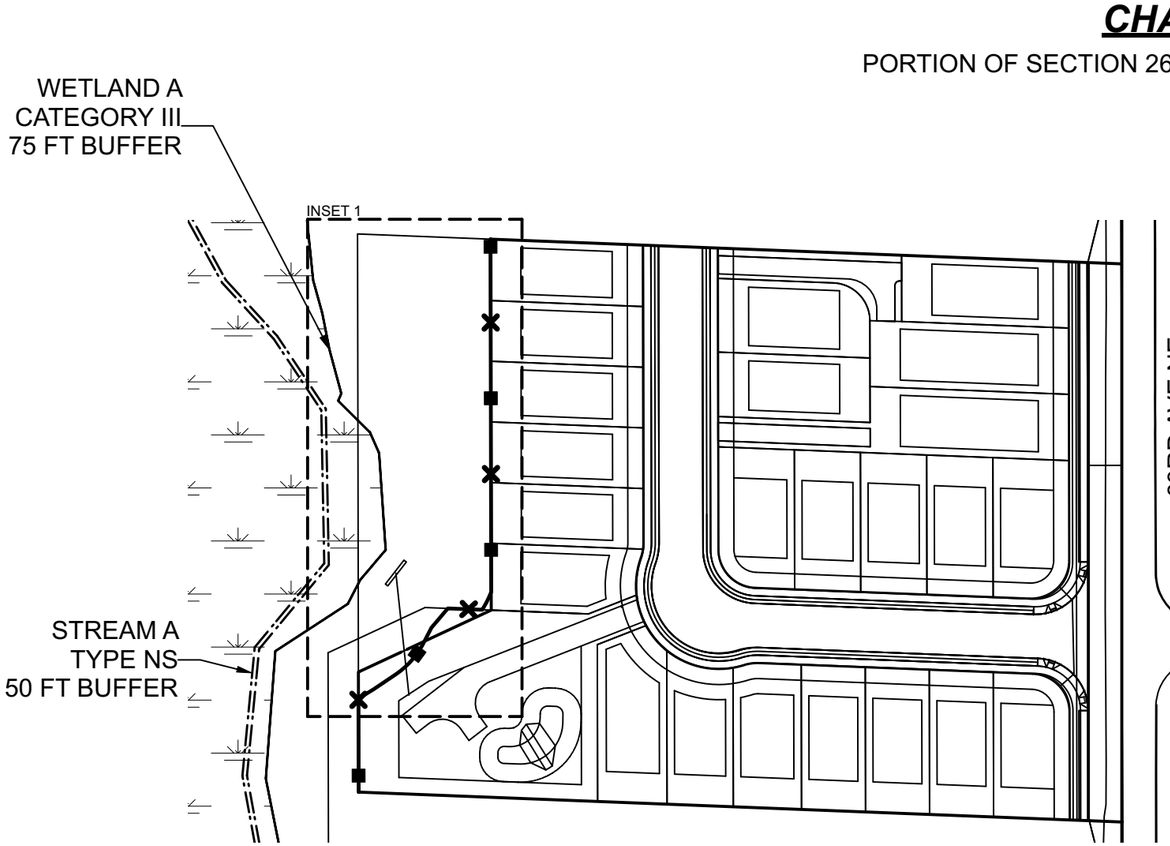
Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

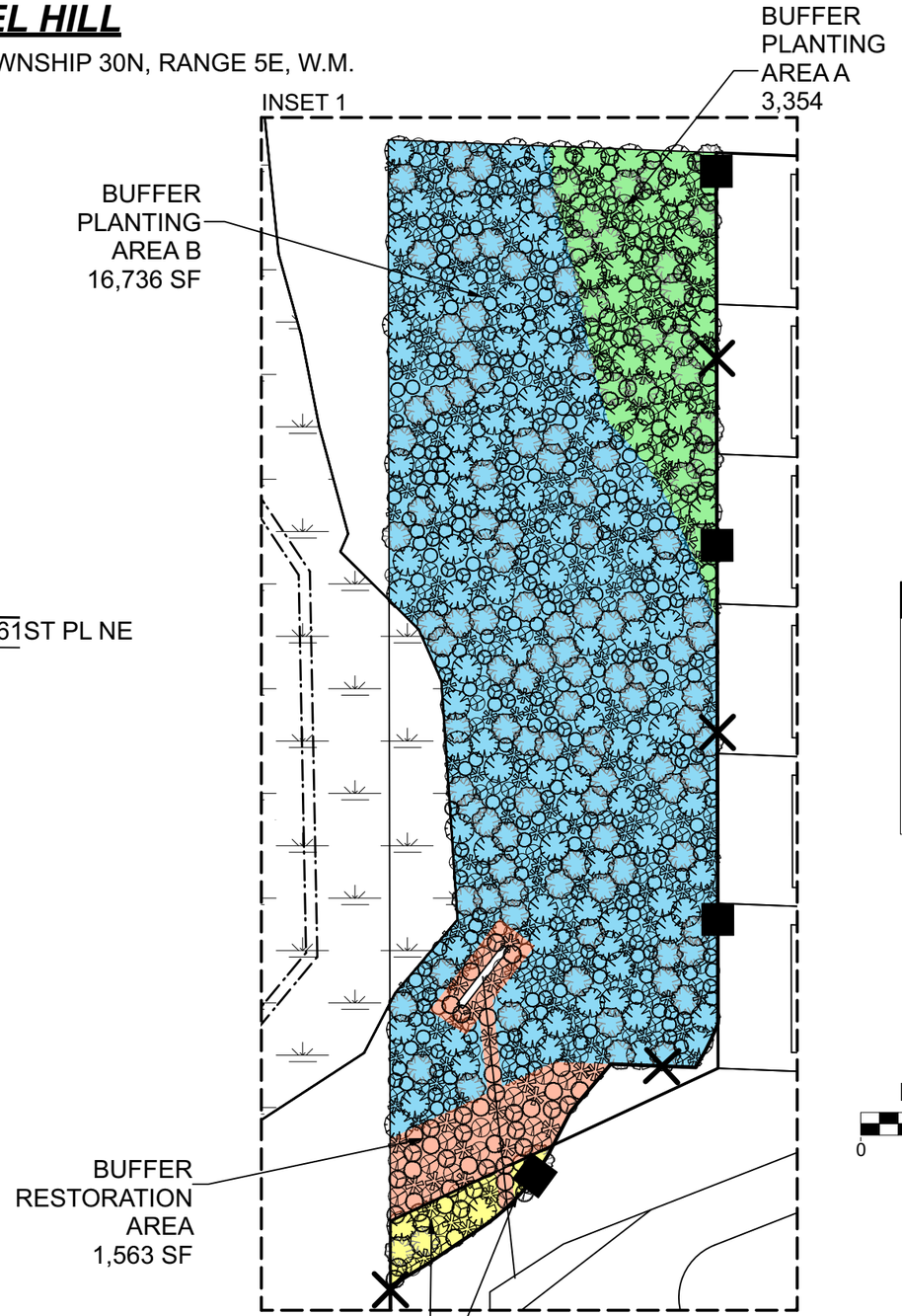
Sheet 1/2
WRI #: 23040
Drawn by:SS
Rev 1 Date: 03/28/2

BUFFER MITIGATION PLANTING PLAN

CHAPEL HILL

PORTION OF SECTION 26, TOWNSHIP 30N, RANGE 5E, W.M.





Scale 1" = 100'

0 50 100 150 200

Inset Scale 1" = 40'

0 20 40 60 80

LEGEND

- WETLAND (DELINEATED)
- STREAM (ESTIMATED)
- BUFFER ENHANCEMENT AREA A
- BUFFER ENHANCEMENT AREA B
- BUFFER ENHANCEMENT AREA C
- BUFFER RESTORATION AREA
- NGPA FENCE AND SIGNAGE

INEST LEGEND

- BIG LEAF MAPLE
- WESTERN RED CEDAR
- SALMONBERRY
- SNOWBERRY
- OSOBERRY
- VINE MAPLE

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BUFFER MITIGATION PLANTING PLAN
CHAPEL HILL
Marysville, WA

Robinett Brothers LLC
Attn: Marty Robinett
2825 Colby Avenue, #304
Everett, WA 98201

Sheet 2/2
WRI #: 23040
Drawn by:SS
Rev 1 Date: 03/28/2

Drainage Report
Chapel Hill Plat

PFN: 23-

for

Robinett Brothers, LLC
2825 Colby Ave, Suite 304
Everett, WA 98201
425.259.9000

SITE LOCATION:
6114 83rd Ave NE
Marysville, WA 98270



Prepared by:
Joseph M. Smeby, P.E.

Job No: 23-0436
Preliminary: August 2023
Revised: February 2034

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1. INTRODUCTION

This document is intended to provide the preliminary engineering information necessary to support the 23-lot preliminary plat for this project which includes the development of a 4.01-acre parcel with the majority of the site being designed for disturbance including frontage improvements to 83rd Ave NE, and an internal road as required by the City. This project will include 23 new lots, public roads, and private access.

The proposed improvements for this project will require the construction of a public road, stormwater facilities and other utilities. All new impervious and pervious surfaces from the on-site improvements will be collected and conveyed to the proposed detention system. Frontage improvements to the west side of 83rd Ave NE along with the internal public road will also be constructed as part of this project. The runoff from the new internal road, and the west half of the 83rd frontage will be directed to the new stormwater system. The drainage system has also been designed to mitigate for all of the new driveways, roof, patios/walks, etc on each of the 23 new lots.

The site soils have been preliminarily evaluated based on the original septic soil logs for this parcel. The soils were found to be Silty sandy loam to 24” with mottled sandy clay loam and hard pan at 32”.

The site is located at 6114 83rd Ave NE, in the City of Marysville, and in Section 26, Township 30N, Range 5E, Willamette Meridian. See Figure 1 - Vicinity Map.

A. DRAINAGE INFORMATION SUMMARY FORM

Project: **Chapel Hill Plat**
PFN:

Engineer: **Omega Engineering, Inc.**
2707 Wetmore Ave
Everett, WA 98201
Attention: Joseph Smeby, P.E.

Total site area: **4.01 acres**
Offsite area: **0.07 acres**
Project area: **3.59 acres**

Applicant: **Robinett Brothers, LLC**
2825 Colby Ave, Suite 304
Everett, WA 98201
Attention: Ginger Amundson

New Lots: 23

Drainage Basin Information	**Basin A**
On-site Developed Area	3.52 acres
Off-site Improved Area	0.07 acres
Types of storage proposed on site	Detention Pond
Approximate total storage volume	60,000 cf
Soil Types	Type C Soils
Basin Data	
Existing Basin	
2-year	0.130 cfs
50-year	0.440 cfs
Developed Basin (Pond Discharge)	
2-year	0.065 cfs
50-year	0.176 cfs

2. EXISTING SITE CONDITIONS

The site is located at 6114 83rd Ave NE, in the City of Marysville, and in Section 26, Township 30N, Range 5E, Willamette Meridian. See Figure 1 - Vicinity Map.

Land use around the site is primarily single-family homes, church or vacant. The parcel associated with this project currently contains trees, grasses, and brush with an existing SFR, detached garage and driveway on the east half of the site. The City requires frontage improvements along 83rd Ave NE which will consist of a widened road section, curb, planter strip and sidewalk. In addition, a new public road will be used to access the site. The public road will provide a future connection to the existing parcel to the north, if the church property ever gets further developed. The new road sections conform to the City of Marysville Street Standards.

The existing developable site is rectangular in shape made up of two parcels. The grades on the site are moderate with the steepest slopes approximately 6%. The vegetation found on the existing property consists of some deciduous and evergreen trees, grass/lawn and brush.

A site visit was conducted on July 6, 2023. The weather was clear with temperatures in the 70's. No surface water was observed on this site.

The soil hydrologic types for this site have been identified as Type C from the Snohomish County Soil Survey Map, see figure 4. These soils, Tokul gravely sandy loam, typically consists of sandy loam over hardpan at approximately 30”. This soil type is identified as a Till soil (Type C/D) in the 2021 DOE Manual. Based on the soil logs for this project the site does not have infiltration capacity due to the shallow mottling at 24” and hardpan at 32”. Refer to the septic soil logs in Appendix B.

This project proposes to build 23 new SFRs. Approximately 65% of this project will be impervious surface with the remaining area to be landscaped or retained critical area buffer.

3. DEVELOPED SITE CONDITIONS

This development proposes to cover the site with 65% impervious surfaces (70% impervious coverage on each lot). The runoff from these surfaces will be collected and conveyed to a stormwater pond for detention and treatment. Based on the site soil logs, infiltration is not feasible due to the shallow hardpan layer and seasonal higher water table.

For the frontage improvements on 83rd the road will be widened to a 22' half width with 6' planter and 6' sidewalk. The internal road/access will be constructed per the City of Marysville road standards.

Based on the findings in the soil logs, no infiltration will be used for this project. However, perforated stubout connections, sheet flow dispersion (where feasible) and soil amendments will be utilized for on-site LID BMPs prior to the runoff entering the detention pond.

4. OFFSITE ANALYSIS

DEFINE STUDY AREA:

From observations made during the field visit, and the topographic survey, only the west side of the 83rd Ave NE R/W drains onto this property and it does not appear that any runoff enters this site from the north or south. Runoff from this parcel drains west and is collected by the existing wetland/stream system beneath the powerlines. The wetland drains to the north beneath the power lines and appears to pass beneath the 64th St NW roadway and then continues north passing beneath 79th Dr NE and then turning northwest and then west. Once the downstream system reaches 67th St NE the channel is more defined.

The downstream was concluded at this point which is more than ¼ mile from the site.

REVIEW AVAILABLE INFORMATION:

The City GIS Map was reviewed to identify the adjacent wetland system to the west of the property.

FIELD INSPECTION:

This site slopes to the west and all runoff from the project is intercepted by the existing off-site wetland system. No indications of high flows or erosion issues were noticed at the time of the field visit.

DESCRIPTION OF DRAINAGE SYSTEM AND ANY EXISTING OR PREDICTED PROBLEMS:

The downstream systems for this project appear in moderate to good condition. The systems consist of native critical areas, culverts and an engineered pipe/CB conveyance system. Since this project will provide flow control assuming a forested existing condition and the current site is 50% pasture/lawn and some impervious surfaces, the runoff flow rates and durations will be significantly lower than the current runoff conditions for the site.

5. STORMWATER CONTROL PLAN

A. Site Hydrology Analysis

Pre-Developed Site Hydrology

The existing site drains to the west with 83rd Ave NE blocking any additional flows from the east from entering the property. This site only receives runoff from the west half of the 83rd Ave NE R/W and rainfall. The existing site mostly consists of pasture/grass, brush and some trees with buildings and gravel driveways.

Developed Site Hydrology

For the developed site hydrology, all the new impervious and pervious surfaces will be collected and treated/detained on-site.

The single detention system will discharge to the west via a level spreader within the existing wetland buffer on-site.

B. PERFORMANCE STANDARDS

The proposed water quality and detention systems designed for the new improvements proposed for this project have been sized using the WWMH2012 software as required in the DOE 2019 manual.

C. FLOW CONTROL SYSTEM

The future fully developed site drainage design will utilize a combined detention/water quality pond to meet both the water quality and flow control requirements. The following provides the input information for WWHM2012 along with the required pond size for this project. The following table summarizes the land cover and areas tributary to the pond.

DEVELOPED BASINS				
	Impervious area (sf)	Impervious area (ac)	Pervious area (sf)	Pervious area (ac)
Lawn	0	0	66,518	1.55
Roof	43,125	0.99	0	0
Driveway	9,580	0.22	0	0
On-Site Roads	30,500	0.70	0	0
83rd Frontage	3,050	0.07	0	0
Total	111,080	1.98	42,680	1.55

As noted previously, for the frontage improvements on 83rd Ave NE will be partly collected with additional existing road surfaces collected for treatment and flow control to provide an equivalent area equal to the new surfaces within the R/W.

Appendix A contains WWHM2012 printouts for all the different calculations necessary for this design. There will be flow control calcs, the water quality sizing and conveyance calcs along with the wetland protection calculations.

D. WATER QUALITY SYSTEM

The project soil log evaluation has determined that the on-site soils are infeasible for infiltration. Therefore, the developed site has been analyzed using the WWHM2012 software for the required water quality treatment volume. For this analysis the water quality pond minimum required treatment volume is 4,750 cf. This will be provided in a combined wet/detention pond in the same facility through the addition of a 4-foot deep dead storage layer in the pond cells. Other water quality options that could be included in a future design for this project are stormfilter (Contech), bayfilter, etc. These would require separate sizing since they are flow based designs rather than the volume based design for the combined detention/water quality pond.

E. CONVEYANCE SYSTEM ANALYSIS

The peak flows were analyzed for the developed site to the pond using the same analysis for WQ above. Without the detention pond included in the model the peak 100-year flow rate to the pond is 8.46 cfs. However, since there are multiple pipes entering the pond, no one pipe system will be required to convey the full 4.12 cfs. The full conveyance analysis for each pipe system to the pond will be provided as part of the construction review for this project in the future.

6. SWPPP NARRATIVE

The intent of this section is to provide the information necessary to support the engineering plans to implement a design that will; reduce, eliminate, or prevent the discharge of stormwater pollutants, meet or exceed the water quality and sediment management standards for the City and State, and prevent adverse impacts to the receiving waters for this project. Note: this narrative is intended to support the SWPPP that is included with the Drainage Plans also a part of this submittal package to the city.

A. SITE GRADING/EROSION CONTROL RISK ASSESSMENT

Area proposed to be cleared/worked:	3.53 acres
Average slope for the site:	6% (Area of Disturbance Only)
Erosion Hazard of Soil	Moderate
Critical Areas downslope	Yes
Site is upstream of an ESA Stream	Yes

Based on the above information and the fact that significant areas of vegetation can be retained along the perimeter of the area of disturbance, and that if site conditions warrant, additional BMP's can be implemented as corrective measures the Risk Category for this site is **Moderate Risk.**

B. SWPPP Minimum Elements

1: Preserve Vegetation and Mark Clearing Limits
The first step in the construction process is for the contractor to flag or fence the limits of clearing/disturbance prior to any other construction activity. The engineering plans locate and provide the square footages for the areas of grading, clearing, impervious surfaces and un-disturbed areas on the proposed site. Existing vegetation can be preserved around the perimeter of the site during the initial construction phases on this project. Approximately 90% of the entire site will be cleared or disturbed for this project.

2: Establish Construction Access
The SWPPP calls for the proposed construction entrance to be installed as the second step after the staking of clearing limits. At this time winter work is expected during the wet season.

3: Control Flow Rates
The site will be graded, and initially a temporary sediment pond will be constructed to manage the runoff from the site until the detention pond is completed which will manage the site runoff through the remainder of the project.

4: Install Sediment Controls
This site SWPPP proposes to construct/maintain gravel entrances, vegetative buffer, silt fencing or a brush barrier if necessary. The construction of these features should be completed before the clearing and grading of the site. Mulch will also be used on the exposed soil as necessary to limit erosion.

5: Stabilize Soils
The “Construction Sequence” calls for the stabilization of soils that remain unworked for certain lengths of time based on the time of year. Stabilization techniques may include but not limited to mulching, plastic sheeting or hydroseeding, notes have been added to the plan regarding protection for the stockpile area if necessary. Stockpile areas have been identified on the SWPPP and are setback a minimum of 25-feet from any down slope property line.

6: Protect Slopes
All disturbed slopes on site during construction are required to be protected with mulch or other means as specified in the construction sequence. No concentrated runoff or significant amounts of sheet flow will be directed to new cut or fill slopes during construction.

7: Protect Drain Inlets
All existing catch basins adjacent to this project and immediately downstream will be protected with inlet protection. All new catch basins will also be installed with inlet protection and any culvert will be protected with a check dam installed upstream of the inlet.

8: Stabilize Channels and Outlets
All new/temporary or existing channels/outlets will be protected with check dams and rock pads as appropriate.

9: Control Pollutants
No outside chemicals are expected to be necessary for the construction of this project. All vehicles working on and around the site would need to meet the State requirements for emissions. Vehicle fueling locations will be used to limit the potential impacts from any spills and concrete washout areas will also be provided well away from the detention pond.

10: Control DeWatering
DeWatering will be necessary during construction of this project. However, the existing vegetation retained on site would be available to spread any water from construction for filtration and disposal. In addition, the detention pond will be able to mitigate the flows from dewatering as well.

11: Maintain BMPs
The construction supervisor will be responsible for maintaining all BMPs during construction and working with the City to relocate or add BMPs as necessary as site conditions change.

12: Manage the Project
It will be the responsibility of the Contractor and Developer to manage this project and coordinate with the City Inspector and Engineer.

Inspection and Monitoring:
Site inspections shall be done by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have skills to first assess the site conditions and construction activities that could impact the quality of stormwater, and second assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP:
The construction SWPPP shall be retained on-site or within reasonable access to the site.
The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven days following inspection.

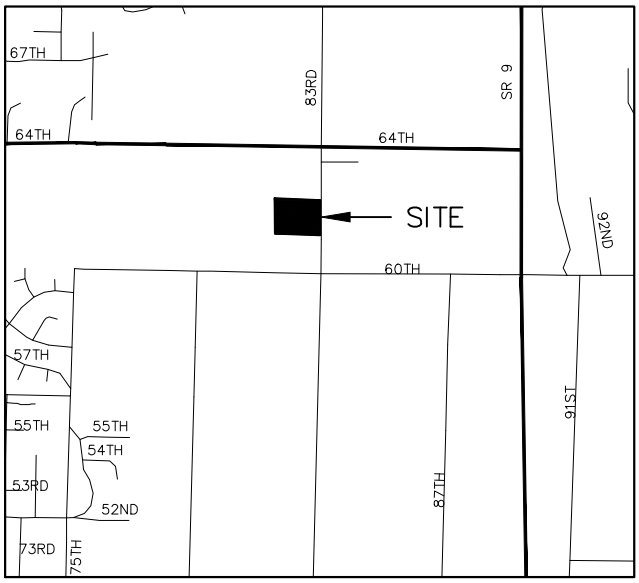
13: Protect On-Site Stormwater Management BMPs for Runoff from Hard Surfaces
The use of on-site management BMPs for this project will allow for the installation of the perforated stubout connections and sheet flow dispersion of driveways at the time of building permit.

The project detention/water quality facility will be constructed as part of the plat improvements and will be in place prior to SFR construction. Finally, soil amendments will be required for all final graded areas of the plat prior to construction approval with individual lots requiring soil amendments prior to building permit occupancy.

7. PROJECT OVERVIEW

This project proposes to construct 23 new SFRs on the site. In addition, a public road will be required along with utilities to serve/mitigate the proposed improvements. Approximately 3.53 acres of the site will be developed/disturbed under this project. All the new impervious and pervious surfaces will be treated and detained in a combined detention/water quality pond. The existing ground cover of trees, pasture/grass and brush will be converted to landscaping and impervious surfaces because of this project.

The site grades for this project range from 3-12%. Site grading will be necessary to create roads and lot building pads for the future project. Sewer and water mains will be extended onto the site from the west and east to serve the project. All existing drainfields will be abandoned per DOE specs and no wells were found on this site.



VICINITY MAP

SCALE 1" = 2000'

FIG. 1

OMEGA
ENGINEERING, INC.

2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

VICINITY MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 2000'	1 OF 1

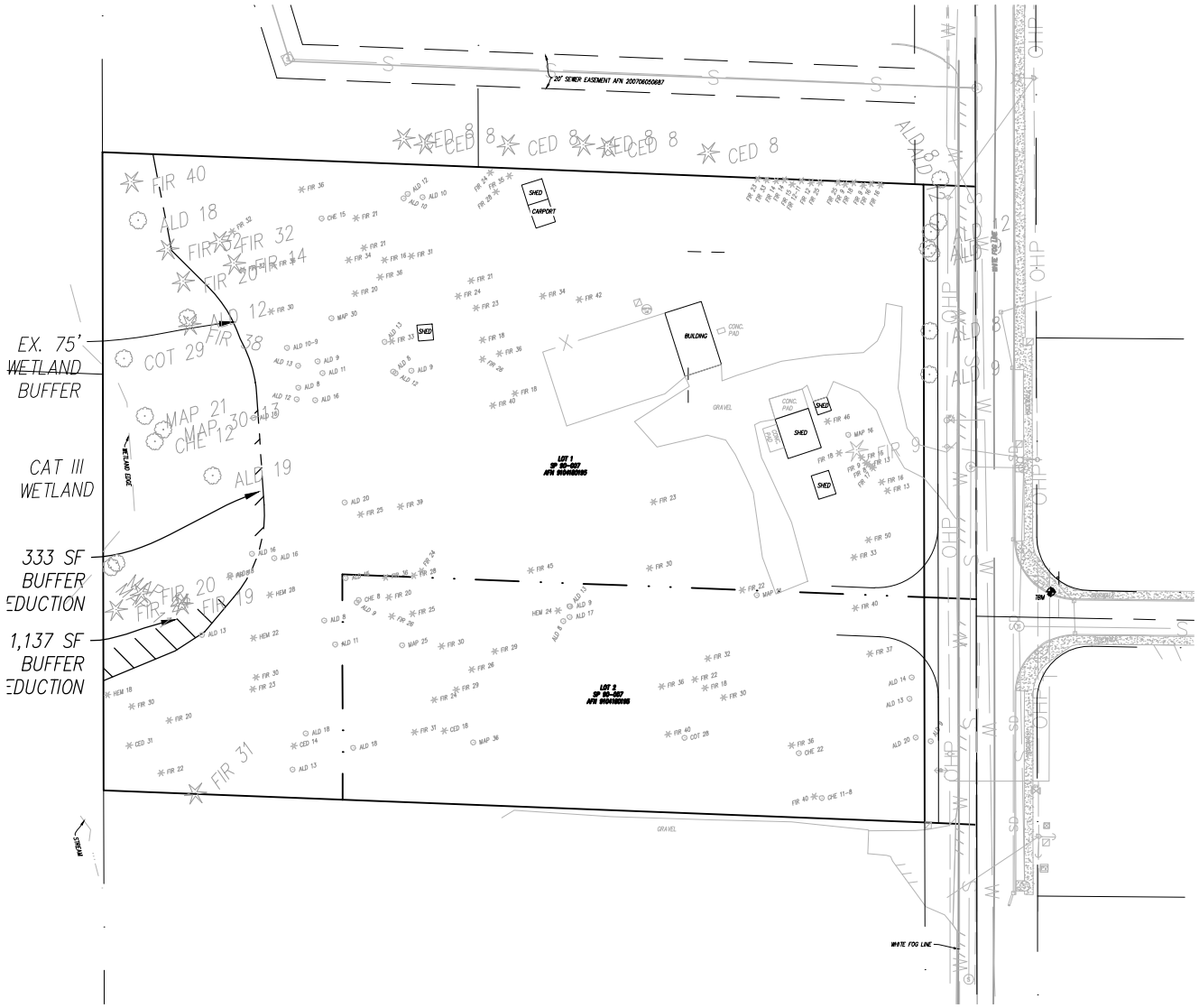


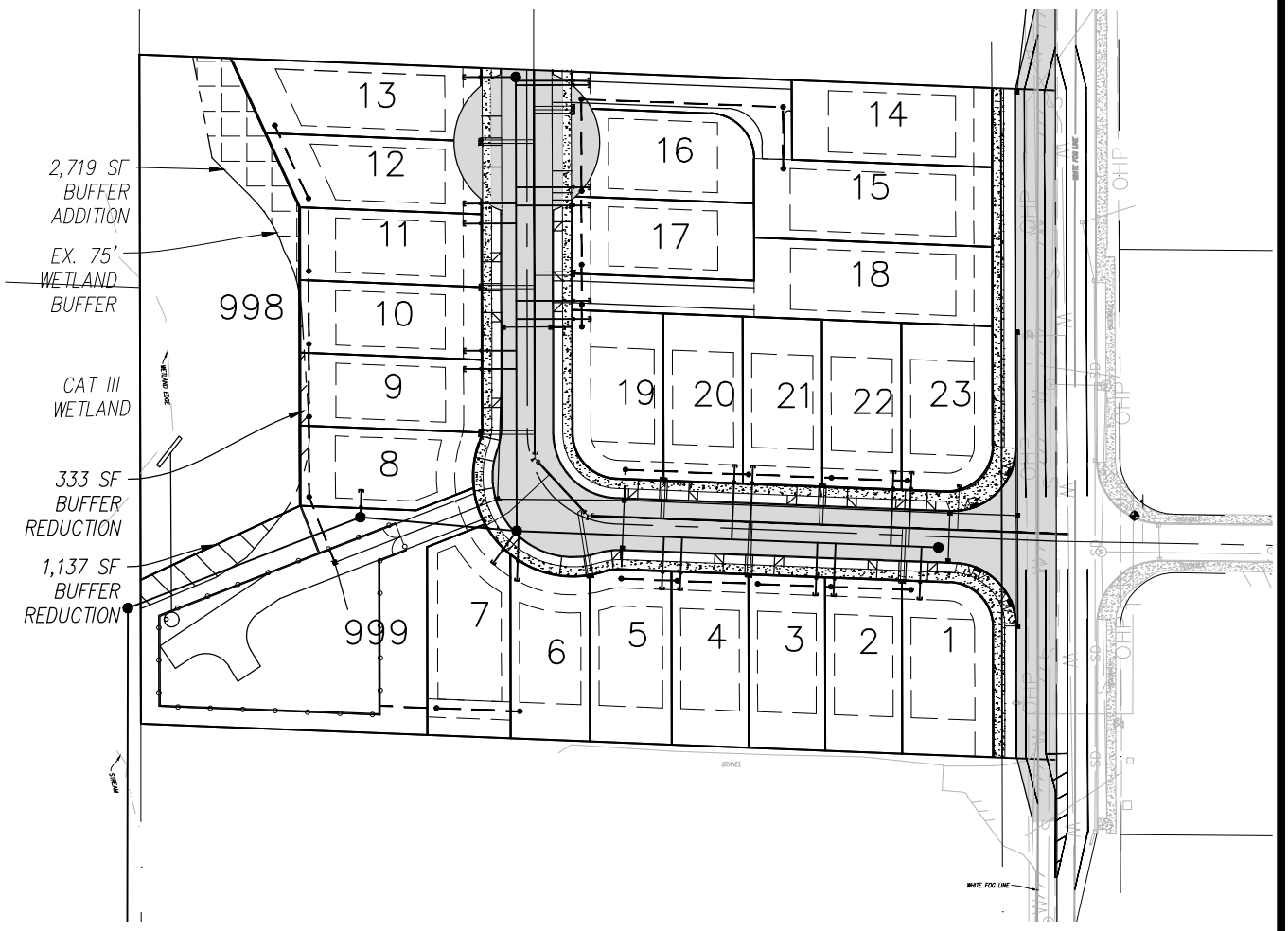
FIG. 2

OMEGA
ENGINEERING, INC.

2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

EXISTING BASIN MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 100'	1 OF 1



N

FIG. 3

OMEGA
ENGINEERING, INC.
2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

DEVELOPED BASIN MAP
CHAPEL HILL

DATE	JOB NO.	SCALE	SHEET
8/9/23	23-0436	1" = 100'	1 OF 1

Soil Map—Snohomish County Area, Washington
(CHAPEL HILL)



Map Scale: 1:1,300 if printed on A landscape (11" x 8.5") sheet.

N

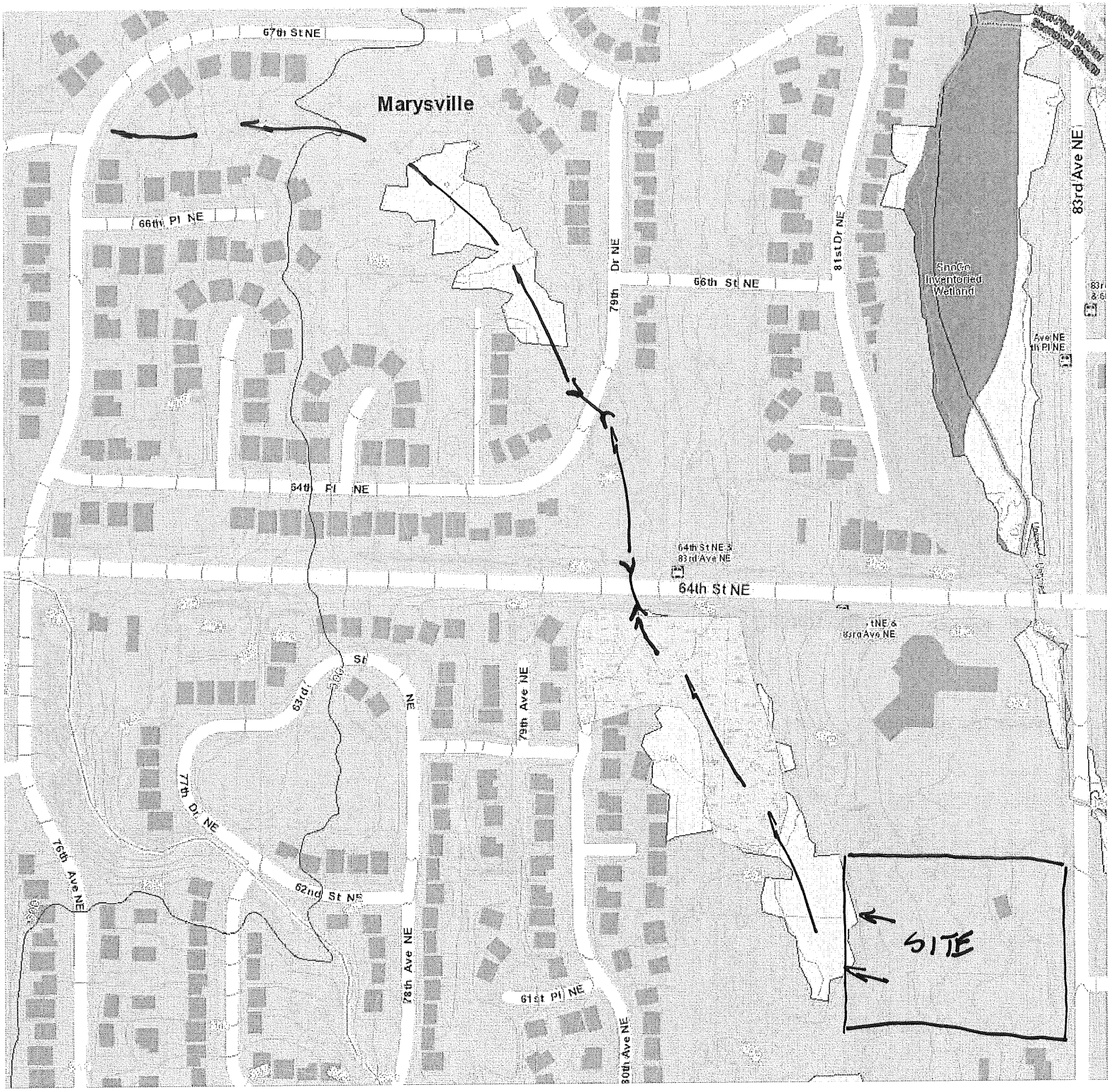
Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
72	Tokul gravelly medial loam, 0 to 8 percent slopes	4.9	70.0%
73	Tokul gravelly medial loam, 8 to 15 percent slopes	2.1	30.0%
Totals for Area of Interest		**7.0**	**100.0%**


Marysville
67th St NE
66th Pl NE
66th St NE
64th Pl NE
64th St NE
64th St NE &
83rd Ave NE
79th Dr NE
81st Dr NE
83rd Ave NE
79th Ave NE
77th Dr NE
76th Ave NE
62nd St NE
78th Ave NE
61st Pl NE
80th Ave NE
Shoreline Inventoried Wetland
SITE
DOWNSTREAM
N

APPENDIX A

STORMWATER CALCULATIONS

WWHM2012

PROJECT REPORT

POND SIZING CALCULATIONS

General Model Information

Project Name:	prelim vault - assumed areas
Site Name:	CHAPEL HILL
Site Address:	
City:	MARYSVILLE
Report Date:	2/29/2024
Gage:	Everett
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.200
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Mod	3.53
Pervious Total	3.53
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	1.55
Pervious Total	1.55

Impervious Land Use	acre
ROADS FLAT	0.77
ROOF TOPS FLAT	0.99
DRIVEWAYS FLAT	0.22
Impervious Total	1.98
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater
Vault 1	Vault 1	

Mitigated Routing

Vault 1

Width: 81.7590487030465 ft.
Length: 81.7590487030465 ft.
Depth: 9 ft.
Discharge Structure
Riser Height: 8 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.011 ft.
Notch Height: 3.526 ft.
Orifice 1 Diameter: 1.09686 in Elevation:0 ft.
Element Flows To:
Outlet 1 Outlet 2

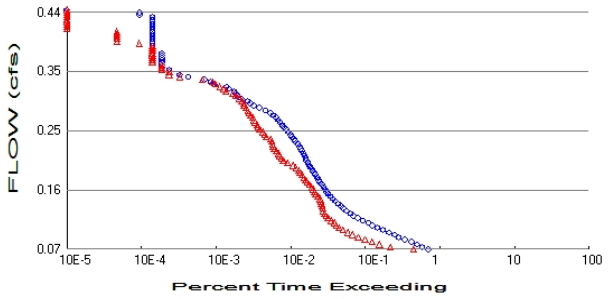
Vault Hydraulic Table

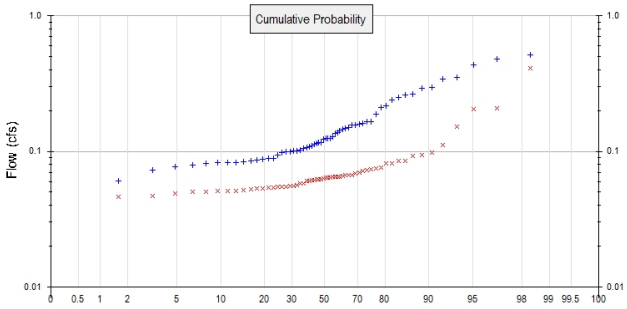
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.153	0.000	0.000	0.000
0.1000	0.153	0.015	0.010	0.000
0.2000	0.153	0.030	0.014	0.000
0.3000	0.153	0.046	0.017	0.000
0.4000	0.153	0.061	0.020	0.000
0.5000	0.153	0.076	0.023	0.000
0.6000	0.153	0.092	0.025	0.000
0.7000	0.153	0.107	0.027	0.000
0.8000	0.153	0.122	0.029	0.000
0.9000	0.153	0.138	0.031	0.000
1.0000	0.153	0.153	0.032	0.000
1.1000	0.153	0.168	0.034	0.000
1.2000	0.153	0.184	0.035	0.000
1.3000	0.153	0.199	0.037	0.000
1.4000	0.153	0.214	0.038	0.000
1.5000	0.153	0.230	0.040	0.000
1.6000	0.153	0.245	0.041	0.000
1.7000	0.153	0.260	0.042	0.000
1.8000	0.153	0.276	0.043	0.000
1.9000	0.153	0.291	0.045	0.000
2.0000	0.153	0.306	0.046	0.000
2.1000	0.153	0.322	0.047	0.000
2.2000	0.153	0.337	0.048	0.000
2.3000	0.153	0.352	0.049	0.000
2.4000	0.153	0.368	0.050	0.000
2.5000	0.153	0.383	0.051	0.000
2.6000	0.153	0.399	0.052	0.000
2.7000	0.153	0.414	0.053	0.000
2.8000	0.153	0.429	0.054	0.000
2.9000	0.153	0.445	0.055	0.000
3.0000	0.153	0.460	0.056	0.000
3.1000	0.153	0.475	0.057	0.000
3.2000	0.153	0.491	0.058	0.000
3.3000	0.153	0.506	0.059	0.000
3.4000	0.153	0.521	0.060	0.000
3.5000	0.153	0.537	0.061	0.000
3.6000	0.153	0.552	0.061	0.000

3.7000	0.153	0.567	0.062	0.000
3.8000	0.153	0.583	0.063	0.000
3.9000	0.153	0.598	0.064	0.000
4.0000	0.153	0.613	0.065	0.000
4.1000	0.153	0.629	0.066	0.000
4.2000	0.153	0.644	0.066	0.000
4.3000	0.153	0.659	0.067	0.000
4.4000	0.153	0.675	0.068	0.000
4.5000	0.153	0.690	0.069	0.000
4.6000	0.153	0.705	0.071	0.000
4.7000	0.153	0.721	0.074	0.000
4.8000	0.153	0.736	0.077	0.000
4.9000	0.153	0.751	0.081	0.000
5.0000	0.153	0.767	0.085	0.000
5.1000	0.153	0.782	0.089	0.000
5.2000	0.153	0.798	0.093	0.000
5.3000	0.153	0.813	0.097	0.000
5.4000	0.153	0.828	0.101	0.000
5.5000	0.153	0.844	0.105	0.000
5.6000	0.153	0.859	0.111	0.000
5.7000	0.153	0.874	0.116	0.000
5.8000	0.153	0.890	0.121	0.000
5.9000	0.153	0.905	0.142	0.000
6.0000	0.153	0.920	0.150	0.000
6.1000	0.153	0.936	0.158	0.000
6.2000	0.153	0.951	0.165	0.000
6.3000	0.153	0.966	0.174	0.000
6.4000	0.153	0.982	0.182	0.000
6.5000	0.153	0.997	0.190	0.000
6.6000	0.153	1.012	0.199	0.000
6.7000	0.153	1.028	0.208	0.000
6.8000	0.153	1.043	0.217	0.000
6.9000	0.153	1.058	0.226	0.000
7.0000	0.153	1.074	0.236	0.000
7.1000	0.153	1.089	0.245	0.000
7.2000	0.153	1.104	0.255	0.000
7.3000	0.153	1.120	0.265	0.000
7.4000	0.153	1.135	0.275	0.000
7.5000	0.153	1.150	0.285	0.000
7.6000	0.153	1.166	0.296	0.000
7.7000	0.153	1.181	0.306	0.000
7.8000	0.153	1.197	0.317	0.000
7.9000	0.153	1.212	0.328	0.000
8.0000	0.153	1.227	0.339	0.000
8.1000	0.153	1.243	0.842	0.000
8.2000	0.153	1.258	1.745	0.000
8.3000	0.153	1.273	2.842	0.000
8.4000	0.153	1.289	3.973	0.000
8.5000	0.153	1.304	4.981	0.000
8.6000	0.153	1.319	5.744	0.000
8.7000	0.153	1.335	6.235	0.000
8.8000	0.153	1.350	6.682	0.000
8.9000	0.153	1.365	7.067	0.000
9.0000	0.153	1.381	7.431	0.000
9.1000	0.153	1.396	7.778	0.000
9.2000	0.000	0.000	8.109	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.53
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1.55
Total Impervious Area: 1.98

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.13049
5 year	0.208674
10 year	0.270887
25 year	0.362105
50 year	0.439697
100 year	0.525966

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.064787
5 year	0.09212
10 year	0.114197
25 year	0.147145
50 year	0.175728
100 year	0.208101

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.145	0.056
1950	0.147	0.064
1951	0.125	0.054
1952	0.101	0.051
1953	0.082	0.051
1954	0.516	0.061
1955	0.156	0.085
1956	0.137	0.094
1957	0.189	0.072
1958	0.165	0.058

1959	0.129	0.062
1960	0.125	0.065
1961	0.259	0.073
1962	0.125	0.053
1963	0.211	0.055
1964	0.167	0.046
1965	0.103	0.065
1966	0.060	0.053
1967	0.122	0.054
1968	0.149	0.067
1969	0.483	0.058
1970	0.085	0.055
1971	0.161	0.098
1972	0.099	0.061
1973	0.098	0.063
1974	0.264	0.061
1975	0.101	0.050
1976	0.106	0.061
1977	0.076	0.054
1978	0.089	0.051
1979	0.296	0.056
1980	0.138	0.051
1981	0.087	0.052
1982	0.113	0.070
1983	0.240	0.054
1984	0.116	0.112
1985	0.155	0.081
1986	0.349	0.206
1987	0.158	0.151
1988	0.082	0.072
1989	0.105	0.049
1990	0.111	0.068
1991	0.114	0.064
1992	0.087	0.066
1993	0.083	0.047
1994	0.079	0.064
1995	0.116	0.085
1996	0.218	0.076
1997	0.433	0.409
1998	0.072	0.053
1999	0.094	0.065
2000	0.082	0.092
2001	0.028	0.041
2002	0.108	0.066
2003	0.084	0.062
2004	0.142	0.081
2005	0.099	0.062
2006	0.341	0.075
2007	0.252	0.067
2008	0.292	0.205
2009	0.089	0.064

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.5162	0.4093
2	0.4830	0.2064
3	0.4330	0.2050

4	0.3492	0.1513
5	0.3406	0.1118
6	0.2956	0.0984
7	0.2921	0.0936
8	0.2640	0.0921
9	0.2589	0.0854
10	0.2516	0.0847
11	0.2397	0.0812
12	0.2182	0.0810
13	0.2113	0.0755
14	0.1895	0.0745
15	0.1665	0.0735
16	0.1648	0.0722
17	0.1607	0.0720
18	0.1579	0.0701
19	0.1564	0.0683
20	0.1554	0.0670
21	0.1493	0.0669
22	0.1474	0.0664
23	0.1452	0.0658
24	0.1418	0.0653
25	0.1385	0.0651
26	0.1367	0.0647
27	0.1287	0.0645
28	0.1253	0.0640
29	0.1248	0.0639
30	0.1247	0.0638
31	0.1224	0.0629
32	0.1165	0.0621
33	0.1157	0.0620
34	0.1138	0.0619
35	0.1130	0.0613
36	0.1105	0.0611
37	0.1076	0.0606
38	0.1061	0.0605
39	0.1051	0.0579
40	0.1030	0.0576
41	0.1015	0.0562
42	0.1009	0.0557
43	0.0992	0.0555
44	0.0987	0.0545
45	0.0977	0.0545
46	0.0944	0.0544
47	0.0892	0.0539
48	0.0890	0.0539
49	0.0871	0.0532
50	0.0867	0.0530
51	0.0852	0.0527
52	0.0843	0.0519
53	0.0830	0.0512
54	0.0823	0.0509
55	0.0821	0.0509
56	0.0818	0.0505
57	0.0790	0.0503
58	0.0765	0.0492
59	0.0723	0.0470
60	0.0604	0.0463
61	0.0284	0.0413

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0652	14940	9403	62	Pass
0.0690	12365	4614	37	Pass
0.0728	10620	3296	31	Pass
0.0766	8787	2620	29	Pass
0.0804	7270	2109	29	Pass
0.0842	5987	1726	28	Pass
0.0879	5221	1444	27	Pass
0.0917	4408	1240	28	Pass
0.0955	3681	1068	29	Pass
0.0993	3104	947	30	Pass
0.1031	2637	873	33	Pass
0.1069	2336	818	35	Pass
0.1106	1969	739	37	Pass
0.1144	1671	680	40	Pass
0.1182	1473	635	43	Pass
0.1220	1350	603	44	Pass
0.1258	1199	584	48	Pass
0.1295	1089	574	52	Pass
0.1333	1004	562	55	Pass
0.1371	921	552	59	Pass
0.1409	856	546	63	Pass
0.1447	789	530	67	Pass
0.1485	723	493	68	Pass
0.1522	674	462	68	Pass
0.1560	635	445	70	Pass
0.1598	615	431	70	Pass
0.1636	588	409	69	Pass
0.1674	553	381	68	Pass
0.1712	519	354	68	Pass
0.1749	502	340	67	Pass
0.1787	482	319	66	Pass
0.1825	457	303	66	Pass
0.1863	437	286	65	Pass
0.1901	416	273	65	Pass
0.1938	399	252	63	Pass
0.1976	384	228	59	Pass
0.2014	364	193	53	Pass
0.2052	348	169	48	Pass
0.2090	340	160	47	Pass
0.2128	326	154	47	Pass
0.2165	316	146	46	Pass
0.2203	299	136	45	Pass
0.2241	288	128	44	Pass
0.2279	279	125	44	Pass
0.2317	266	122	45	Pass
0.2355	246	119	48	Pass
0.2392	236	115	48	Pass
0.2430	221	100	45	Pass
0.2468	212	96	45	Pass
0.2506	198	90	45	Pass
0.2544	187	82	43	Pass
0.2581	174	78	44	Pass
0.2619	164	76	46	Pass

0.2657	154	72	46	Pass
0.2695	146	69	47	Pass
0.2733	135	66	48	Pass
0.2771	125	62	49	Pass
0.2808	115	59	51	Pass
0.2846	98	57	58	Pass
0.2884	80	54	67	Pass
0.2922	68	51	75	Pass
0.2960	62	50	80	Pass
0.2998	56	47	83	Pass
0.3035	46	44	95	Pass
0.3073	41	39	95	Pass
0.3111	39	36	92	Pass
0.3149	37	29	78	Pass
0.3187	32	27	84	Pass
0.3224	30	24	80	Pass
0.3262	20	21	104	Pass
0.3300	18	19	105	Pass
0.3338	15	14	93	Pass
0.3376	9	7	77	Pass
0.3414	7	5	71	Pass
0.3451	5	5	100	Pass
0.3489	5	4	80	Pass
0.3527	4	4	100	Pass
0.3565	4	4	100	Pass
0.3603	4	3	75	Pass
0.3641	4	3	75	Pass
0.3678	4	3	75	Pass
0.3716	4	3	75	Pass
0.3754	4	3	75	Pass
0.3792	3	3	100	Pass
0.3830	3	3	100	Pass
0.3867	3	3	100	Pass
0.3905	3	2	66	Pass
0.3943	3	1	33	Pass
0.3981	3	1	33	Pass
0.4019	3	1	33	Pass
0.4057	3	1	33	Pass
0.4094	3	1	33	Pass
0.4132	3	0	0	Pass
0.4170	3	0	0	Pass
0.4208	3	0	0	Pass
0.4246	3	0	0	Pass
0.4283	3	0	0	Pass
0.4321	3	0	0	Pass
0.4359	2	0	0	Pass
0.4397	2	0	0	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0.1081 acre-feet
On-line facility target flow:	0.0546 cfs.
Adjusted for 15 min:	0.0546 cfs.
Off-line facility target flow:	0.0358 cfs.
Adjusted for 15 min:	0.0358 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Vault 1 POC	☐	501.26			☐	0.00			
Total Volume Infiltrated		501.26	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

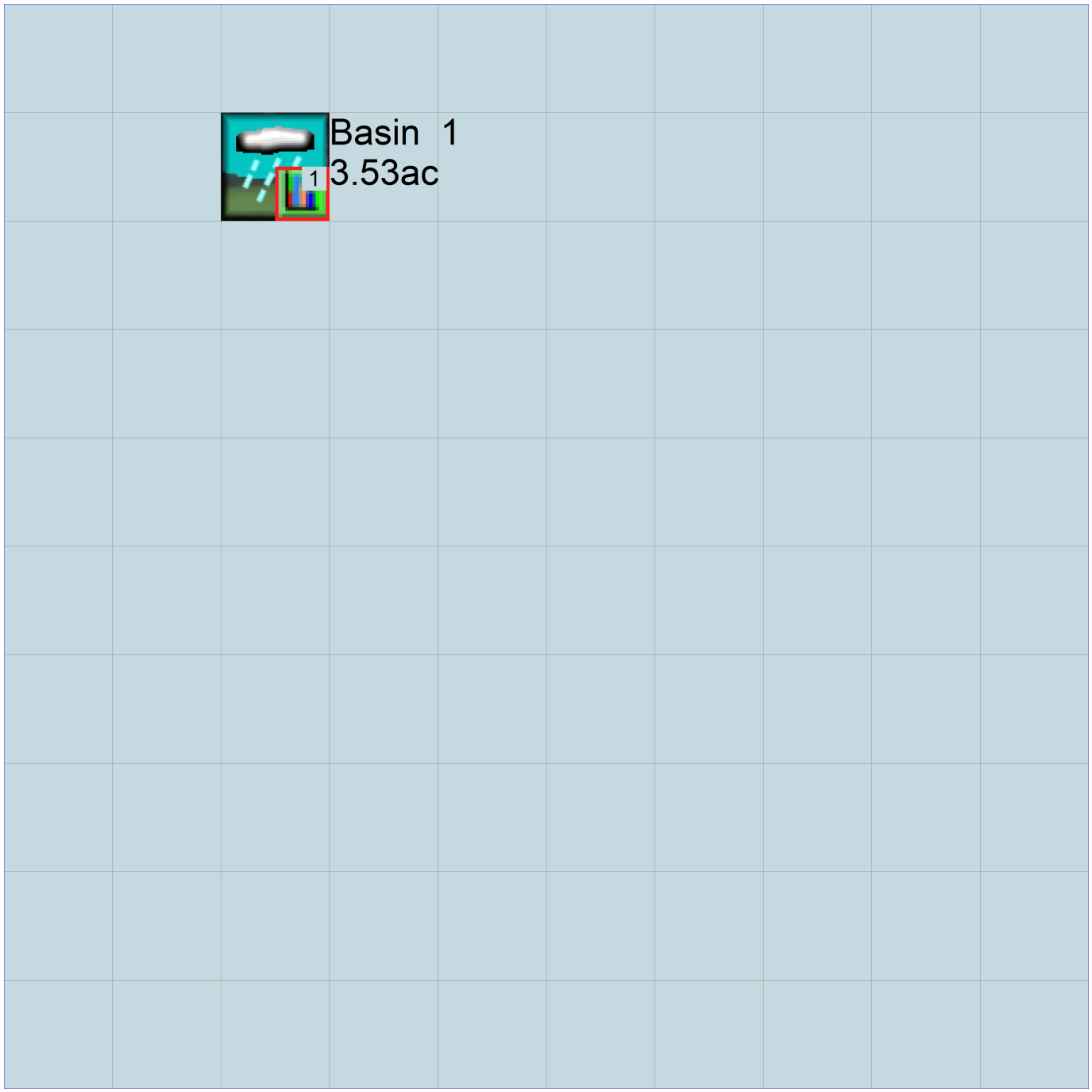
PERLND Changes

No PERLND changes have been made.

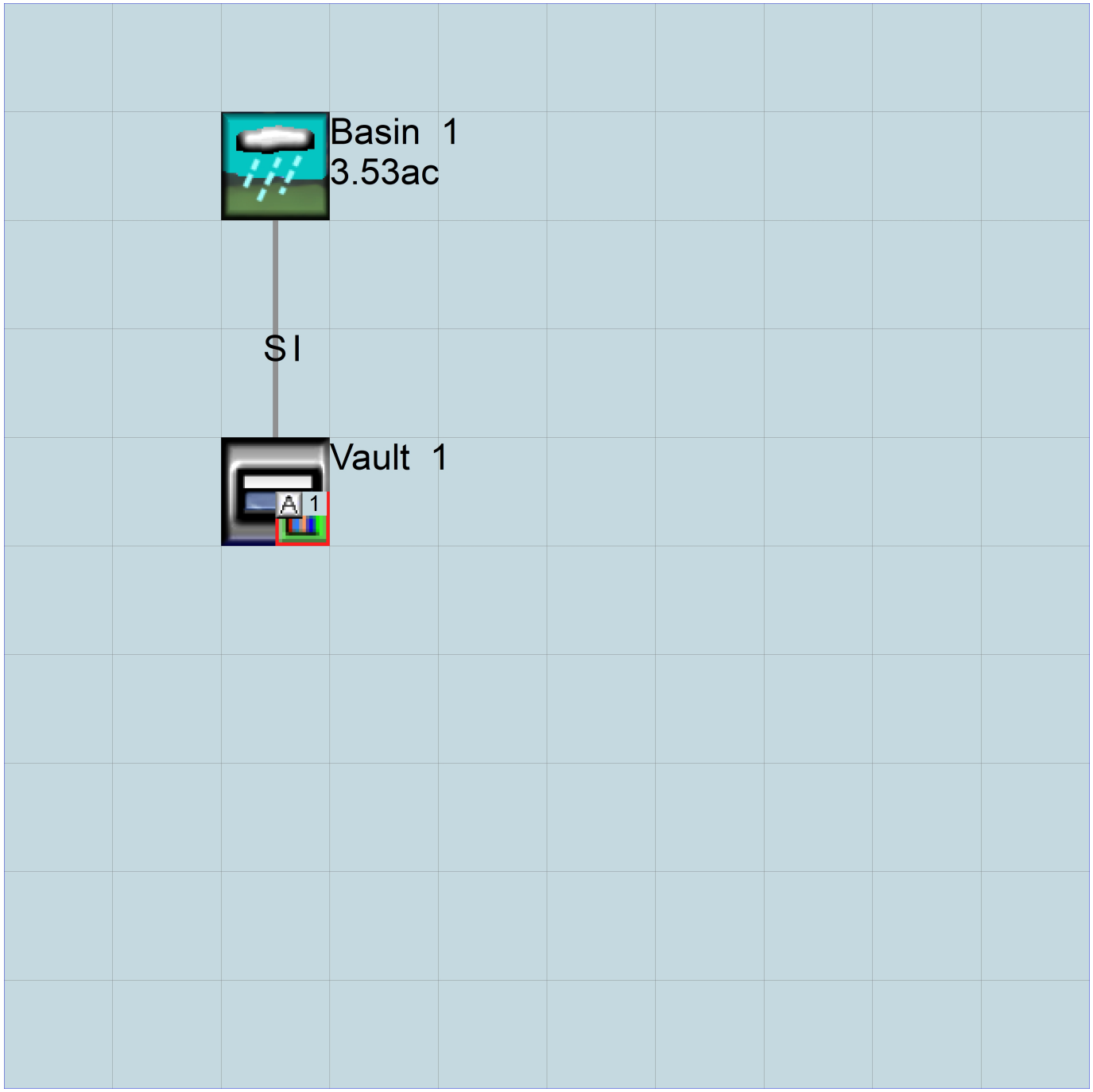
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   prelim vault - assumed areas.wdm
MESSU       25   Preprelim vault - assumed areas.MES
            27   Preprelim vault - assumed areas.L61
            28   Preprelim vault - assumed areas.L62
            30   POCprelim vault - assumed areas1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      11
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                      in  out           ***
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   11             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   11           0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   11             0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  11                        3.53     COPY   501     12
PERLND  11                        3.53     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *      *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><--->
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   prelim vault - assumed areas.wdm
MESSU       25   Mitprelim vault - assumed areas.MES
            27   Mitprelim vault - assumed areas.L61
            28   Mitprelim vault - assumed areas.L62
            30   POCprelim vault - assumed areas1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      16
      IMPLND       1
      IMPLND       4
      IMPLND       5
      RCHRES       1
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Vault  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   16     C, Lawn, Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   16         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
```

```
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   16         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   16              0       4.5      0.03       400      0.05       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   16              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   16           0.1      0.25      0.25         6       0.5      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS       AGWS      GWVS
   16              0         0         0         0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    4         0    0    4    0    0    0    1    9
    5         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    4         0    0    0    0    0
    5         0    0    0    0    0
```

```
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    4              0         0
    5              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    4              0         0
    5              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  16                       1.55     RCHRES   1      2
PERLND  16                       1.55     RCHRES   1      3
IMPLND   1                       0.77     RCHRES   1      5
IMPLND   4                       0.99     RCHRES   1      5
IMPLND   5                       0.22     RCHRES   1      5

******Routing******
PERLND  16                       1.55     COPY     1     12
IMPLND   1                       0.77     COPY     1     15
IMPLND   4                       0.99     COPY     1     15
IMPLND   5                       0.22     COPY     1     15
PERLND  16                       1.55     COPY     1     13
RCHRES   1                          1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                        in  out                             ***
    1     Vault  1               1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
```

```
    1         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                    ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1               1      0.02       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                       ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   92    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.153456  0.000000  0.000000
  0.100000  0.153456  0.015346  0.010324
  0.200000  0.153456  0.030691  0.014601
  0.300000  0.153456  0.046037  0.017882
  0.400000  0.153456  0.061382  0.020649
  0.500000  0.153456  0.076728  0.023086
  0.600000  0.153456  0.092074  0.025289
  0.700000  0.153456  0.107419  0.027316
  0.800000  0.153456  0.122765  0.029202
  0.900000  0.153456  0.138110  0.030973
  1.000000  0.153456  0.153456  0.032648
  1.100000  0.153456  0.168802  0.034242
  1.200000  0.153456  0.184147  0.035764
  1.300000  0.153456  0.199493  0.037225
  1.400000  0.153456  0.214838  0.038630
  1.500000  0.153456  0.230184  0.039986
  1.600000  0.153456  0.245530  0.041297
  1.700000  0.153456  0.260875  0.042568
  1.800000  0.153456  0.276221  0.043802
  1.900000  0.153456  0.291566  0.045003
  2.000000  0.153456  0.306912  0.046172
  2.100000  0.153456  0.322258  0.047312
  2.200000  0.153456  0.337603  0.048425
  2.300000  0.153456  0.352949  0.049514
  2.400000  0.153456  0.368294  0.050579
  2.500000  0.153456  0.383640  0.051622
  2.600000  0.153456  0.398986  0.052644
  2.700000  0.153456  0.414331  0.053647
  2.800000  0.153456  0.429677  0.054631
  2.900000  0.153456  0.445022  0.055598
  3.000000  0.153456  0.460368  0.056549
  3.100000  0.153456  0.475714  0.057483
```

```
  3.200000  0.153456  0.491059  0.058403
  3.300000  0.153456  0.506405  0.059309
  3.400000  0.153456  0.521750  0.060201
  3.500000  0.153456  0.537096  0.061079
  3.600000  0.153456  0.552441  0.061946
  3.700000  0.153456  0.567787  0.062800
  3.800000  0.153456  0.583133  0.063643
  3.900000  0.153456  0.598478  0.064475
  4.000000  0.153456  0.613824  0.065297
  4.100000  0.153456  0.629169  0.066108
  4.200000  0.153456  0.644515  0.066909
  4.300000  0.153456  0.659861  0.067701
  4.400000  0.153456  0.675206  0.068484
  4.500000  0.153456  0.690552  0.069403
  4.600000  0.153456  0.705897  0.071560
  4.700000  0.153456  0.721243  0.074400
  4.800000  0.153456  0.736589  0.077672
  4.900000  0.153456  0.751934  0.081253
  5.000000  0.153456  0.767280  0.085060
  5.100000  0.153456  0.782625  0.089035
  5.200000  0.153456  0.797971  0.093129
  5.300000  0.153456  0.813317  0.097301
  5.400000  0.153456  0.828662  0.101518
  5.500000  0.153456  0.844008  0.105939
  5.600000  0.153456  0.859353  0.111029
  5.700000  0.153456  0.874699  0.116314
  5.800000  0.153456  0.890045  0.121784
  5.900000  0.153456  0.905390  0.142846
  6.000000  0.153456  0.920736  0.150316
  6.100000  0.153456  0.936081  0.158007
  6.200000  0.153456  0.951427  0.165913
  6.300000  0.153456  0.966773  0.174026
  6.400000  0.153456  0.982118  0.182341
  6.500000  0.153456  0.997464  0.190854
  6.600000  0.153456  1.012809  0.199557
  6.700000  0.153456  1.028155  0.208448
  6.800000  0.153456  1.043501  0.217522
  6.900000  0.153456  1.058846  0.226775
  7.000000  0.153456  1.074192  0.236204
  7.100000  0.153456  1.089537  0.245804
  7.200000  0.153456  1.104883  0.255572
  7.300000  0.153456  1.120229  0.265506
  7.400000  0.153456  1.135574  0.275602
  7.500000  0.153456  1.150920  0.285858
  7.600000  0.153456  1.166265  0.296270
  7.700000  0.153456  1.181611  0.306837
  7.800000  0.153456  1.196957  0.317557
  7.900000  0.153456  1.212302  0.328426
  8.000000  0.153456  1.227648  0.339442
  8.100000  0.153456  1.242993  0.842196
  8.200000  0.153456  1.258339  1.745053
  8.300000  0.153456  1.273685  2.842419
  8.400000  0.153456  1.289030  3.973924
  8.500000  0.153456  1.304376  4.981376
  8.600000  0.153456  1.319721  5.744063
  8.700000  0.153456  1.335067  6.235931
  8.800000  0.153456  1.350413  6.682458
  8.900000  0.153456  1.365758  7.067501
  9.000000  0.153456  1.381104  7.431711
  9.100000  0.153456  1.396449  7.778146
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.2            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.2            IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP
```

```
END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   1 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

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WWHM2012

PROJECT REPORT

CONVEYANCE CALCULATIONS

General Model Information

Project Name:	Convey
Site Name:	CHAPEL HILL
Site Address:	
City:	MARYSVILLE
Report Date:	8/9/2023
Gage:	Everett
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.200
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Mod	3.53
Pervious Total	3.53
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.53

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Flat	0.98
Pervious Total	0.98

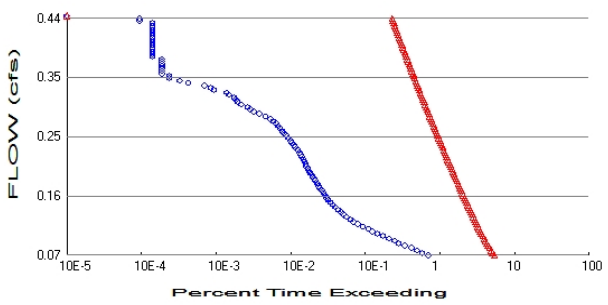
Impervious Land Use	acre
ROADS FLAT	0.77
ROOF TOPS FLAT	1.56
DRIVEWAYS FLAT	0.22
Impervious Total	2.55
Basin Total	3.53

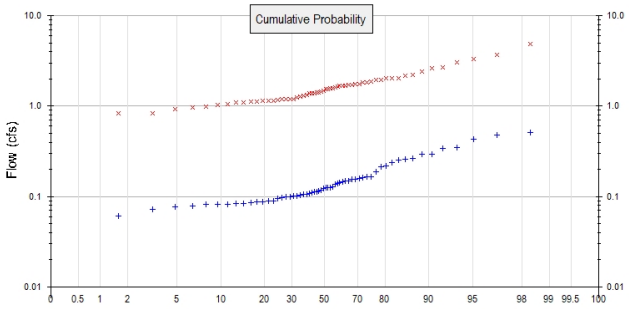
Element Flows To:

Surface	Interflow	Groundwater

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.53
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.98
Total Impervious Area: 2.55

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.13049
5 year	0.208674
10 year	0.270887
25 year	0.362105
50 year	0.439697
100 year	0.525966

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	1.48237
5 year	2.060317
10 year	2.491807
25 year	3.095263
50 year	3.588906
100 year	4.121901

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.145	1.692
1950	0.147	1.835
1951	0.125	1.687
1952	0.101	1.380
1953	0.082	1.839
1954	0.516	2.433
1955	0.156	1.704
1956	0.137	0.760
1957	0.189	1.416
1958	0.165	3.688

1959	0.129	1.324
1960	0.125	1.432
1961	0.259	4.834
1962	0.125	1.566
1963	0.211	2.026
1964	0.167	1.028
1965	0.103	1.187
1966	0.060	1.239
1967	0.122	2.687
1968	0.149	1.534
1969	0.483	3.348
1970	0.085	1.141
1971	0.161	1.688
1972	0.099	2.200
1973	0.098	1.744
1974	0.264	2.165
1975	0.101	1.710
1976	0.106	1.133
1977	0.076	1.111
1978	0.089	0.825
1979	0.296	2.036
1980	0.138	1.194
1981	0.087	1.146
1982	0.113	1.120
1983	0.240	1.650
1984	0.116	1.435
1985	0.155	1.943
1986	0.349	2.046
1987	0.158	1.755
1988	0.082	1.387
1989	0.105	1.472
1990	0.111	1.105
1991	0.114	1.306
1992	0.087	1.400
1993	0.083	1.064
1994	0.079	1.147
1995	0.116	0.980
1996	0.218	1.604
1997	0.433	1.863
1998	0.072	1.964
1999	0.094	0.826
2000	0.082	3.057
2001	0.028	0.958
2002	0.108	0.927
2003	0.084	1.262
2004	0.142	2.646
2005	0.099	1.196
2006	0.341	1.573
2007	0.252	1.551
2008	0.292	1.175
2009	0.089	1.206

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.5162	4.8337
2	0.4830	3.6879
3	0.4330	3.3476

4	0.3492	3.0571
5	0.3406	2.6875
6	0.2956	2.6464
7	0.2921	2.4327
8	0.2640	2.1999
9	0.2589	2.1650
10	0.2516	2.0459
11	0.2397	2.0360
12	0.2182	2.0258
13	0.2113	1.9639
14	0.1895	1.9431
15	0.1665	1.8632
16	0.1648	1.8386
17	0.1607	1.8349
18	0.1579	1.7552
19	0.1564	1.7438
20	0.1554	1.7103
21	0.1493	1.7038
22	0.1474	1.6916
23	0.1452	1.6883
24	0.1418	1.6873
25	0.1385	1.6498
26	0.1367	1.6038
27	0.1287	1.5732
28	0.1253	1.5656
29	0.1248	1.5513
30	0.1247	1.5337
31	0.1224	1.4721
32	0.1165	1.4351
33	0.1157	1.4315
34	0.1138	1.4164
35	0.1130	1.3998
36	0.1105	1.3867
37	0.1076	1.3799
38	0.1061	1.3244
39	0.1051	1.3059
40	0.1030	1.2621
41	0.1015	1.2394
42	0.1009	1.2058
43	0.0992	1.1965
44	0.0987	1.1942
45	0.0977	1.1867
46	0.0944	1.1748
47	0.0892	1.1472
48	0.0890	1.1461
49	0.0871	1.1406
50	0.0867	1.1328
51	0.0852	1.1202
52	0.0843	1.1106
53	0.0830	1.1048
54	0.0823	1.0641
55	0.0821	1.0282
56	0.0818	0.9795
57	0.0790	0.9579
58	0.0765	0.9273
59	0.0723	0.8262
60	0.0604	0.8251
61	0.0284	0.7600

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0652	14940	114516	766	Fail
0.0690	12365	108634	878	Fail
0.0728	10620	104399	983	Fail
0.0766	8787	99223	1129	Fail
0.0804	7270	94389	1298	Fail
0.0842	5987	90261	1507	Fail
0.0879	5221	87309	1672	Fail
0.0917	4408	83630	1897	Fail
0.0955	3681	80336	2182	Fail
0.0993	3104	77042	2482	Fail
0.1031	2637	74091	2809	Fail
0.1069	2336	71973	3081	Fail
0.1106	1969	69257	3517	Fail
0.1144	1671	66690	3991	Fail
0.1182	1473	64231	4360	Fail
0.1220	1350	62519	4631	Fail
0.1258	1199	60231	5023	Fail
0.1295	1089	58028	5328	Fail
0.1333	1004	55996	5577	Fail
0.1371	921	53943	5857	Fail
0.1409	856	52531	6136	Fail
0.1447	789	50713	6427	Fail
0.1485	723	48895	6762	Fail
0.1522	674	47226	7006	Fail
0.1560	635	45622	7184	Fail
0.1598	615	44403	7219	Fail
0.1636	588	42885	7293	Fail
0.1674	553	41409	7488	Fail
0.1712	519	39997	7706	Fail
0.1749	502	38970	7762	Fail
0.1787	482	37644	7809	Fail
0.1825	457	36382	7961	Fail
0.1863	437	35185	8051	Fail
0.1901	416	33987	8169	Fail
0.1938	399	33110	8298	Fail
0.1976	384	32019	8338	Fail
0.2014	364	30992	8514	Fail
0.2052	348	29987	8616	Fail
0.2090	340	29260	8605	Fail
0.2128	326	28276	8673	Fail
0.2165	316	27356	8656	Fail
0.2203	299	26458	8848	Fail
0.2241	288	25602	8889	Fail
0.2279	279	24939	8938	Fail
0.2317	266	24084	9054	Fail
0.2355	246	23335	9485	Fail
0.2392	236	22587	9570	Fail
0.2430	221	21838	9881	Fail
0.2468	212	21331	10061	Fail
0.2506	198	20629	10418	Fail
0.2544	187	19966	10677	Fail
0.2581	174	19395	11146	Fail
0.2619	164	18923	11538	Fail
0.2657	154	18311	11890	Fail

0.2695	146	17757	12162	Fail
0.2733	135	17205	12744	Fail
0.2771	125	16647	13317	Fail
0.2808	115	16249	14129	Fail
0.2846	98	15744	16065	Fail
0.2884	80	15248	19060	Fail
0.2922	68	14767	21716	Fail
0.2960	62	14446	23300	Fail
0.2998	56	13999	24998	Fail
0.3035	46	13573	29506	Fail
0.3073	41	13146	32063	Fail
0.3111	39	12763	32725	Fail
0.3149	37	12440	33621	Fail
0.3187	32	12040	37625	Fail
0.3224	30	11663	38876	Fail
0.3262	20	11342	56709	Fail
0.3300	18	10977	60983	Fail
0.3338	15	10716	71440	Fail
0.3376	9	10429	115877	Fail
0.3414	7	10106	144371	Fail
0.3451	5	9809	196180	Fail
0.3489	5	9582	191640	Fail
0.3527	4	9302	232550	Fail
0.3565	4	9015	225375	Fail
0.3603	4	8720	218000	Fail
0.3641	4	8496	212400	Fail
0.3678	4	8295	207375	Fail
0.3716	4	8044	201100	Fail
0.3754	4	7818	195450	Fail
0.3792	3	7589	252966	Fail
0.3830	3	7430	247666	Fail
0.3867	3	7208	240266	Fail
0.3905	3	6992	233066	Fail
0.3943	3	6785	226166	Fail
0.3981	3	6603	220100	Fail
0.4019	3	6466	215533	Fail
0.4057	3	6271	209033	Fail
0.4094	3	6096	203200	Fail
0.4132	3	5908	196933	Fail
0.4170	3	5719	190633	Fail
0.4208	3	5615	187166	Fail
0.4246	3	5439	181300	Fail
0.4283	3	5296	176533	Fail
0.4321	3	5161	172033	Fail
0.4359	2	5035	251750	Fail
0.4397	2	4896	244800	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0.1081 acre-feet
On-line facility target flow:	0.0546 cfs.
Adjusted for 15 min:	0.0546 cfs.
Off-line facility target flow:	0.0358 cfs.
Adjusted for 15 min:	0.0358 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

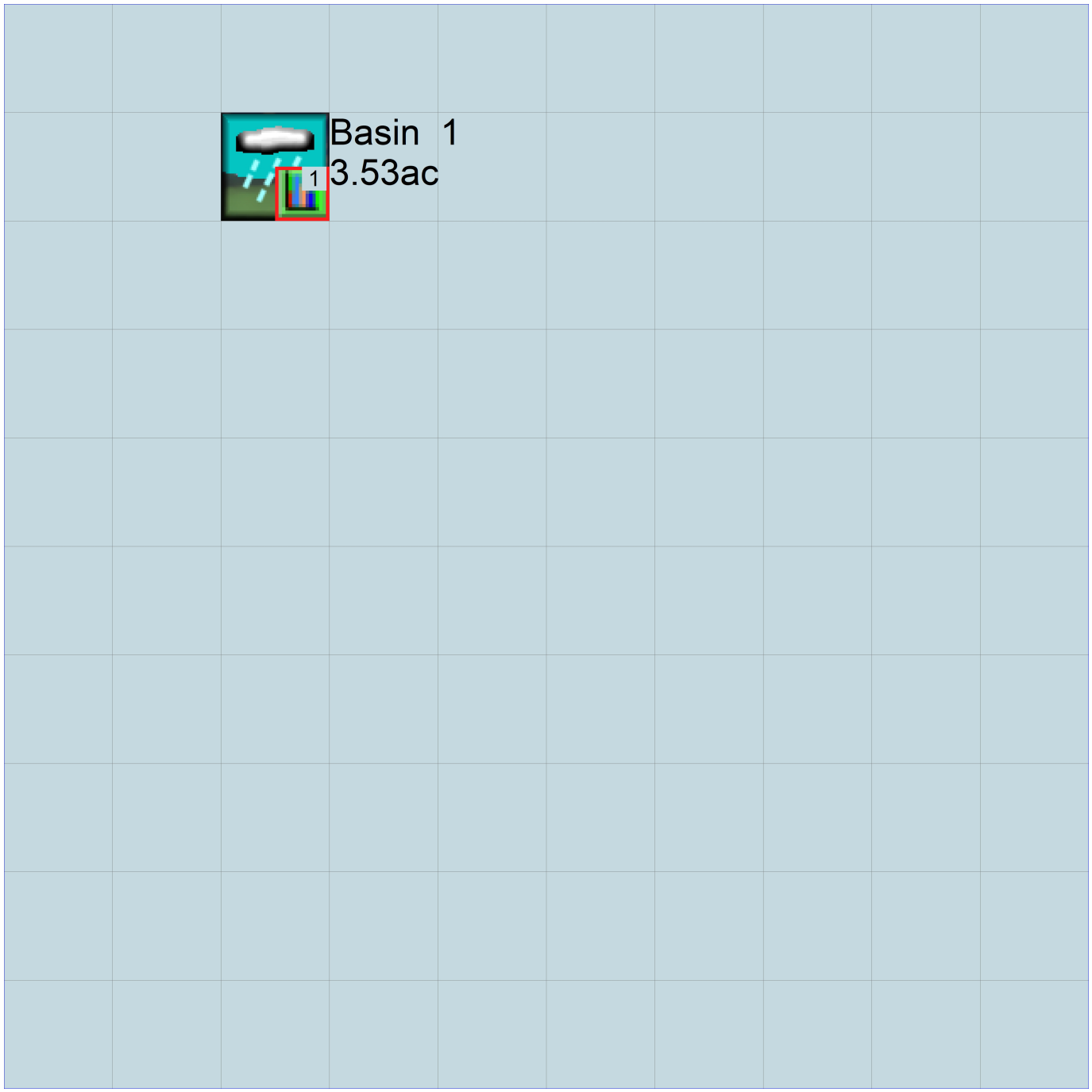
PERLND Changes

No PERLND changes have been made.

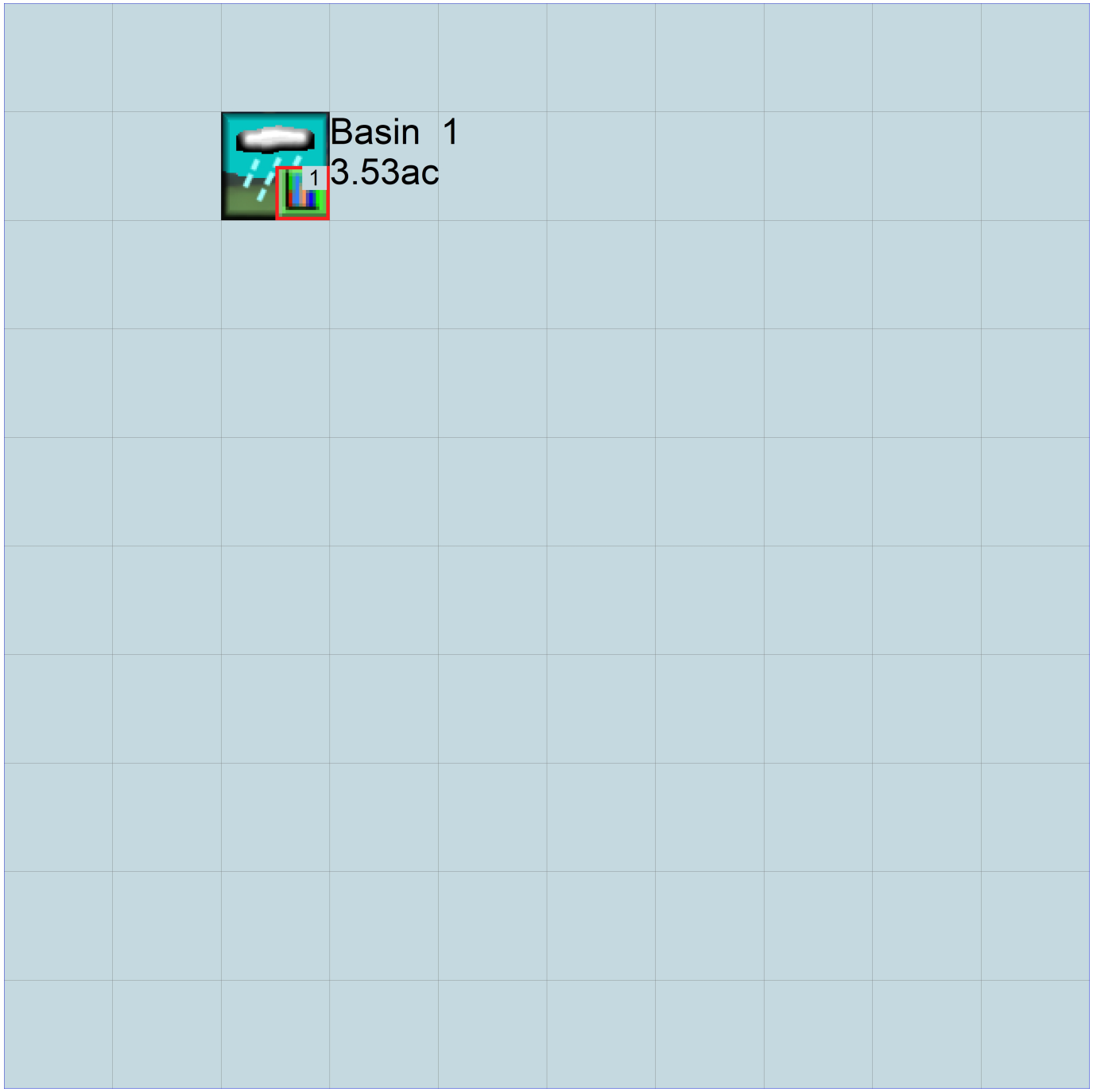
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Convey.wdm
MESSU       25   PreConvey.MES
            27   PreConvey.L61
            28   PreConvey.L62
            30   POCConvey1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      11
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                       in  out           ***
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   11             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   11           0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   11             0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  11                        3.53     COPY   501     12
PERLND  11                        3.53     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *      *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><--->
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM        26   Convey.wdm
MESSU      25   MitConvey.MES
           27   MitConvey.L61
           28   MitConvey.L62
           30   POCConvey1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      16
      IMPLND       1
      IMPLND       4
      IMPLND       5
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                      in  out           ***
   16     C, Lawn, Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   16         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
```

```
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   16         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   16              0       4.5      0.03       400      0.05       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   16              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   16            0.1      0.25      0.25         6       0.5      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
             ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS       AGWS      GWVS
   16              0         0         0         0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    4         0    0    1    0    0    0
    5         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    4         0    0    4    0    0    0    1    9
    5         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    4         0    0    0    0    0
    5         0    0    0    0    0
  END IWAT-PARM1
```

```
  IWAT-PARM2
    <PLS >       IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            400      0.01       0.1       0.1
    4            400      0.01       0.1       0.1
    5            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >       IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    4              0         0
    5              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    4              0         0
    5              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  16                        0.98     COPY   501     12
PERLND  16                        0.98     COPY   501     13
IMPLND   1                        0.77     COPY   501     15
IMPLND   4                        1.56     COPY   501     15
IMPLND   5                        0.22     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
```

```
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
             FG FG FG FG  possible  exit  *** possible  exit      possible  exit
              *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.2            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.2            IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

Disclaimer

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APPENDIX B

Geotechnical Assessment

Cobalt Geosciences, LLC
P.O. Box 1792
North Bend, WA 98045

September 15, 2023

Robinett Brothers, LLC
C/O Jen Haugen
jen@orcalsi.com

RE: Geotechnical Investigation
Chapel Hill Project
6114 83rd Avenue NE
Marysville, Washington

In accordance with your authorization, Cobalt Geosciences, LLC has prepared this report to discuss the results of our geotechnical evaluation at the referenced site.

The purpose of our evaluation was to provide recommendations for stormwater management, grading, and earthwork.

Site Description

The site is located at 6114 83rd Avenue NE in Marysville, Washington (Figure 1). The property consists of two parcels (No.'s 30052600404300 and 30052600403700) with a total area of about 4 acres.

The northeast portion of the property is currently developed with a single-family residence, accessory buildings, and driveway. Lawn areas with sparse trees and bushes surround the residence and extend to the east, west, and south. The remainder of the site is vegetated with grasses, understory, ivy, ferns, blackberry vines, and variable diameter trees.

The site slopes downward from east to west at magnitudes of 5 to 15 percent and relief of about 30 feet. There is a mapped wetland near the west property line and in areas further west off site. The site is bordered to the west by undeveloped land, to the south by a residential and/or commercial property, to the north by parking lot areas, and to the east by 83rd Avenue NE.

The proposed development includes subdivision of the property along with construction of up to 23 new lots, stormwater infrastructure, utilities, roadways, and landscaped areas. Site grading will include cuts and fills of 3 feet or less and foundation loads will be light to moderate. Stormwater will be managed using shallow infiltration systems and/or detention. Figure 1 shows the site and planned lot layout.

Area Geology

The site lies within the Puget Lowland. The lowland is part of a regional north-south trending trough that extends from southwestern British Columbia to near Eugene, Oregon. North of Olympia, Washington, this lowland is glacially carved, with a depositional and erosional history including at least four separate glacial advances/retreats.

The Puget Lowland is bounded to the west by the Olympic Mountains and to the east by the Cascade Range. The lowland is filled with glacial and non-glacial sediments consisting of interbedded gravel, sand, silt, till, and peat lenses.

The Geologic Map of Washington – Northwest Quadrant, indicates that the site is underlain by Vashon Glacial Till.

Vashon Glacial Till is typically characterized by an unsorted, non-stratified mixture of clay, silt, sand, gravel, cobbles and boulders in variable quantities. These materials are typically dense and relatively impermeable. The poor sorting reflects the mixing of the materials as these sediments were overridden and incorporated by the glacial ice.

Soil & Groundwater Conditions

As part of our evaluation, we excavated five test pits within the property areas, where accessible.

The explorations encountered approximately 6 inches of vegetation and topsoil underlain by approximately 3 to 4.5 feet of loose to medium dense, silty-fine to medium grained sand with gravel (Weathered Glacial Till). These materials were underlain by dense to very dense, silty-fine to medium grained sand with gravel (Glacial Till), which continued to the termination depths of the explorations.

Groundwater was not encountered in the test pits during the exploration work; however, the soils were mottled at the contact between weathered and unweathered glacial till. We anticipate that perched groundwater will develop on the denser till during a typical wet season, likely 3 to 8 feet below site elevations. Groundwater is likely to be at shallower depths in the western portions of the property.

Water table elevations often fluctuate over time. The groundwater level will depend on a variety of factors that may include seasonal precipitation, irrigation, land use, climatic conditions and soil permeability. Water levels at the time of the field investigation may be different from those encountered during the construction phase of the project.

Erosion Hazard

The Natural Resources Conservation Services (NRCS) maps for Snohomish County indicate that the site is underlain by Tokul gravelly medial loam (0-8 and 8-15 percent slopes). These soils have a "Slight" to "Moderate" erosion potential in a disturbed state, respectively.

It is our opinion that soil erosion potential at this project site can be reduced through landscaping and surface water runoff control. Typically, erosion of exposed soils will be most noticeable during periods of rainfall and may be controlled by the use of normal temporary erosion control measures, such as silt fences, hay bales, mulching, control ditches and diversion trenches. The typical wet weather season, with regard to site grading, is from October 1st to April 31st. Erosion control measures should be in place before the onset of wet weather.

Seismic Hazard

The overall subsurface profile corresponds to a Site Class *D* as defined by Table 1613.5.2 of the International Building Code (IBC). A Site Class *D* applies to an overall profile consisting of medium dense to very dense soils within the upper 100 feet.

We referenced the U.S. Geological Survey (USGS) Earthquake Hazards Program Website to obtain values for S_S, S_1, F_a, and F_v. The USGS website includes the most updated published data on seismic conditions. The following tables provide seismic parameters from the USGS web site with referenced parameters from ASCE 7-16.

Seismic Design Parameters (ASCE 7-16)

Site Class	Spectral Acceleration at 0.2 sec. (g)	Spectral Acceleration at 1.0 sec. (g)	Site Coefficients		Design Spectral Response Parameters		Design PGA
			F_a	F_v	S_{DS}	S_{D1}	
D	1.089	0.387	1.065	Null	0.773	Null	0.463

Additional seismic considerations include liquefaction potential and amplification of ground motions by soft/loose soil deposits. The liquefaction potential is highest for loose sand with a high groundwater table.

The site has a very low risk of liquefaction. For items listed as "Null" see Section 11.4.8 of the ASCE.

Conclusions and Recommendations

General

The site is underlain by weathered to unweathered glacial till. The soils generally become denser with depth. There are likely minor areas of fill around the residence associated with the original grading and foundation placement.

The proposed residential structures may be supported on shallow foundation systems bearing on medium dense or firmer native soils or on structural fill placed on the native soils. Local overexcavation of fill and loose weathered native soils may be necessary depending on the proposed elevations and locations of the new footings.

Infiltration is not feasible in the denser glacial till soils. These soils are nearly impermeable below the weathered zone and we note mottled soils at shallow depths. We anticipate that most of the runoff will be routed into one or more detention vaults. Local permeable pavements, dispersion systems, and rain gardens may be feasible depending on their locations and elevations.

Site Preparation

Trees, shrubs and other vegetation should be removed prior to stripping of surficial organic-rich soil and fill. Based on observations from the site investigation program, it is anticipated that the stripping depth will be 6 to 18 inches. Deeper excavations will be necessary below any larger trees and in any areas underlain by undocumented fill.

The native soils consist of silty-sand with gravel. Most of the native soils may be used as structural fill provided they achieve compaction requirements and are within 3 percent of the optimum moisture. Some of these soils may only be suitable for use as fill during the summer months, as they will be above the optimum moisture levels in their current state. These soils are variably moisture sensitive and may degrade during periods of wet weather and under equipment traffic.

Imported structural fill should consist of a sand and gravel mixture with a maximum grain size of 3 inches and less than 5 percent fines (material passing the U.S. Standard No. 200 Sieve). Structural fill should be placed in maximum lift thicknesses of 12 inches and should be compacted to a minimum of 95 percent of the modified proctor maximum dry density, as determined by the ASTM D 1557 test method.

Temporary Excavations

Temporary excavations should be sloped no steeper than 1.5H:1V (Horizontal:Vertical) in loose native soils, 1H:1V in medium dense native soils and 3/4H:1V in dense to very dense native soils. If an excavation is subject to heavy vibration or surcharge loads, we recommend that the excavations be sloped no steeper than 2H:1V, where room permits.

Temporary cuts should be in accordance with the Washington Administrative Code (WAC) Part N, Excavation, Trenching, and Shoring. Temporary slopes should be visually inspected daily by a qualified person during construction activities and the inspections should be documented in daily reports. The contractor is responsible for maintaining the stability of the temporary cut slopes and reducing slope erosion during construction.

Temporary cut slopes should be covered with visqueen to help reduce erosion during wet weather, and the slopes should be closely monitored until the permanent retaining systems or slope configurations are complete. Materials should not be stored or equipment operated within 10 feet of the top of any temporary cut slope.

Soil conditions may not be completely known from the geotechnical investigation. In the case of temporary cuts, the existing soil conditions may not be completely revealed until the excavation work exposes the soil. Typically, as excavation work progresses the maximum inclination of temporary slopes will need to be re-evaluated by the geotechnical engineer so that supplemental recommendations can be made. Soil and groundwater conditions can be highly variable. Scheduling for soil work will need to be adjustable, to deal with unanticipated conditions, so that the project can proceed and required deadlines can be met.

If any variations or undesirable conditions are encountered during construction, we should be notified so that supplemental recommendations can be made. If room constraints or groundwater conditions do not permit temporary slopes to be cut to the maximum angles allowed by the WAC, temporary shoring systems may be required. The contractor should be responsible for developing temporary shoring systems, if needed. We recommend that Cobalt Geosciences and the project structural engineer review temporary shoring designs prior to installation, to verify the suitability of the proposed systems.

Foundation Design

The proposed structures may be supported on shallow spread footing foundation systems bearing on undisturbed medium dense or firmer native soils or on properly compacted structural fill placed on the suitable native soils. Any undocumented fill and/or loose native soils should be removed and replaced with structural fill below foundation elements. Structural fill below footings should consist of clean angular rock 5/8 to 4 inches in size. We should verify soil conditions during foundation excavation work.

For shallow foundation support, we recommend widths of at least 16 for continuous wall footings supporting the proposed structure. Provided that the footings are supported as recommended above, a net allowable bearing pressure of 3,000 pounds per square foot (psf) may be used for

design. Detention vaults set at least 5 feet below grade may be designed with a bearing pressure of 5,000 psf.

A 1/3 increase in the above value may be used for short duration loads, such as those imposed by wind and seismic events. Structural fill placed on bearing, native subgrade should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Footing excavations should be inspected to verify that the foundations will bear on suitable material.

Exterior footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower.

If constructed as recommended, the total foundation settlement is not expected to exceed 1 inch. Differential settlement, along a 25-foot exterior wall footing, or between adjoining column footings, should be less than ½ inch. This translates to an angular distortion of 0.002. Most settlement is expected to occur during construction, as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. All footing excavations should be observed by a qualified geotechnical consultant.

Resistance to lateral footing displacement can be determined using an allowable friction factor of 0.40 acting between the base of foundations and the supporting subgrades. Lateral resistance for footings can also be developed using an allowable equivalent fluid passive pressure of 225 pounds per cubic foot (pcf) acting against the appropriate vertical footing faces (neglect the upper 12 inches below grade in exterior areas). The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance.

Care should be taken to prevent wetting or drying of the bearing materials during construction. Any extremely wet or dry materials, or any loose or disturbed materials at the bottom of the footing excavations, should be removed prior to placing concrete. The potential for wetting or drying of the bearing materials can be reduced by pouring concrete as soon as possible after completing the footing excavation and evaluating the bearing surface by the geotechnical engineer or his representative.

Concrete Retaining Walls

The following table, titled **Wall Design Criteria**, presents the recommended soil related design parameters for retaining walls with a level backslope. Contact Cobalt if an alternate retaining wall system is used. This has been included for below grade vaults, if proposed.

Wall Design Criteria	
"At-rest" Conditions (Lateral Earth Pressure – EFD^{+})	55 pcf (Equivalent Fluid Density)
"Active" Conditions (Lateral Earth Pressure – EFD^{+})	35 pcf (Equivalent Fluid Density)
Seismic Increase for "At-rest" Conditions (Lateral Earth Pressure)	12H* (Uniform Distribution)
Seismic Increase for "Active" Conditions (Lateral Earth Pressure)	6H* (Uniform Distribution)
Passive Earth Pressure on Low Side of Wall (Allowable, includes F.S. = 1.5)	Neglect upper 2 feet, then 300 pcf EFD^{+}

Soil-Footing Coefficient of Sliding Friction (Allowable; includes F.S. = 1.5)	0.40

*H is the height of the wall; Increase based on one in 500 year seismic event (10 percent probability of being exceeded in 50 years),
+EFD – Equivalent Fluid Density

The stated lateral earth pressures do not include the effects of hydrostatic pressure generated by water accumulation behind the retaining walls. Uniform horizontal lateral active and at-rest pressures on the retaining walls from vertical surcharges behind the wall may be calculated using active and at-rest lateral earth pressure coefficients of 0.3 and 0.5, respectively. A soil unit weight of 125 pcf may be used to calculate vertical earth surcharges.

To reduce the potential for the buildup of water pressure against the walls, continuous footing drains (with cleanouts) should be provided at the bases of the walls. The footing drains should consist of a minimum 4-inch diameter perforated pipe, sloped to drain, with perforations placed down and enveloped by a minimum 6 inches of pea gravel in all directions.

The backfill adjacent to and extending a lateral distance behind the walls at least 2 feet should consist of free-draining granular material. All free draining backfill should contain less than 3 percent fines (passing the U.S. Standard No. 200 Sieve) based upon the fraction passing the U.S. Standard No. 4 Sieve with at least 30 percent of the material being retained on the U.S. Standard No. 4 Sieve. The primary purpose of the free-draining material is the reduction of hydrostatic pressure. Some potential for the moisture to contact the back face of the wall may exist, even with treatment, which may require that more extensive waterproofing be specified for walls, which require interior moisture sensitive finishes.

We recommend that the backfill be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. In place density tests should be performed to verify adequate compaction. Soil compactors place transient surcharges on the backfill. Consequently, only light hand operated equipment is recommended within 3 feet of walls so that excessive stress is not imposed on the walls.

Stormwater Management Feasibility

The site is underlain by a layer of weathered glacial till over dense glacial till. The dense glacial till acts as an aquitard, reducing vertical infiltration of stormwater to near zero. Additionally, there are areas of perched interflow at shallow depths along with mottled soils. There is limited clearance above the aquitard or groundwater table for most shallow stormwater management systems.

We performed an in situ Pilot Infiltration Test in TP-3 at a depth of 4 feet below grade. The design infiltration rate was determined by applying correction factors to the observed infiltration rate as prescribed in Volume III, Section 3.3.6 of the DOE. The observed rate must be reduced through appropriate correction factors for site variability (CF_V), uncertainty of test method (CF_T), and degree of influent control (CF_M) to prevent siltation and bio-buildup.

It should be noted that construction traffic or other disturbance to the target infiltration area could compact the soil, which may decrease the effective infiltration rates. The correction factors and resulting design infiltration rate are also shown in the table below.

Test Pit Number	Sample Depth (ft)	Observed Infiltration Rate (in/hr)	Correction Factors			Design Infiltration Rate (in/hr)
			CF_V	CF_T	CF_M	
TP-3	4	0.25	0.9	0.5	0.9	0.10

Widespread infiltration is not feasible based on the soil and groundwater conditions. The above factored rate is below the threshold for infiltration feasibility (0.3 inches per hour), per the Department of Ecology guidelines.

We anticipate the use of one or more detention systems with overflow to an approved conveyance. Local permeable pavements, dispersion devices, and/or rain gardens may be feasible depending on their locations and elevations. We can provide additional recommendations upon request.

We should be provided with final plans for review to determine if the intent of our recommendations has been incorporated or if additional modifications are needed.

Slab-on-Grade

We recommend that the upper 18 inches of the native soils within slab areas be re-compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method).

Often, a vapor barrier is considered below concrete slab areas. However, the usage of a vapor barrier could result in curling of the concrete slab at joints. Floor covers sensitive to moisture typically requires the usage of a vapor barrier. A materials or structural engineer should be consulted regarding the detailing of the vapor barrier below concrete slabs. Exterior slabs typically do not utilize vapor barriers.

The American Concrete Institutes ACI 360R-06 Design of Slabs on Grade and ACI 302.1R-04 Guide for Concrete Floor and Slab Construction are recommended references for vapor barrier selection and floor slab detailing.

Slabs on grade may be designed using a coefficient of subgrade reaction of 210 pounds per cubic inch (pci) assuming the slab-on-grade base course is underlain by structural fill placed and compacted as outlined above. A 4- to 6-inch-thick capillary break layer should be placed over the prepared subgrade. This material should consist of pea gravel or 5/8 inch clean angular rock.

A perimeter drainage system is recommended unless interior slab areas are elevated a minimum of 12 inches above adjacent exterior grades. If installed, a perimeter drainage system should consist of a 4-inch diameter perforated drain pipe surrounded by a minimum 6 inches of drain rock wrapped in a non-woven geosynthetic filter fabric to reduce migration of soil particles into the drainage system. The perimeter drainage system should discharge by gravity flow to a suitable stormwater system.

Exterior grades surrounding buildings should be sloped at a minimum of one percent to facilitate surface water flow away from the building and preferably with a relatively impermeable surface cover immediately adjacent to the building.

Erosion and Sediment Control

Erosion and sediment control (ESC) is used to reduce the transportation of eroded sediment to wetlands, streams, lakes, drainage systems, and adjacent properties. Erosion and sediment control measures should be implemented, and these measures should be in general accordance with local regulations. At a minimum, the following basic recommendations should be incorporated into the design of the erosion and sediment control features for the site:

- Schedule the soil, foundation, utility, and other work requiring excavation or the disturbance of the site soils, to take place during the dry season (generally May through September). However, provided precautions are taken using Best Management Practices (BMP's), grading activities can be completed during the wet season (generally October through April).
- All site work should be completed and stabilized as quickly as possible.
- Additional perimeter erosion and sediment control features may be required to reduce the possibility of sediment entering the surface water. This may include additional silt fences, silt fences with a higher Apparent Opening Size (AOS), construction of a berm, or other filtration systems.
- Any runoff generated by dewatering discharge should be treated through construction of a sediment trap if there is sufficient space. If space is limited other filtration methods will need to be incorporated.

Utilities

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards, by a contractor experienced in such work. The contractor is responsible for the safety of open trenches. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

In general, silty soils were encountered at shallow depths in the explorations at this site. These soils have low cohesion and density and will have a tendency to cave or slough in excavations. Shoring or sloping back trench sidewalls is required within these soils in excavations greater than 4 feet deep.

All utility trench backfill should consist of imported structural fill or suitable on site soils. Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The upper 5 feet of utility trench backfill placed in pavement areas should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Below 5 feet, utility trench backfill in pavement areas should be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with the pipe manufacturer's recommendations.

The contractor is responsible for removing all water-sensitive soils from the trenches regardless of the backfill location and compaction requirements. Depending on the depth and location of the proposed utilities, we anticipate the need to re-compact existing fill soils below the utility structures and pipes. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction procedures.

Pavements

The near surface subgrade soils generally consist of silty sand with gravel. These soils are rated as good for pavement subgrade material (depending on silt content and moisture conditions). We estimate that the subgrade will have a California Bearing Ratio (CBR) value of 10 and a modulus of subgrade reaction value of k = 200 pci, provided the subgrade is prepared in general accordance with our recommendations.

We recommend that at a minimum, 12 inches of the existing subgrade material be moisture conditioned (as necessary) and re-compacted to prepare for the construction of pavement sections. Deeper levels of recompaction or overexcavation and replacement may be necessary in areas where fill and/or very poor (soft/loose) soils are present. Any fill should be removed.

The subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. In place density tests should be performed to verify proper moisture content and adequate compaction.

The recommended flexible and rigid pavement sections are based on design CBR and modulus of subgrade reaction (k) values that are achieved, only following proper subgrade preparation. It should be noted that subgrade soils that have relatively high silt contents will likely be highly sensitive to moisture conditions. The subgrade strength and performance characteristics of a silty subgrade material may be dramatically reduced if this material becomes wet.

Based on our knowledge of the proposed project, we expect the traffic to range from light duty (passenger automobiles) to heavy duty (delivery trucks). The following tables show the recommended pavement sections for light duty and heavy duty use.

ASPHALTIC CONCRETE (FLEXIBLE) PAVEMENT

LIGHT DUTY

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
2.5 in.	6.0 in.	12.0 in.

HEAVY DUTY

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
3.5 in.	6.0 in.	12.0 in.

PORTLAND CEMENT CONCRETE (RIGID) PAVEMENT

Min. PCC Depth	Aggregate Base*	Compacted Subgrade* **
6.0 in.	6.0 in.	12.0 in.

** 95% compaction based on ASTM Test Method D1557*

*** A proof roll may be performed in lieu of in place density tests*

The asphaltic concrete depth in the flexible pavement tables should be a surface course type asphalt, such as Washington Department of Transportation (WSDOT) ½ inch HMA. The rigid pavement design is based on a Portland Cement Concrete (PCC) mix that has a 28 day compressive strength of 4,000 pounds per square inch (psi). The design is also based on a concrete flexural strength or modulus of rupture of 550 psi.

CONSTRUCTION FIELD REVIEWS

Cobalt Geosciences should be retained to provide part time field review during construction in order to verify that the soil conditions encountered are consistent with our design assumptions and that the intent of our recommendations is being met. This will require field and engineering review to:

- Monitor and test structural fill placement and soil compaction
- Observe bearing capacity at foundation locations if proposed
- Observe slab-on-grade preparation if utilized
- Verify infiltration system soil conditions if utilized
- Observe proofrolls of parking lot areas
- Monitor foundation drainage placement if proposed
- Observe excavation stability

Geotechnical design services should also be anticipated during the subsequent final design phase to support the structural design and address specific issues arising during this phase. Field and engineering review services will also be required during the construction phase in order to provide a Final Letter for the project.

CLOSURE

This report was prepared for the exclusive use of Robinett Brothers, LLC and their appointed consultants. Any use of this report or the material contained herein by third parties, or for other than the intended purpose, should first be approved in writing by Cobalt Geosciences, LLC.

The recommendations contained in this report are based on assumed continuity of soils with those of our test holes and assumed structural loads. Cobalt Geosciences should be provided with final architectural and civil drawings when they become available in order that we may review our design recommendations and advise of any revisions, if necessary.

Use of this report is subject to the Statement of General Conditions provided in Appendix A. It is the responsibility of Robinett Brothers, LLC who is identified as “the Client” within the Statement of General Conditions, and its agents to review the conditions and to notify Cobalt Geosciences should any of these not be satisfied.

Sincerely,

Cobalt Geosciences, LLC





9/15/2023
Phil Haberman, PE, LG, LEG
Principal

Statement of General Conditions

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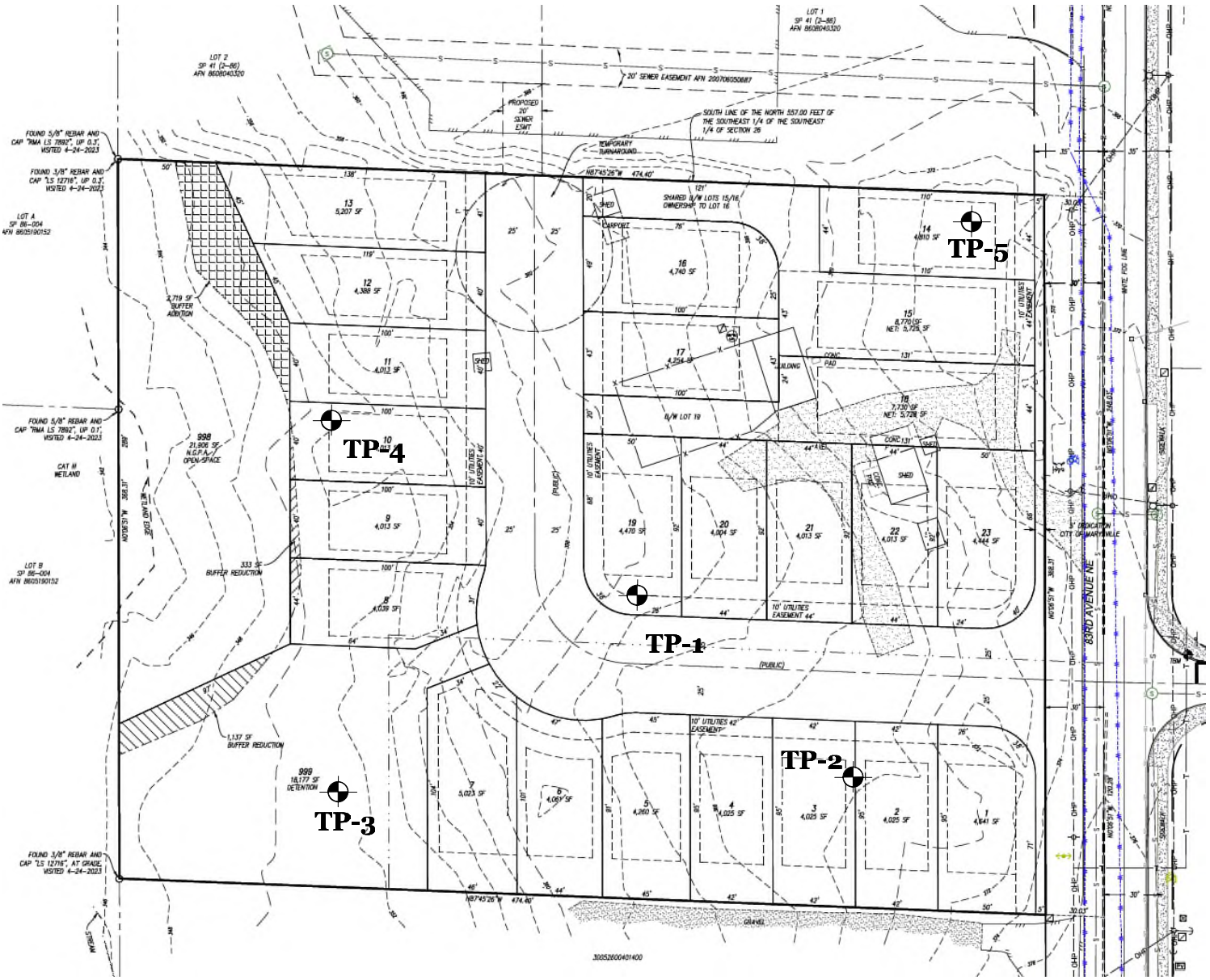
BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Cobalt Geosciences present understanding of the site specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Cobalt Geosciences is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Cobalt Geosciences at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Cobalt Geosciences must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Cobalt Geosciences will not be responsible to any party for damages incurred as a result of failing to notify Cobalt Geosciences that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Cobalt Geosciences, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Cobalt Geosciences cannot be responsible for site work carried out without being present.

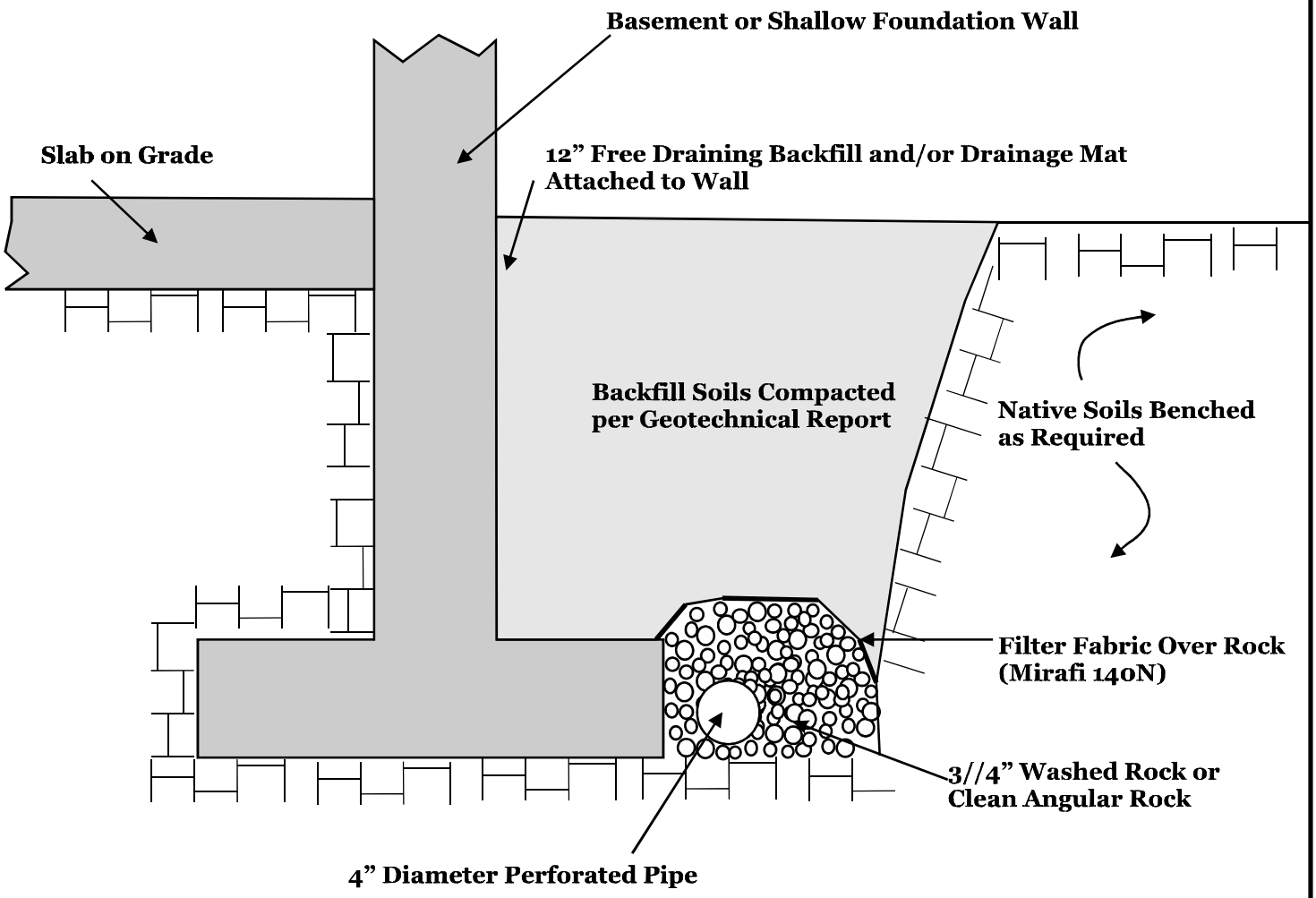


Provided Site Plan
Not to Scale

N

TP-1 **Approximate Test Pit Location**

COBALT GEOSCIENCES	Proposed Development 6114 83rd Avenue NE Marysville, Washington	**SITE MAP** **FIGURE 1**	Cobalt Geosciences, LLC P.O. Box 82243 Kenmore, WA 98028 (206) 331-1097 www.cobaltgeo.com cobaltgeo@gmail.com



Not to Scale

COBALT GEOSCIENCES	**Typical Foundation Drain Detail**	**Attachment**	Cobalt Geosciences, LLC PO Box 1792 North Bend, WA 98045 (206) 331-1097 www.cobaltgeo.com phil@cobaltgeo.com

Unified Soil Classification System (USCS)

MAJOR DIVISIONS			SYMBOL	TYPICAL DESCRIPTION
COARSE GRAINED SOILS (more than 50% retained on No. 200 sieve)	Gravels (more than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines (more than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (50% or more of coarse fraction passes the No. 4 sieve)	Clean Sands (less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
			SP	Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines (more than 12% fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (50% or more passes the No. 200 sieve)	Silts and Clays (liquid limit less than 50)	Inorganic	ML	Inorganic silts of low to medium plasticity, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
		Organic	OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays (liquid limit 50 or more)	Inorganic	MH	Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH	Inorganic clays of medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT	Peat, humus, swamp soils with high organic content (ASTM D4427)

Classification of Soil Constituents

MAJOR constituents compose more than 50 percent, by weight, of the soil. Major constituents are capitalized (i.e., SAND).

Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (i.e., slightly silty SAND).

Trace constituents compose 0 to 5 percent of the soil (i.e., slightly silty SAND, trace gravel).

Grain Size Definitions

Description	Sieve Number and/or Size
Fines	<#200 (0.08 mm)
Sand	
-Fine	#200 to #40 (0.08 to 0.4 mm)
-Medium	#40 to #10 (0.4 to 2 mm)
-Coarse	#10 to #4 (2 to 5 mm)
Gravel	
-Fine	#4 to 3/4 inch (5 to 19 mm)
-Coarse	3/4 to 3 inches (19 to 76 mm)
Cobbles	3 to 12 inches (75 to 305 mm)
Boulders	>12 inches (305 mm)

Relative Density (Coarse Grained Soils)

N, SPT, Blows/FT	Relative Density
0 - 4	Very loose
4 - 10	Loose
10 - 30	Medium dense
30 - 50	Dense
Over 50	Very dense

Consistency (Fine Grained Soils)

N, SPT, Blows/FT	Relative Consistency
Under 2	Very soft
2 - 4	Soft
4 - 8	Medium stiff
8 - 15	Stiff
15 - 30	Very stiff
Over 30	Hard

Moisture Content Definitions

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

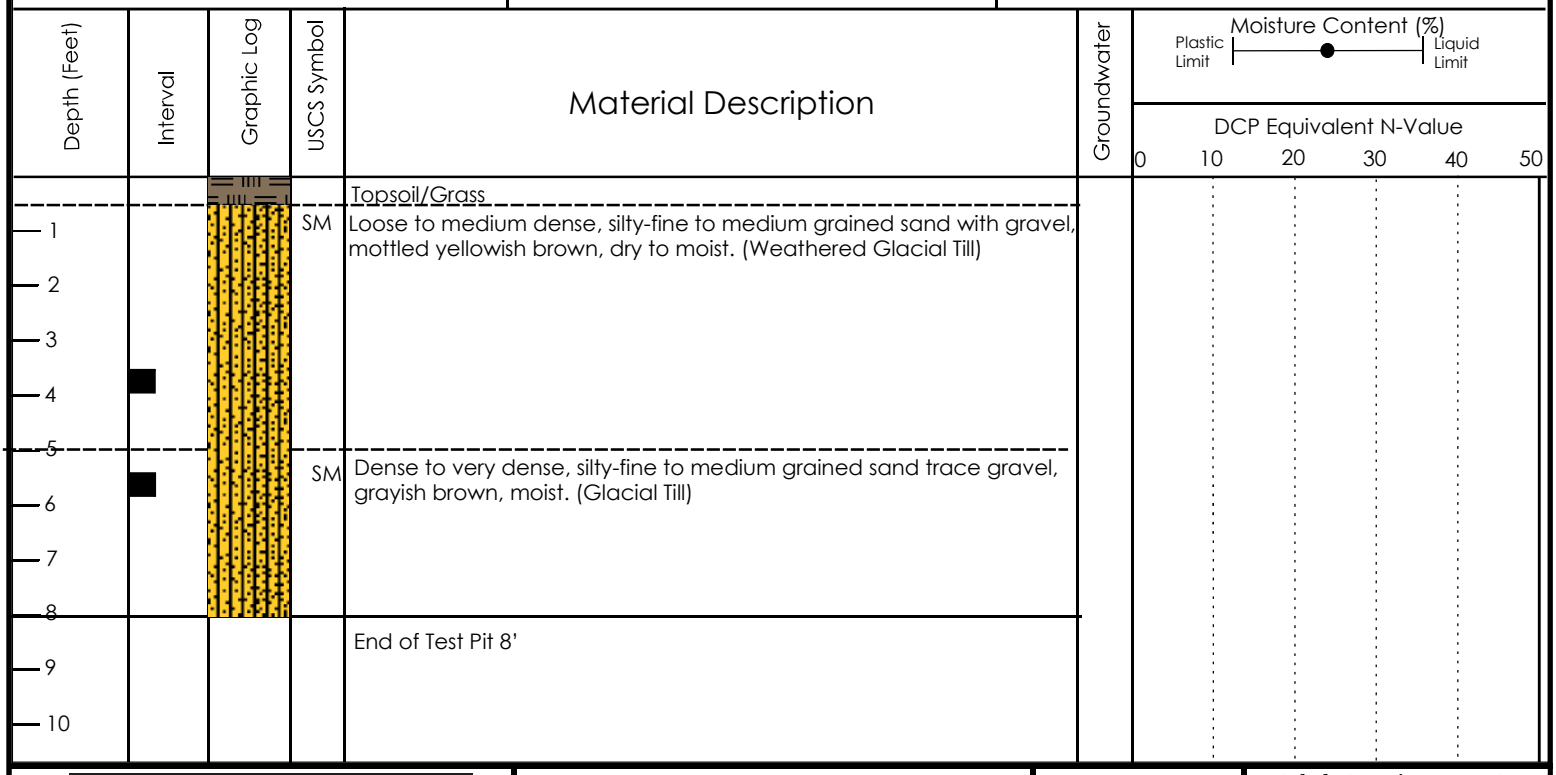
COBALT GEOSCIENCES
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Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Soil Classification Chart

Figure C1

Test Pit TP-1

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC



COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

Cobalt Geosciences, LLC
P.O. Box 82243
Kenmore, WA 98028
(206) 331-1097
www.cobaltgeo.com
cobaltgeo@gmail.com

Test Pit TP-2

Date: August 2023	Depth: 5'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description
				Topsoil/Grass
1	■		SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)
2				
3				
4	■		SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)
5				
6				End of Test Pit 5'
7				
8				
9				
10				

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

DCP Equivalent N-Value
0 10 20 30 40 50

COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

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cobaltgeo@gmail.com

Test Pit TP-3

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description	Groundwater	Moisture Content (%) / DCP Equivalent N-Value
				Topsoil/Grass		
1			SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)		
2						
3						
4	■					
5			SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)		
6	■					
7						
8						
9				End of Test Pit 8'		
10						

Plastic Limit — Liquid Limit

DCP Equivalent N-Value: 0 10 20 30 40 50

COBALT GEOSCIENCES

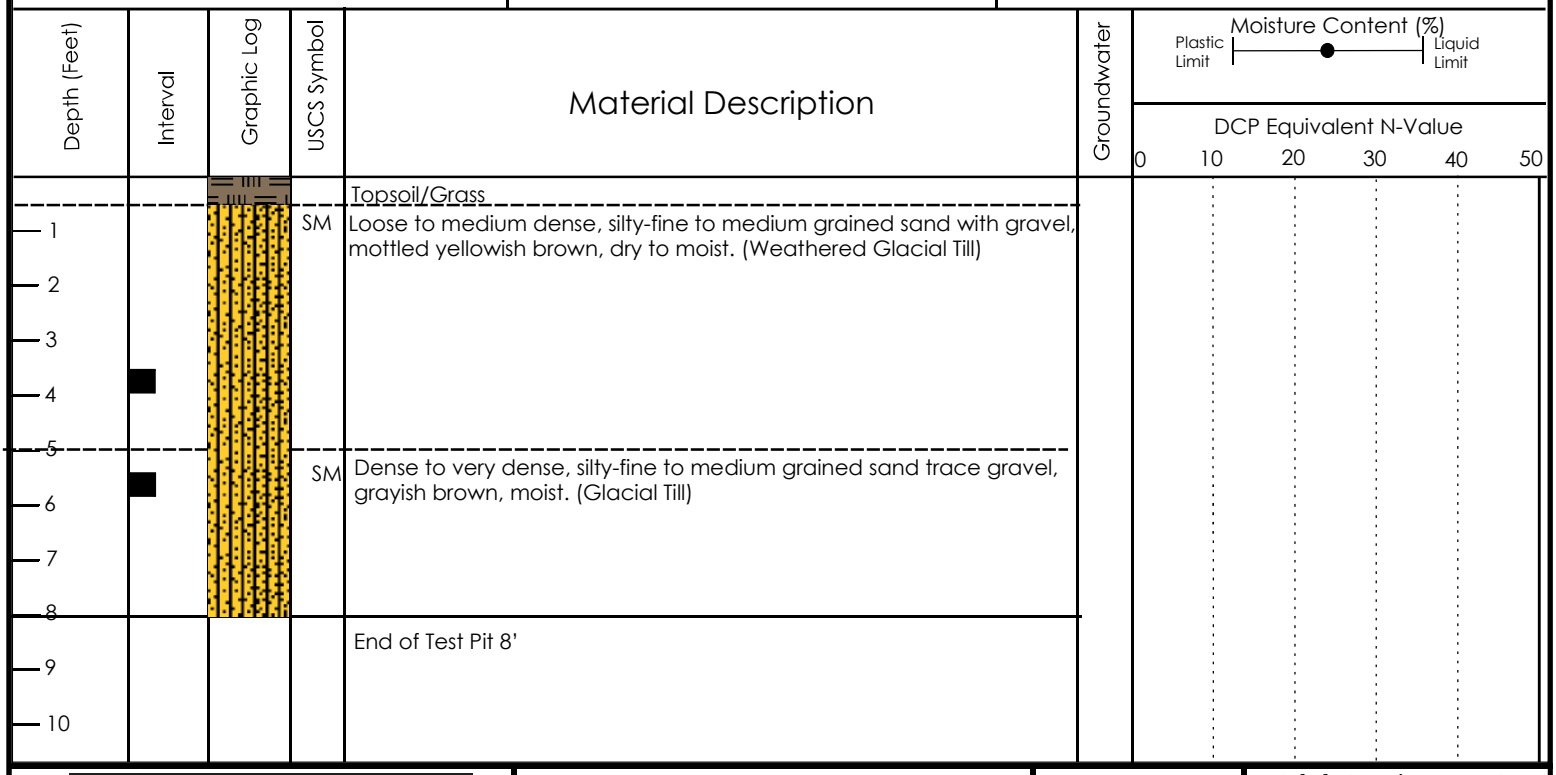
Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

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P.O. Box 82243
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Test Pit TP-4

Date: August 2023	Depth: 8'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC



COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

Cobalt Geosciences, LLC
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cobaltgeo@gmail.com

Test Pit TP-5

Date: August 2023	Depth: 5'	Groundwater: None
Contractor: Jim	Elevation:	Logged By: PH Checked By: SC

Depth (Feet)	Interval	Graphic Log	USCS Symbol	Material Description
				Topsoil/Grass
1	■		SM	Loose to medium dense, silty-fine to medium grained sand with gravel, mottled yellowish brown, dry to moist. (Weathered Glacial Till)
2				
3				
4	■		SM	Dense to very dense, silty-fine to medium grained sand trace gravel, grayish brown, moist. (Glacial Till)
5				
6				End of Test Pit 5'
7				
8				
9				
10				

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

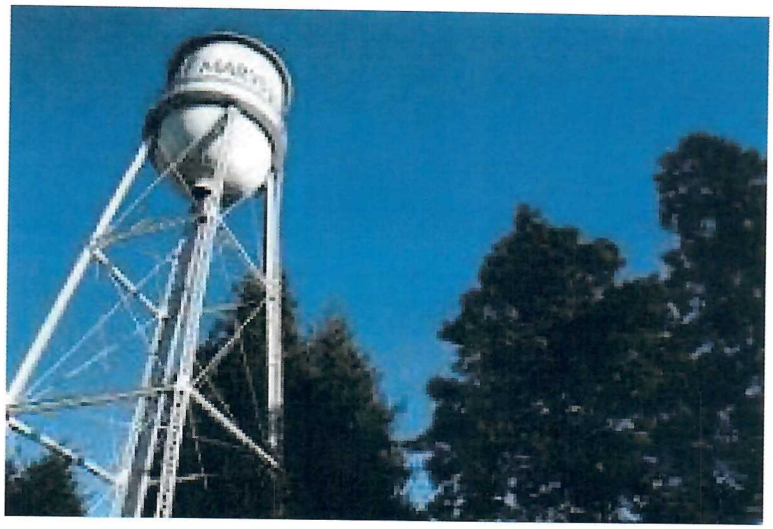
DCP Equivalent N-Value
0 10 20 30 40 50

COBALT GEOSCIENCES

Proposed Development
6114 83rd Avenue NE
Marysville, Washington

Test Pit Logs

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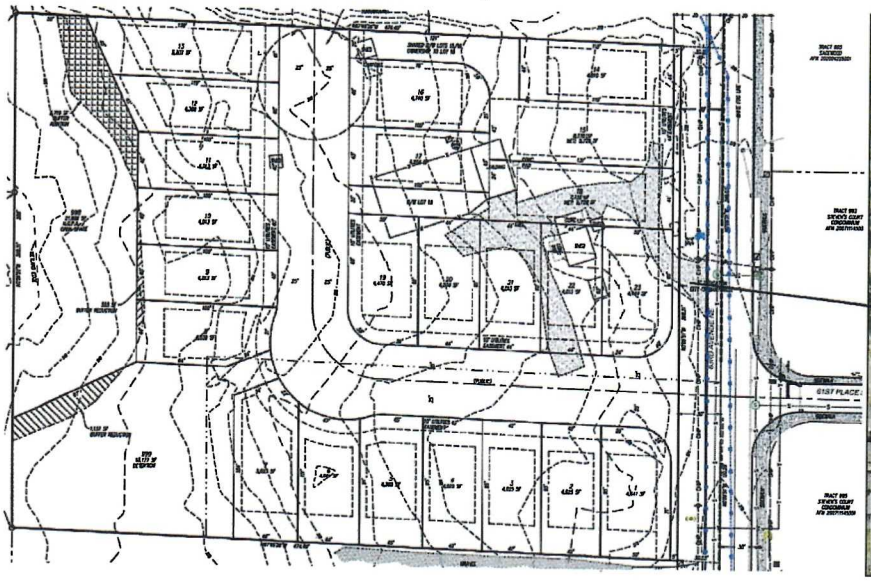




Marysville

CHAPEL HILL PLAT
TRANSPORTATION MEMORANDUM - UPDATE

February 19, 2024





Jake Traffic Engineering, Inc.
Mark J. Jacobs, PE (OR and WA), PTOE, President
2614 39th Ave. SW – Seattle, WA 98116 – 2503
Tel. 206.762.1978 - Cell 206.799.5692
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CITY OF Marysville WASHINGTON

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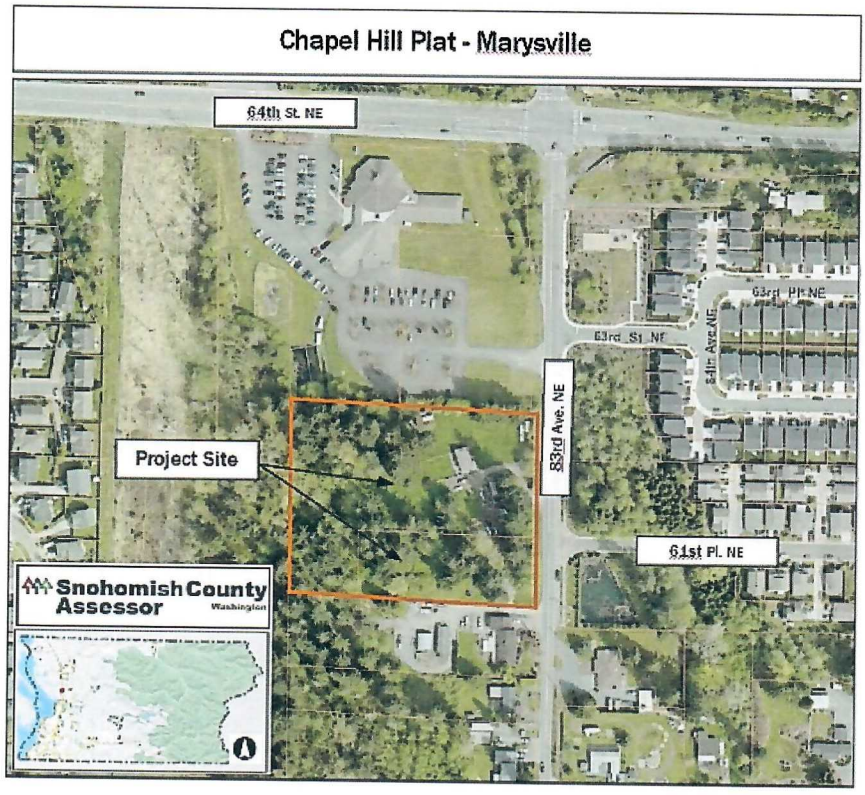
ROBINETT BROTHERS, LLC
Attn: Marty Robinett
2825 Colby Ave. Suite 304
Everett, WA 98201

Re: Chapel Hill Plat – Marysville
Transportation Memorandum - Upate

Dear Mr. Robinett,

I have prepared this Transportation Memorandum – Update (the update incorporates the City's Trip Rate for SFDU during the PM peak hour) for the proposed 23-lot residential plat (22-net new). The site is located at 6114 83rd Ave. NE, Marysville, WA 98270 on Snohomish County Parcel #'s 300526-004-037-00 and 300526-004-043-00. The project site is currently developed with one SFDU that will be removed from the site.

An aerial view of the project site obtained from Snohomish County SCOPI is shown below:



The City was provided a Traffic Scoping e-mail on 08.03.2023 for the project and a request for City traffic distribution data that was provided the same day. I have prepared this Transportation Memorandum based on past City experience that required Traffic Documentation to include trip generation, distribution and identify the likely Traffic Impact Fee. The site access is on 83rd Ave. NE aligned with 61st Place Northeast.

The site is currently developed with a SFDU that would be removed to make way for the subject project. Attached is a copy of the Site Plan prepared by Land Resolutions dated 07.25.2023. The plan shows the 23 lot residential plat, open space, internal street with a temporary turnaround and access on 83rd Ave. NE aligned with 61st Place Northeast.

SITE TRAFFIC GENERATION AND DISTRIBUTION

Definitions

A vehicle trip is defined as a single or one direction vehicle movement with either the origin or destination (exiting or entering) inside the proposed development.

Traffic generated by development projects consists of the following types:

Pass-By Trips:	Trips made as intermediate stops on the way from an origin to a primary trip destination.
Diverted Link Trips:	Trips attracted from the traffic volume on a roadway within the vicinity of the generator, but which require a diversion from that roadway to another roadway in order to gain access to the site.
Captured Trips:	Site trips shared by more than one land use in a multi-use development.
Primary (New) Trips:	Trips made for the specific purpose of using the services of the project.

Trip Generation

The trip generation for the project is calculated using trip rates from the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, for the Single-Family Detached Housing (ITE Land Use Codes 210) and City data. All site trips made by all vehicles for all purposes, including commuter, visitor, and service and delivery vehicle trips are included in the trip generation values.

Using the aforementioned LUC and City data, Table 1U below depicts the site traffic generation.

TABLE 1U – VEHICULAR TRIP GENERATION
CHAPEL HILL PLAT – MARYSVILLE
TRANSPORTATION MEMORANDUM – UPDATE

Time Period	Size (X)	TG Rate	Enter %	Enter Trips	Exit %	Exit Trips	Total (T)	Pass-by %*	Pass-by Trips	Net Total
Proposed: Single-Family Detached Housing – General Urban/Suburban (ITE LUC 210; 22 – net new units)										
Weekday	22	9.43	50%	104	50%	104	207	–	–	–
AM peak hour	22	0.7	26%	4	74%	11	15	–	–	–
PM peak hour, ITE	22	0.94	63%	13	37%	8	21	–	–	–
PM peak hour, City	22	1	63%	14	37%	8	22	–	–	–

Where X = number of units or sf and T = Trips
* - Pass-by rates per ITE, local Agency data and Traffic Engineering Experience, residential trips are typically considered new thus for analysis no pass-by to account for service/delivery type trips is taken
Trip rates per the Institute of Transportation Engineers Trip Generation Manual 11th Edition
Note: Due to rounding some values may not add up

The proposed project is projected to generate about 22 net new PM peak hour trips with 14 entering and eight exiting per City data; this is one trip more than per the national ITE data.

Trip Distribution

I obtained City distribution data from the City for Whiskey Ridge North and 87th Avenue. The site's orientation is such that the City's noted to refine the data to better reflect the site's location between the two zones. Below are the relevant portions of the City distribution data for the two Zones.

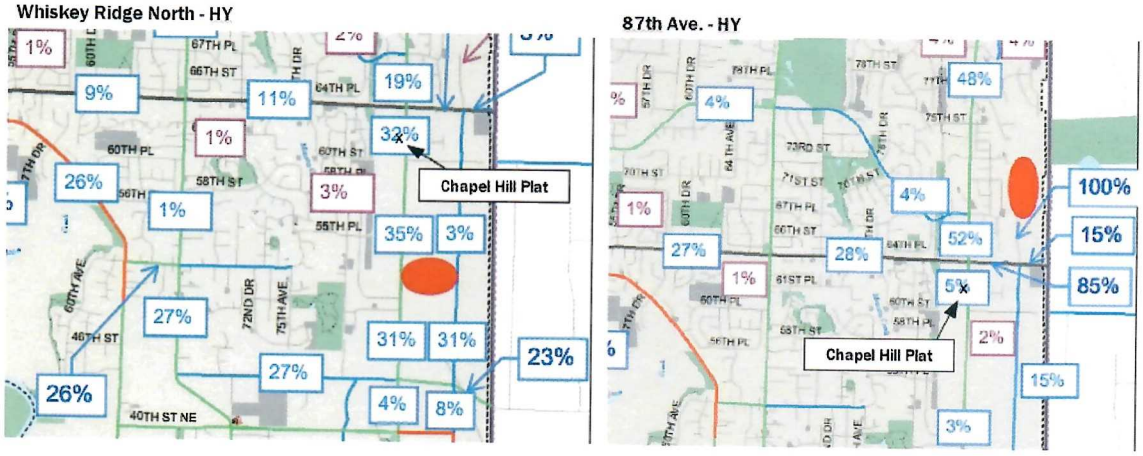


Figure 1U provides the projected Trip Distribution using City distribution for Whiskey Ridge North and 87th Ave.; rounded to five percent. The City's distribution data for both the Existing and Horizon street grid is generally consistent for both the corridors; the horizon year for the Whiskey Ridge North is slightly refined with the added street connection to SR – 9 in particular the extension of 44th St. NE to the east. This new connection is projected to re-route traffic currently using E. Sunnyside School Road. In addition to the City information, the

characteristics of the road/street network, existing traffic volume patterns, the location of likely trip origins and destinations (residential, schools, employment, shopping, social and recreational opportunities) are factored.

ACCESS/OPERATIONAL INSPECTION

Table 1 in Traffic Impact Analysis Guidelines July 20, 2020 identifies the use of a 25 PM peak hour site traffic impact threshold to study an intersection; typically noted as classified arterial intersections.

TABLE 1: INTERSECTION ANALYSIS IMPACT THRESHOLDS

SR529/State Avenue/Smokey Point Blvd. Corridor		Threshold for intersection Analysis/LOS Criteria
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	E (mitigated)
State Route 528 (4th Street/64th Street NE) and State Route 531 (172nd St NE)		
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	E (mitigated)
All other intersections of two arterial/arterial or functionally classified streets		
Site Generated Traffic		25 vehicles transversing through intersection during any defined peak hour
Minimum Level of Service	Signalized, Roundabout or Stop Controlled Intersection	D

The net PM peak hour site traffic generation is 21 PM peak hour trips that are below the City's threshold for study.

Eighty Third Avenue NE is a 2-lane local Minor Arterial street with a posted speed limit of 35 MPH. The City of Marysville 2015 Transportation Element dated June 2015 was inspected. This document identifies the corridor SR -528 to 40th St. NE for future widening (project #109) to 2/3 lanes and sidewalks.

Site access would be via street intersection with 83rd Ave NE aligned with 61st Pl. NE to the east. Below are street view photographs obtained from Google Earth looking to the north and south at the access, respectively.





Presuming vegetation is properly maintained and no signage is located in the sight triangle good sight lines exist at the site access on 83rd Avenue Northeast.

AGENCY TRAFFIC IMPACT MITIGATION REQUIREMENTS

City of Marysville

The City of Marysville has a Traffic Impact Fee program. The City's TIF per the February 23, 2023 Fee Schedule, are:

TRAFFIC (Title 22D.030 MMC)	
Residential (per PM peak hour trip)	$6,300.00
Commercial (per PM Peak Hour Trip)	$2,220.00

The appropriate TIF, per the schedule current at the time of building permit would be required.

I note that the City has an identified improvement for 83rd Ave. NE (#109) in the City's Comprehensive Plan. The cost of street improvements to 83rd Ave. NE may be creditable against the TIF per RCW 82.02.060, see below (pertinent section highlighted):

RCW 82.02.060

Impact fees—Local ordinances—Required provisions—Exemptions.

**** CHANGE IN 2023 *** (SEE 5258-S2.SL) ****

The local ordinance by which impact fees are imposed:

(1) Shall include a schedule of impact fees which shall be adopted for each type of development activity that is subject to impact fees, specifying the amount of the impact fee to be imposed for each type of system improvement. The schedule shall be based upon a formula or other method of calculating such impact fees. In determining proportionate share, the formula or other method of calculating impact fees shall incorporate, among other things, the following:

(a) The cost of public facilities necessitated by new development;

(b) An adjustment to the cost of the public facilities for past or future payments made or reasonably anticipated to be made by new development to pay for particular system improvements in the form of user fees, debt service payments, taxes, or other payments earmarked for or proratable to the particular system improvement;

(c) The availability of other means of funding public facility improvements;

(d) The cost of existing public facilities improvements; and

(e) The methods by which public facilities improvements were financed;

(2) May provide an exemption for low-income housing, and other development activities with broad public purposes, including development of an early learning facility, from these impact fees, provided that the impact fees for such development activity shall be paid from public funds other than impact fee accounts;

(3)(a) May not impose an impact fee on development activities of an early learning facility greater than that imposed on commercial retail or commercial office development activities that generate a similar number, volume, type, and duration of vehicle trips;

(b) When a facility or development has more than one use, the limitations in this subsection (3) or the exemption applicable to an early learning facility in subsections (2) and (4) of this section only apply to that portion that is developed as an early learning facility. The impact fee assessed on an early learning facility in such a development or facility may not exceed the least of the impact fees assessed on comparable businesses in the facility or development;

(4) May provide an exemption from impact fees for low-income housing or for early learning facilities. Local governments that grant exemptions for low-income housing or for early learning facilities under this subsection (4) may either: Grant a partial exemption of not more than eighty percent of impact fees, in which case there is no explicit requirement to pay the exempted portion of the fee from public funds other than impact fee accounts; or provide a full waiver, in which case the remaining percentage of the exempted fee must be paid from public funds other than impact fee accounts, except as provided in (b) of this subsection. These exemptions are subject to the following requirements:

(a) An exemption for low-income housing granted under subsection (2) of this section or this subsection (4) must be conditioned upon requiring the developer to record a covenant that, except as provided otherwise by this subsection, prohibits using the property for any purpose other than for low-income housing. At a minimum, the covenant must address price restrictions and household income limits for the low-income housing, and that if the property is converted to a use other than for low-income housing, the property owner must pay the applicable impact fees in effect at the time of conversion;

(b) An exemption for early learning facilities granted under subsection (2) of this section or this subsection (4) may be a full waiver without an explicit requirement to pay the exempted portion of the fee from public funds other than impact fee accounts if the local government requires the developer to record a covenant that requires that at least 25 percent of the children and families using the early learning facility qualify for state subsidized child care, including early childhood education and assistance under chapter 43.216 RCW, and that provides that if the property is converted to a use other than for an early learning facility, the property owner must pay the applicable impact fees in effect at the time of conversion, and that also provides that if at no point during a calendar year does the early learning facility achieve the required percentage of children and families qualified for state subsidized child care using the early learning facility, the property owner must pay 20 percent of the impact fee that would have been imposed on the development had there not been an exemption within 90 days of the local government notifying the property owner of the breach, and any balance remaining thereafter shall be a lien on the property; and

(c) Covenants required by (a) and (b) of this subsection must be recorded with the applicable county auditor or recording officer. A local government granting an exemption under subsection (2) of this section or this subsection (4) for low-income housing or an early learning facility may not collect revenue lost through granting an exemption by increasing impact fees unrelated to the exemption. A school district who receives school impact fees must approve any exemption under subsection (2) of this section or this subsection (4);

(5) Shall provide a credit for the value of any dedication of land for, improvement to, or new construction of any system improvements provided by the developer, to facilities that

are identified in the capital facilities plan and that are required by the county, city, or town as a condition of approving the development activity;

(6) Shall allow the county, city, or town imposing the impact fees to adjust the standard impact fee at the time the fee is imposed to consider unusual circumstances in specific cases to ensure that impact fees are imposed fairly;

(7) Shall include a provision for calculating the amount of the fee to be imposed on a particular development that permits consideration of studies and data submitted by the developer to adjust the amount of the fee;

(8) Shall establish one or more reasonable service areas within which it shall calculate and impose impact fees for various land use categories per unit of development; and

(9) May provide for the imposition of an impact fee for system improvement costs previously incurred by a county, city, or town to the extent that new growth and development will be served by the previously constructed improvements provided such fee shall not be imposed to make up for any system improvement deficiencies.

For purposes of this section, "low-income housing" means housing with a monthly housing expense, that is no greater than thirty percent of eighty percent of the median family income adjusted for family size, for the county where the project is located, as reported by the United States department of housing and urban development.

For the purposes of this section, "early learning facility" has the same meaning as in RCW 43.31.565.

[2021 c 72 § 1; 2012 c 200 § 1; 1990 1st ex.s. c 17 § 44.]

NOTES:

Severability—Part, section headings not law—1990 1st ex.s. c 17: See RCW 36.70A.900 and 36.70A.901.

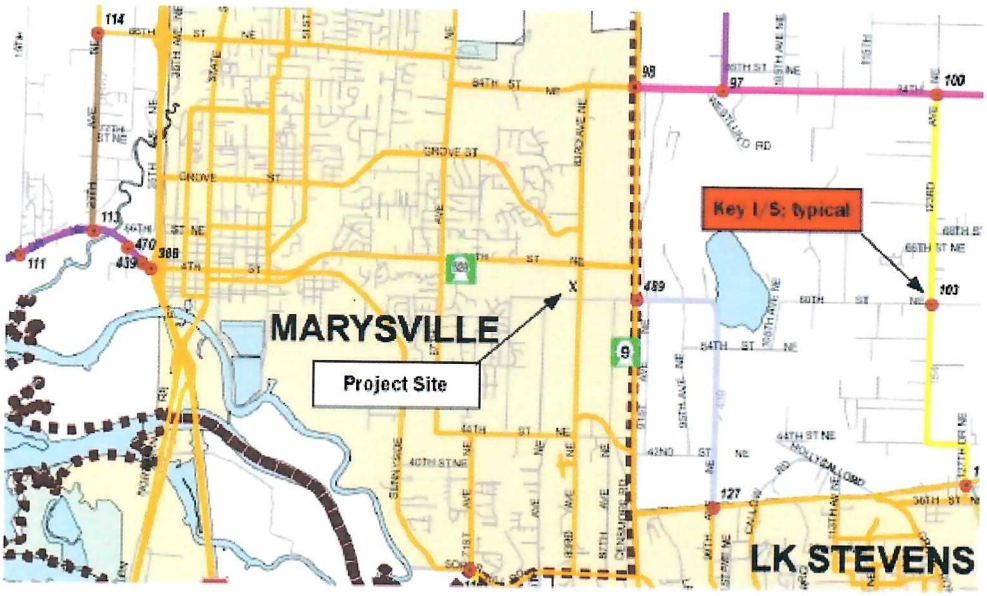
Snohomish County

An interlocal agreement between the City of Marysville and the County exists regarding traffic mitigation. I have prepared the Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Marysville, attached. The County has two mitigation options, one based on a percent of the County fee and two payment based on a Comprehensive Traffic Study.

Option A. The site is located in County Zone CI-MA-5 that indicates a 15 and 10% contribution rate to the County TIF program for residential and commercial projects, respectively.

Option B. Comprehensive traffic study is to pay proportionate share to County Road Improvement projects is chosen. Per this option no impact fee to the County should be required and is detailed next.

Section 3(b) of the County/City worksheet requires the distribution of site Generated AM and PM peak hour trips down to 3-directional peak hour trips. The Key Intersections in the site area are shown in the following map below:



No County Key I/S's are projected to be affected by three directional peak hour trips.

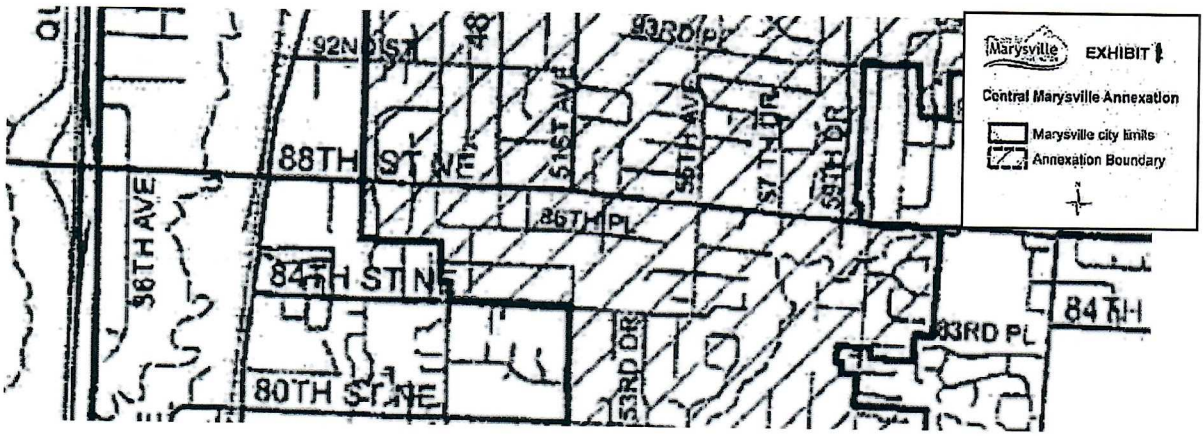
The County has two mitigation options, one based on a percent of the County fee and two payment based on a Comprehensive Traffic Study. Option one is a proportionate payment determined by percentage to County Impact Fee program. Option two Comprehensive Traffic Study is chosen. Per the County/City worksheet the proportionate share payment to County projects is based on PM peak hour trips affecting County planned improvements identified in the Transportation Needs Report.

There are three County projects noted in TSA 'A'

TNR Appendix D: Impact Fee Cost Basis

Road Name	Limits	Column 1 Project Cost ($1,000s)	Column 2 CD %	Source of Cost Estimate	Project Type	TNR ID##
TSA A						
67 Ave NE / 152 St NE		$5,394	100%	TNR Cost Model	Major Intersection	INT-007
88 St NE	Marysville C/L to Marysville C/L	$2,855	100%	Marysville Interlocal Agreement	Major Widening	W-017
140 St NE / 23 Ave NE		$3,498	100%	2015 TE Costs	Major Intersection	INT-006
Subtotal TSA A			**$11,747**			

Review of the TNR the 88th St. NE is the section annexed into the City via Ordinance #2792 that is generally between 44th Ave. NE and 59th Dr. NE; see below section of Exhibit 1:



The Chapel Hill Plat project traffic would not affect any of the County projects noted in TSA; thus no Traffic Mitigation payment should be required.

Attached to this report is a Snohomish County Worksheet for the project.

WSDOT

I am not aware of an Interlocal Agreement between the City and WSDOT.

SUMMARY AND RECOMMENDATIONS

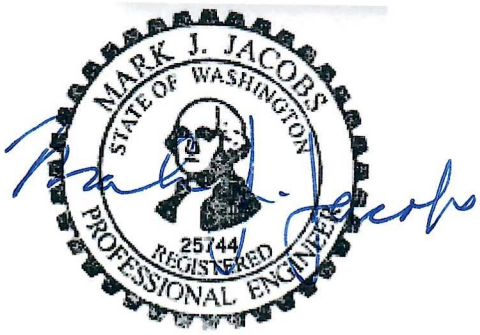
I have prepared this Transportation Memorandum – Update for the 23-lot residential plat (22-net new). The site is located at 6114 83rd Ave. NE, Marysville, WA 98270 on Snohomish County Parcel #'s 300526-004-037-00 and 300526-004-043-00. The project site is currently developed with one SFDU that will be removed from the site. The City was provided a Technical e-mail on 08.03.2023 for the project.

This Memorandum documents the Site Traffic Generation and Distribution, inspects the Site Access and ascertains the Traffic Impact Fee to Marysville. In addition, I have added documents regarding the City's Interlocal Agreement with Snohomish County. Per County Option B no payment of a TIF to the County should be required.

Based on my analysis I recommend that the project be allowed to move forward with the following transportation mitigation measures:

- Construct the site additions as noted on the Site Plans.
- Install a 'Stop" sign on 61st Pl. NE per appropriate standards on its approach to 83rd Avenue Northeast.
- Payment of the City TIF; a credit against this fee may be applicable for street improvements to 83rd Ave. NE an identified City street improvement project, per RCW 82.02.060

Please contact me at 206.762.1978 or email us at jaketraffic@comcast.net if you have any questions.



02.19.2024

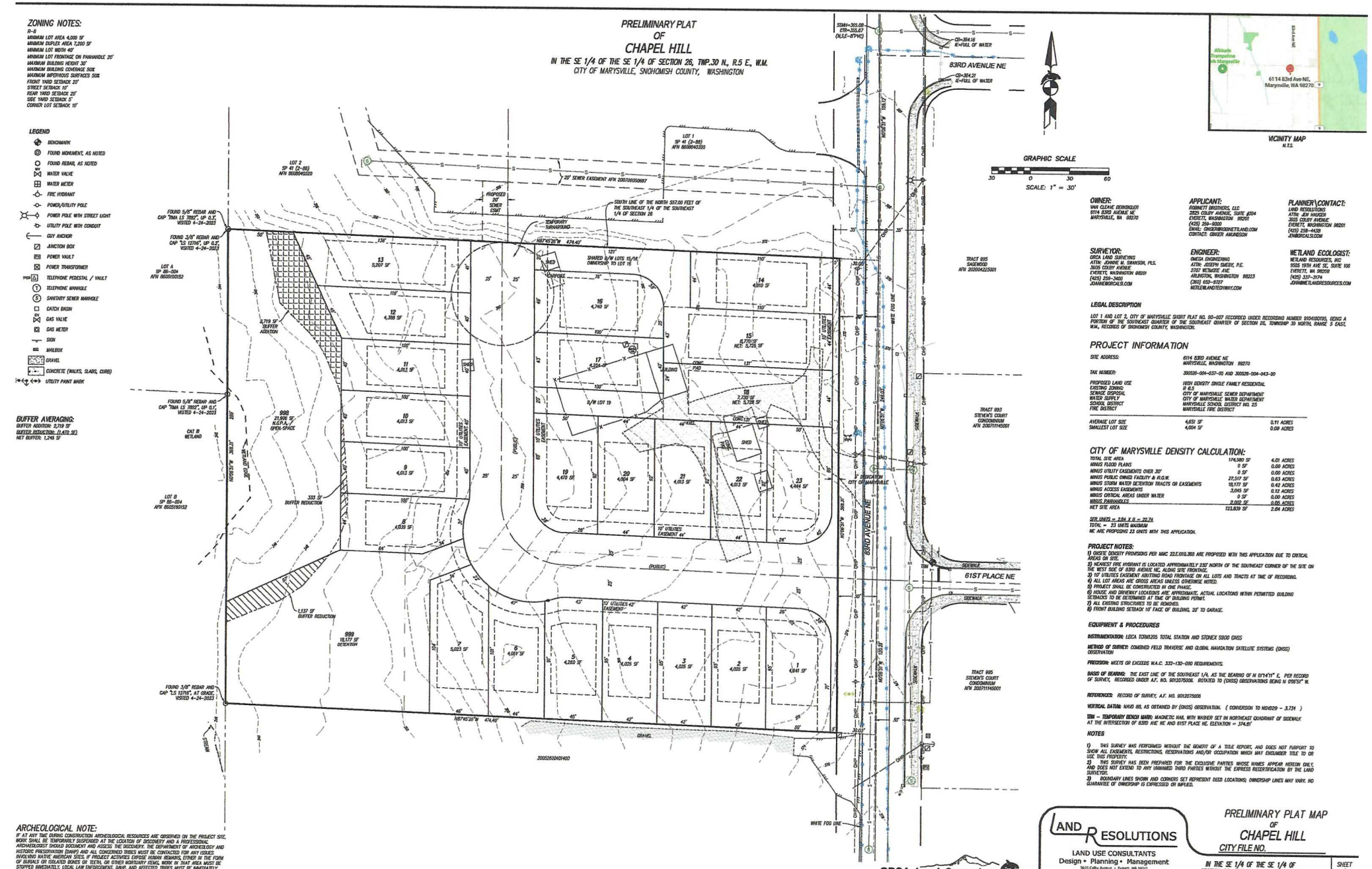
Very truly yours,

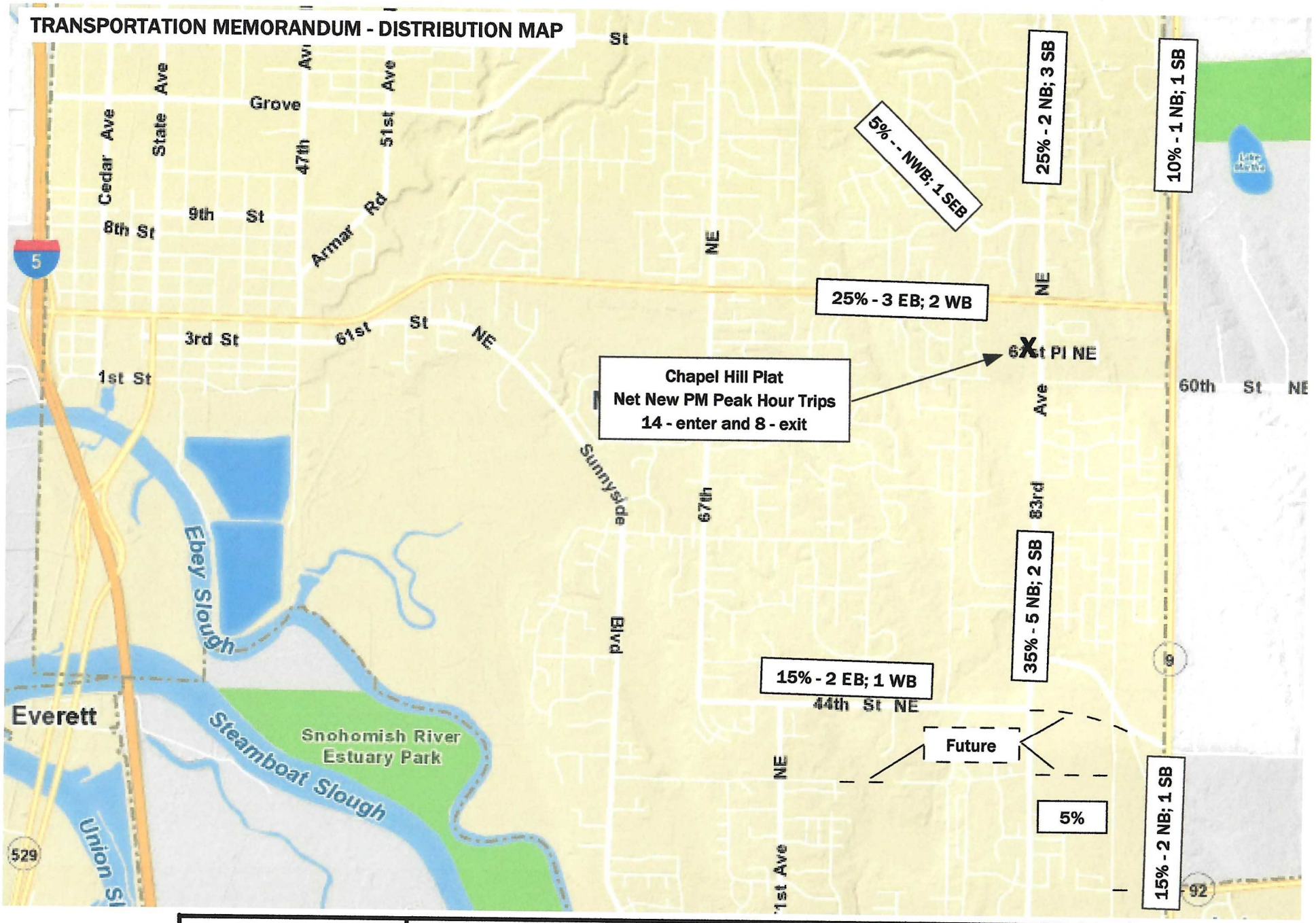
Mark J. Jacobs, PE, PTOE, President
JAKE TRAFFIC ENGINEERING, INC.

MJJ: mjj

PRELIMINARY PLAT OF CHAPEL HILL

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON


83RD AVENUE NE
61ST PLACE NE
LOT 1 SP 41 (2-86) AFN 8608040330
LOT 2 SP 41 (2-86) AFN 8608040330
LOT A SP 86-004 AFN 8605190152
LOT B SP 86-004 AFN 8605190152
TRACT 995 SAGEWOOD AFN 202004225001
TRACT 993 STEVEN'S COURT CONDOMINIUM AFN 200711145001
TRACT 995 STEVEN'S COURT CONDOMINIUM AFN 200711145001
DEDICATION CITY OF MARYSVILLE
SHARED R/W LOTS 15/16 OWNERSHIP TO LOT 16
SOUTH LINE OF THE NORTH 557.00 FEET OF THE SOUTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 26
20' SEWER EASEMENT AFN 200706050687
PROPOSED 20' SEWER ESMT
TEMPORARY TURNAROUND
FOUND 5/8" REBAR AND CAP "TMA LS 7892", UP 0.3', VISITED 4-24-2023
FOUND 3/8" REBAR AND CAP "LS 12716", UP 0.3', VISITED 4-24-2023
998 21,906 SF H.G.P.A. / OPEN-SPACE
999 18,177 SF DETENTION
2,719 SF BUFFER ADDITION
333 SF BUFFER REDUCTION
1,337 SF BUFFER REDUCTION
CAT III WETLAND
WETLAND
WETLAND FOG LINE
GRAVEL
SIDEWALK
CURB
GUTTER
CONC. PAD
SHED
10' UTILITIES EASEMENT 44'
10' UTILITIES 42' EASEMENT
15' UTILITIES EASEMENT 60'
(PUBLIC)
N87°45'28"W 474.40'
N01°51'19"E 358.37'
N01°51'19"E 358.37'
N01°51'19"E 105.83'
N01°51'19"E 358.37'
S01°51'19"W 358.37'
S01°51'19"W 358.37'
S01°51'19"W



JTE, Inc. FIGURE 1U Reprint in Color Only	CHAPEL HILL PLAT - MARYSVILLE TRANSPORTATION MEMORANDUM - UPDATE
	SITE GENERATED PM PEAK HOUR TRAFFIC VOLUME AND DISTRIBUTION (Existing & Future Street Grid)

APPENDIX

pertinent pages

EST. 1891
MARYSVILLE
WASHINGTON

COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue ◆ Marysville, WA 98270
(360) 363-8000

January 25, 2024

Jen Haugen
Land Resolutions
3605 Colby Ave
Everett, WA 98201

Re: Chapel Hill Subdivision – PA23-030 – Technical Review 1
6114 83rd Ave NE – APN(s) 30052600403700, 30052600404300

Dear Jen,

After preliminary review of the above referenced proposal, the following comment(s) are provided:

CITY OF MARYSVILLE COMMUNITY DEVELOPMENT – PLANNING

Emily Morgan, Senior Planner
360.363.8216 | emorgan@marysvillewa.gov

SUBDIVISION COMMENTS

1. Include File Number PA23-030 on all future correspondence, in addition to all site, civil and landscape plans.
2. Amend plans to show the top and toe of all proposed walls, including the stormwater detention facility.
3. On the plat map under "City of Marysville Density Calculation" access easements are deducted. Please identify where the access easement is located.
4. Per MMC 22G.090.670(5), interior lot lines should be composed of straight lines. The configuration proposed for Lot 15 would not meet this intent. Please revise lots to have Lot 14 include the panhandle with access to Lot 15 via a shared driveway/easement.
   4.1. The plat map notes that mention which lots are to access from said panhandles do not appear to be correct. Revise to clarify which lots are to access via the proposed panhandles.
   4.2. The plat maps also looks as if the handles are to be separate tracts for access. Please revise to remove the dashed lines or clarify if these are to be separate tracts.
5. Per MMC 22C.070.070, Lot 14, 15, and 18 must have proposed dwellings oriented towards 83rd Ave NE, which would include a pedestrian access.

LANDSCAPE PLAN COMMENTS

6. Significant trees, which include evergreen trees eight inches in diameter or greater and/or deciduous trees 12 inches in diameter or greater measured four and one-half feet above grade, shall be retained as follows:
   6.1. Perimeter landscaped areas that do not constitute a safety hazard shall be retained.

CITY OF MARYSVILLE PUBLIC WORKS – DEVELOPMENT SERVICES

Brad Zahnow, Development Services Technician
360.363.8205 | bzahnow@marysvillewa.gov

48. **Utility Capital Improvement Fees** - Capital utility fees are assessed in accordance with the attached rate sheet. The "City" rates will be applicable to this project.
49. **Recovery (Latecomer) Fees** - No recovery fees are applicable to this project.
50. **Utility Main Fees** - Main fees for an existing water main within 83rd Ave NE will be assessed at $10.00/ft. of frontage.
51. **ULID/LID Fees** - No ULID or LID fees are applicable to this project.

UTILITY CAPITAL IMPROVEMENT CHARGES 2023

RESIDENTIAL UNITS

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Residential DU*	Eff 1/1/06	$4,750/du	$5,490/du	$4,490/du	$4,890/du
Inspection		Plumb permit varies	Plumb permit	$100	$100
Admin/Filing Fee		$20	$20	$20	$20

*Dwelling unit includes single-family, multi-unit housing, apts, condos, manufactured homes and mobile homes. Main fees or latecomer fees may apply, depending on location.

Type of Connection		Water		Sewer	
		City	Outside City	City	Outside City
Hotel/Motel	Eff 1/1/06	$1,816/rm	$2,099/rm	$1,717/rm	$1,870/rm
RV Park Pads	Eff 1/1/06	$2,375/pad	$2,745/pad	$2,245/pad	$2,445/pad

SURFACE WATER / STORM DRAINAGE

Surface water capital fee – Eff 1/1/11	Residential - $95/du	Commercial - $95/3200sf of imp surface

METER SERVICES

Meter Size	Tapping Fee	Meter Drop Fee
5/8" x 3/4"	$1,050	$500
3/4" x 3/4"	$1,075	$525
1"	$1,200	$560
1.5"	$1,600	$750
2"	$1,900 min	$850
3", 4", 6", 8"	Time and Material - $3,500 min + $1K/inch	Included in tapping fee

Fire sprinkler systems may require a larger meter for adequate fire flow – consult your designer.

SNOHOMISH COUNTY – PUBLIC WORKS

Gurpreet Dhaliwal, Engineer III
425.388.3870 | gurpreet.dhaliwal@snoco.org

52. Snohomish County Public Works concurs with the distribution and the conclusion that this development will not impact any county capital improvement projects or county road with three or

76. There are wetlands on site. Please include any required utility work in the scope of all applicable land use/development/stormwater permits including for any planned over- or under- stream and wetland utility crossings.

77. The District policy requires the developer to provide a minimum 10-foot easement for underground electrical facilities that must be installed to serve the proposed development. In addition, the developer must maintain an 8-foot clearance between transformers and a 10-foot clearance between switch cabinets and any building/structures upon its property. Additional clearances may be required depending on the equipment in the area and accessibility of the equipment.

CITY OF MARYSVILLE PUBLIC WORKS – TRAFFIC DEPARTMENT

Jesse Hannahs, Traffic Engineering Manager
360.363.8287| jhannahs@marysvillewa.gov

78. Traffic impact fees will be required from the City and depending on trip generation/distribution, may be required from the County and State.

79. A Traffic Impact Analysis (TIA) will be required.

- Single family homes Trip Generation shall be 1 PM peak Hour trip per unit consistent with development of Traffic Impact Fee (TIF) calculations.
- Based upon aerial only, it appears that an existing single family home may be located upon property and would be removed.
- A credit of 1 PM peak Hour trip may be applied if confirmed.
- 22 or 23 PM Peak Hour trips shall be assumed for development depending on above comments regarding potential existing single family home.
- **Update to TIA; can be provided via an updated TIA or TIA addendum.** update conducted

80. **83rd Ave NE Frontage Improvements:** Lane transitions as proposed appear much too short and not per AASHTO standards for taper length/transition for a 35 mph roadway.

81. **Proposed Residential Roadways:** 50' ROW residential roadway cross-section with 28' of asphalt width shall be required per EDDS Standard Plan 3-202-002.

82. **ADA Curb Ramps:** Rotate side street ADA ramps across 61st PL NE approximately 5' around radius to provide ramps closer to 83rd Ave NE.

82.1. Stop bar and stop sign are dependent on curb ramp locations as they cannot be in front of curb ramps with less compliance for stop is sign/bar are too far from arterial.

83. Undergrounding of existing overhead utilities along frontage of 83rd Ave NE shall be required.

84. Per EDDS 3-506, street lighting will be required as part of civil construction plans.

- Proposed residential streets shall be designed as neighborhood collector/residential utilizing 100 watt equivalent LED fixtures.
- 83rd Ave NE shall be designed as minor arterial/residential utilizing 200 watt equivalent LED fixtures.
- Spacing of fixtures should be approximately 180'-220'.

- As part of civil construction approval process, proposed PUD street lighting locations will be provided by the City to the developer for submission to PUD and incorporation into the PUD site electrical plans.
- Contact Eddie Haugen of Snohomish County PUD at (425) 783-8276 or for more information regarding PUD design.

85. A Signing and Channelization plan shall be required as part of civil construction plans.

85.1. **Signing:** Any signs located upon development frontage will need to be identified and relocated as part of project.

- Signs within development:
- Stop sign upon EB approach of 61st PL NE to 83rd Ave NE.
- Dead End sign at entrance from 83rd Ave NE
- 25 mph speed limit sign 50'-100' after entrance from 83rd Ave NE
- Street Name signs at 90 degree corner of 61st PL NE and New N/S Street.
- No Parking In Cul-De-Sac sign at entrance to temporary cul-de-sac.
- No parking with arrow signs 10'-20' to each side of outside of 90 degree corner.
- Without these parking restrictions it has been found that Sanitation has consistent challenges picking up garage.
- Type IV Object Markers (2) with Future Roadway Connection sign at northern end of dead end street.

85.2. **Channelization:**

- Stop bar upon EB approach of 61st PL NE to 83rd Ave NE.
- 83rd Ave NE channelization shall not extend into the intersection beyond location of ADA curb ramps to cross 83rd Ave NE.
- 83rd Ave NE shall be channelized to the extent feasible for ultimate roadway cross-section of three lanes with bike lanes.

After you have had an opportunity to review, please let me know what technical review comments you need clarification on. Once received I can set up a conference meeting with all of the applicable city and agency representatives, if needed. If you have any questions, please do not hesitate to contact me at 360.363.8216, or by e-mail at emorgan@marysvillewa.gov.

Sincerely,

Emily Morgan

Emily Morgan
Senior Planner

From: Jesse Hannahs [mailto:jhannahs@marysvillewa.gov]
Sent: Thursday, August 03, 2023 9:04 AM
To: Mark J Jacobs, PE, PTO
Subject: RE: [External!]2023.039 - Chapel Hill - Traffic Memorandum - East Marysville Distribution Maps

Distribution for subject area with be compromise of two attached areas.

Jesse L. Hannahs, P.E.
Traffic Engineering Manager
80 Columbia Ave
jhannahs@marysvillewa.gov
360-363-8287

From: Mark J Jacobs, PE, PTO <JakeTraffic@comcast.net>
Sent: Thursday, August 3, 2023 8:51 AM
To: Jesse Hannahs <jhannahs@marysvillewa.gov>
Subject: [External!]2023.039 - Chapel Hill - Traffic Memorandum - East Marysville Distribution Maps

External Email Warning! Use caution before clicking links or opening attachments.

Jesse

Based on past City experience I am conducting a Traffic Memorandum to include:

- TG
- Distribution per City data
- Identify ILA data, aka Snohomish County if applicable
- Inspect the site access
- Ascertain the City TIF
- Prepare, sign and submit the Traffic Memorandum to the team for submittal to Marysville

Please provide me the City distribution maps for east Marysville.

Contact me with any questions.

Thank you

Mark

Mark J Jacobs, PE. PTOE
JAKE TRAFFIC ENGINEERING, INC
2614 39th Ave. SW
Seattle, WA 98116 – 2503
306.762.1978 o
206.799.5692 c

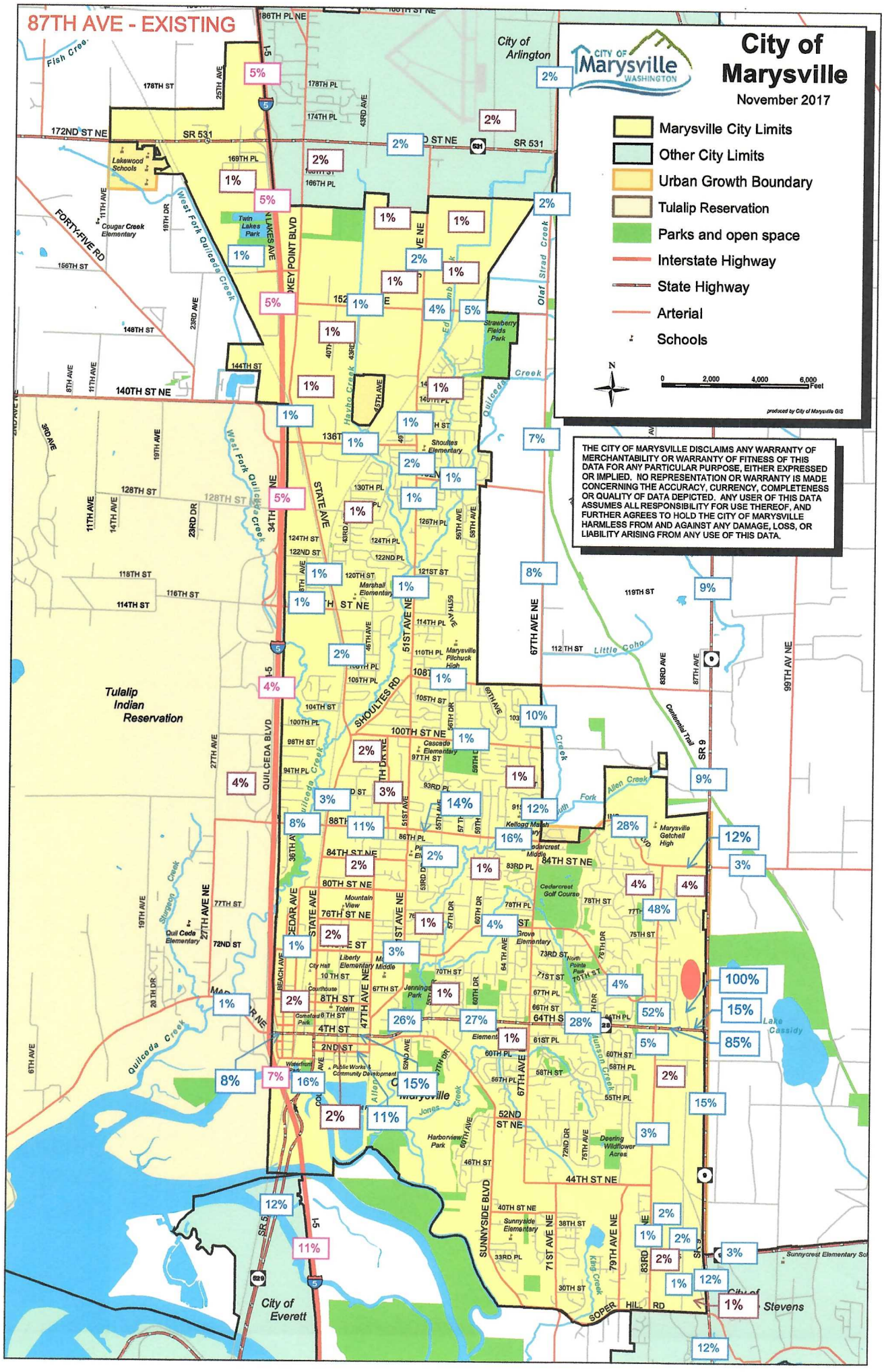
From: Jen Haugen [mailto:jen@orcalsi.com]
Sent: Wednesday, July 26, 2023 11:14 AM
To: Mark J Jacobs, PE, PTO
Cc: Ry McDuffy; Marty Robinett
Subject: RE: Marysville Plat - Chapel Hill

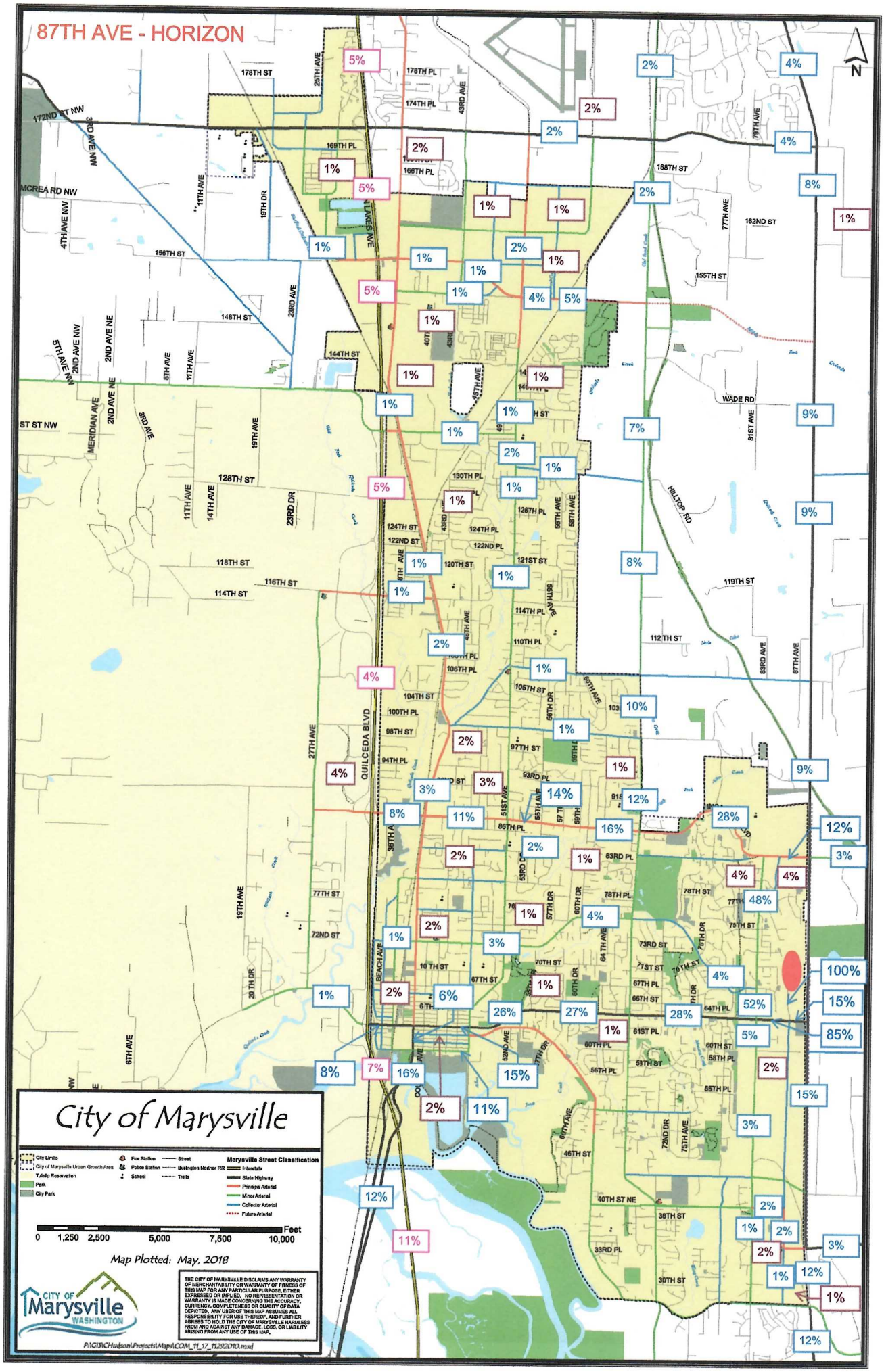
Thank you, Mark.

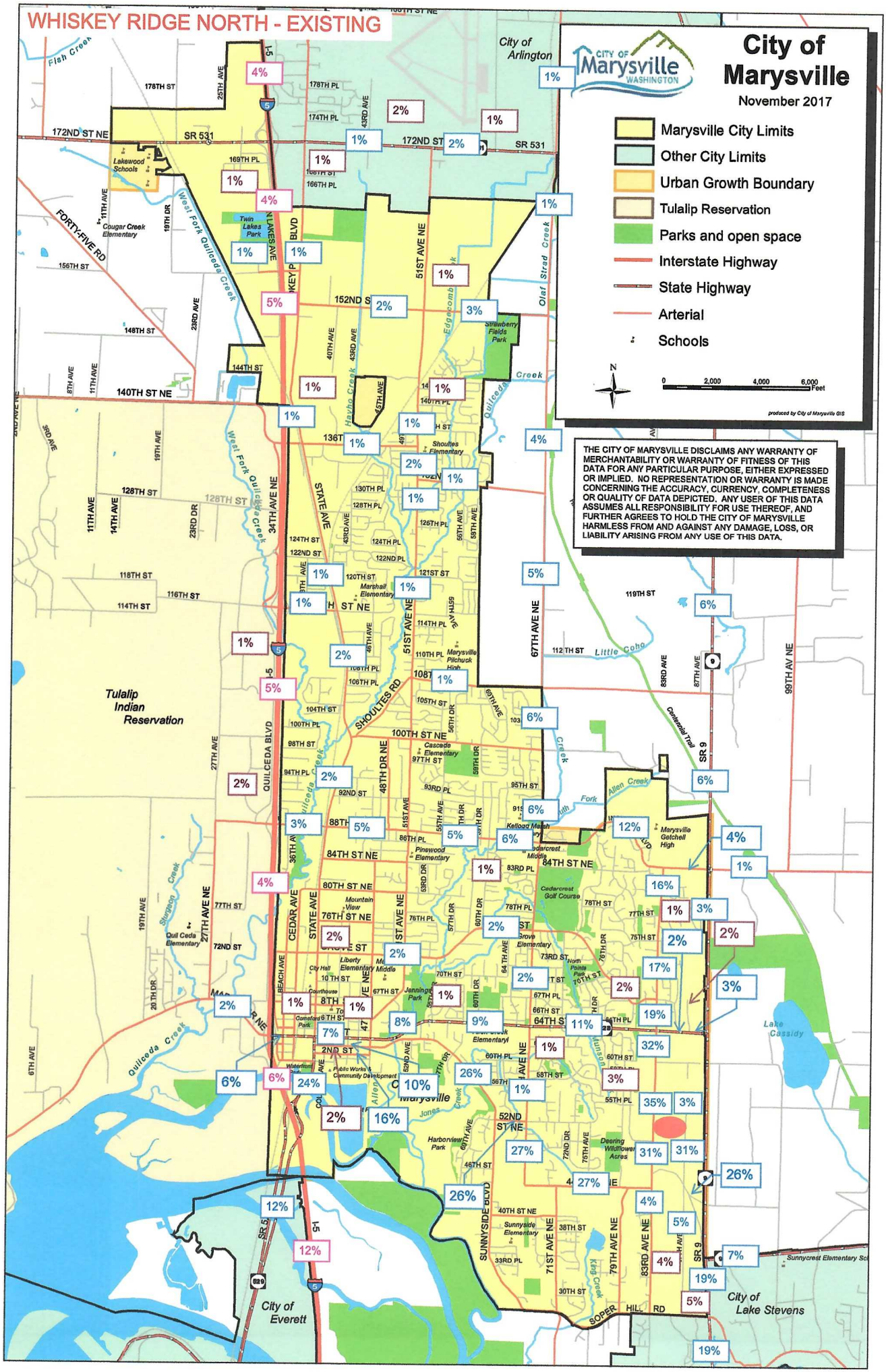
Chapel Hill - a 23 lot subdivision located in City of Marysville jurisdiction is attached. There is one existing home on site.

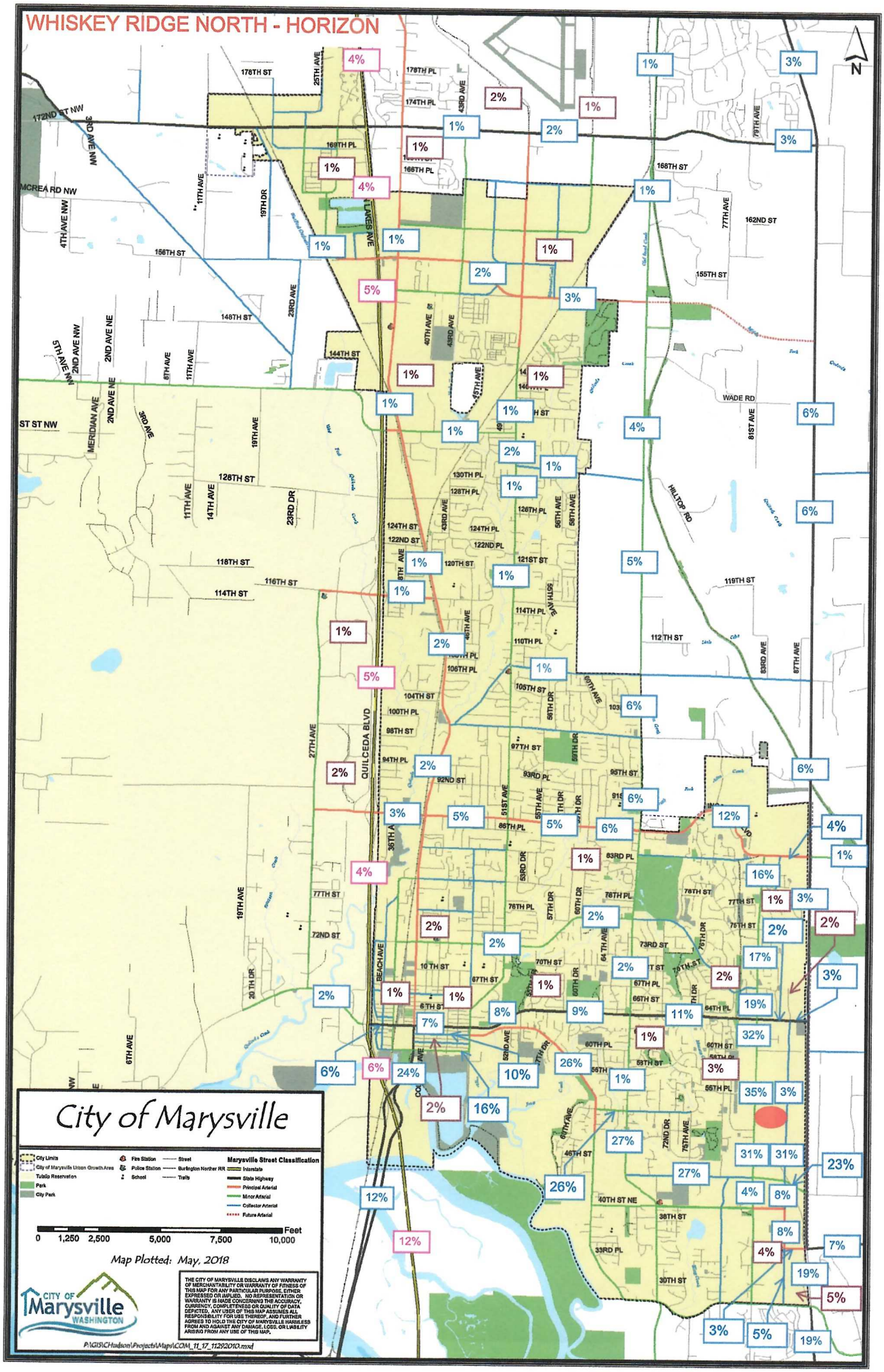
We appreciate you taking the time to bid on this one.

Jen Haugen | *Planner*
Land Resolutions
3605 Colby Avenue | Everett, WA 98201
425-258-4438 | jen@orcalsi.com


87TH AVE - EXISTING
City of Marysville
November 2017
Marysville City Limits
Other City Limits
Urban Growth Boundary
Tulalip Reservation
Parks and open space
Interstate Highway
State Highway
Arterial
Schools
0 2,000 4,000 6,000 Feet
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Tulalip Indian Reservation
City of Everett
City of Arlington
Stevens
Fish Creek
Quilceda Creek
West Fork Quilceda Creek
Olat Strad Creek
Allen Creek
Jones Creek
Sturgeon Creek
Lake Cassidy
Little Coho
Centennial Trail
I-5
SR 531
SR 9
SR 5
SR 529
STATE AVE
QUILCEDA BLVD
SHOULTES RD
SUNNYSIDE BLVD
SOPER HILL RD
FORTY-FIVE RD
172ND ST NE
140TH ST NE
100TH ST NE
84TH ST NE
67TH AVE NE
51ST AVE NE
47TH AVE NE
99TH AV NE
Lakewood Schools
Cougar Creek Elementary
Twin Lakes Park
Strawberry Fields Park
Shoultes Elementary
Marshall Elementary
Marysville Pilchuck High
Cascade Elementary
Kellogg Marsh
Cedarcrest Middle
Marysville Getchell High
Cedarcrest Golf Course
Grove Elementary
Liberty Elementary
Quil Ceda Elementary
Jennings Park
Harborview Park
Deering Wildflower Acres
Sunnyside Elementary
Sunnycrest Elementary
Mountain View
Totem
Comeford Park
Waterfront Park
Courthouse
City Hall
Public Works & Community Development
North Pointe Park


87TH AVE - HORIZON
N
City of Marysville
City Limits
City of Marysville Urban Growth Area
Tulalip Reservation
Park
City Park
Fire Station
Police Station
School
Street
Burlington Northern RR
Trails
Marysville Street Classification
Interstate
State Highway
Principal Arterial
Minor Arterial
Collector Arterial
Future Arterial
0 1,250 2,500 5,000 7,500 10,000 Feet
Map Plotted: May, 2018
CITY OF Marysville WASHINGTON
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WHISKEY RIDGE NORTH - EXISTING
City of Marysville
November 2017
Marysville City Limits
Other City Limits
Urban Growth Boundary
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Interstate Highway
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Shoultes Elementary
Strawberry Fields Park
Marshall Elementary
Marysville Pilchuck High
Cascade Elementary
Pinewood Elementary
Kellogg Marsh
Marysville Getchell High
Cedarcrest Middle
Cedarcrest Golf Course
Mountain View Elementary
Liberty Elementary
Quil Ceda Elementary
Jennings Park
Harborview Park
Deering Wildflower Acres
Sunnyside Elementary
Sunnycrest Elementary
Centennial Trail
SR 531
SR 9
SR 529
I-5
FORTY-FIVE RD
SOPER HILL RD
SUNNYSIDE BLVD
QUILCEDA BLVD
SHOULTES RD
STATE AVE
CEDAR AVE
172ND ST NE
152ND ST NE
140TH ST NE
128TH ST NE
100TH ST NE
84TH ST NE
80TH ST NE
76TH ST NE
64TH ST NE
52ND ST NE
51ST AVE NE
67TH AVE NE
99TH AV NE
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WHISKEY RIDGE NORTH - HORIZON
N
City of Marysville
City Limits
City of Marysville Urban Growth Area
Tulalip Reservation
Park
City Park
Fire Station
Police Station
School
Street
Burlington Northern RR
Trails
Marysville Street Classification
Interstate
State Highway
Principal Arterial
Minor Arterial
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Future Arterial
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Map Plotted: May, 2018
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Traffic Mitigation Offer to Snohomish County

The applicant completes part one and submits it to the City with a completed county traffic worksheet. The City completes part two and sends it to the County. The County completes part three and sends it back to the City.

Part One to be completed by Applicant

Basic Development Information

Name of City in which development is located	Marysville
Name of Proposed Development	Chapel Hill Plat
County Project File Number (if known)	
Name of Applicant	Robinett Brothers, LLC Marty Robinett
Address of Applicant	2835 Colby Ave; Suite #304 Everett, WA 98201

Proportionate Share Calculation: *Choose Option A or B*

☐ Option A: Based on a percentage of the County's adopted impact fee (attach traffic worksheet.)

1. The applicable percentage of the County's fee: _____%
2. Net New Average Daily Traffic: _____ ADT
3. The adopted County impact fee for this development: _____$/ADT
4. Total Proportionate Share Amount: $_____

☒ Option B: Based on a comprehensive traffic study (attach traffic worksheet and traffic study)

_____ No road improvements are impacted. Hence, proportionate share amount is zero ($0).

_____ The following road improvements are impacted. The calculation of proportionate shares is summarized below.

List by Names/Description the Impacted County Projects (attach other pages if necessary)	County Project ID#	PHTs Impacting Project	Capacity Cost per PHT	Proportionate Share Obligation per Impacted Project
1.				
2. NONE				
3.				
4. Total Proportionate Share Amount (sum of obligations for each impacted project)				$ 0.00

☒ **Trip Distribution and Assignment if required**

If required, attach AM and PM peak-hour trip distribution and assignment. Attach traffic worksheet showing whether or not AM and PM peak-hour trip distribution is required and include a traffic study.

☒ **Mitigation of Other Impacts if required**

Mitigation of Impacts on Level of Service

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

Mitigation of Impacts on Inadequate Road Conditions

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

Mitigation for Impacts on Access or Circulation

__X__ No impact or not applicable _____ Mitigation as described in attached traffic study.

☒ **Written Offer**

The Applicant hereby voluntarily agrees to pay the total proportionate share amount shown above for impacts of the proposed development on the capacity of Snohomish County roads and provide mitigation of all other impacts as indicated above and described in attached documents.

BY: _____ Date: _____

Signature by Authorized Official of Applicant or Authorized Representative

Print Name and Title _____

Instructions to Applicant. Submit this Offer, a completed county traffic worksheet, and any other attachments to the City with your initial application.

Part Two: To be completed by the City

Receipt of Written Offer and attachments by City and routing to County

Name of Proposed Development

City Project File Number

Date Received

City Staffer Assigned to Project

Address

Phone

Instructions to City. Send this offer and all attachments to Contact.pwCMS@snoco.org

Received by:

_____ Date: _____ _____

Initialed by City Staffer Print Name and Title

Part Three: To be completed by City

Receipt of Offer and attachments by Snohomish County and routing back to City

Name of Proposed Development

City Project File Number

Received by:

_____ Date: _____ _____

Initialed by County Staffer Print Name and Title

City Mitigation Request to County

The City of _____ has reviewed the traffic study worksheet and mitigation offer submitted by the applicant and has determined as follows:

☐ The City requests that the County impose the mitigation offered above as a condition of approval for the Development. The City agrees to accept changes in the mitigation payment amount shown above resulting from TDM or lot-yield adjustments approved by the County.

☐ The City requests that the County require additional supplemental information to adequately evaluate the proposed development's impacts.

☐ The information requested is shown in the notes below.

By:

_____ Date: _____ _____

Signature by Authorized City Staffer Print Name and Title

Routing Back to City

Instructions to County Send this offer and all attachments to the City Staffer shown in Part Two above.

Sent by:

_____ Date: _____ _____

Initialed by City Staffer Print Name and Title

Notes

Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Marysville

Snohomish County government, through an interlocal agreement (ILA) with the City of Marysville, may request traffic mitigation measures from any new development in the city that impacts roads in the unincorporated county. The City will impose the requested mitigation to the extent that the City determines that the mitigation is reasonably related to the impacts of the development. To determine the impacts, and to determine reasonable mitigation measures, the City of Marysville requires a traffic study from any development in the city that may have impacts on county roads. This 'traffic study' may be as simple as completing sections one and two of the county traffic worksheet below, or having a professional traffic engineer conduct a formal traffic study consistent with the requirements in section three below.

- If a development generates less than ten peak-hour trips and the applicant chooses Option A for mitigation payment (standard payment by percent of county impact fee), then the applicant will generally only have to fill out the first two sections of this traffic worksheet and complete a mitigation offer (see section four).
- However, if a development generates more than ten peak-hour trips, or if the applicant chooses Option B for mitigation payment (comprehensive impact analysis), then the applicant will have to fill out the first section of this worksheet, complete a separate traffic study consistent with the requirements in section three, and complete a mitigation offer (see Section Four).
- Applicants should submit all documents *to the City* as part of their initial submittal.
- Traffic study requirements for impacts on county roads are based on the County's traffic mitigation ordinance (Chapter 30.66B) and the city/county ILA. At the end of this document find references to the county contacts and county web site (sources for may of the documents related to traffic mitigation).
- Following review of the documents submitted, the County may request supplemental information and analysis as necessary to determine the impacts of the development in accordance with the city/county ILA. The City will require the proposed development to submit the supplemental information and analysis to the extent that the City determines that it is necessary to determine the impacts of the development.

Section One (1) Worksheet General Information

1. Name of Proposed Development _____

   City Development File Number (if known)_____

2. Name, Address and Phone Number of Applicant_____

   _____

   _____

3. Development Site Address_____

   _____

4. Is it a residential or commercial development?_____

5. Description of Development (size and specific type)_____

   _____

6. How many new vehicle trips are expected to be generated by the proposed development? (For many common types of developments this information can be provided by the city or the county. For more complex developments trip generation may have to be determined under section three below)

   _____ AM Peak Hour_____ PM Peak Hour_____ Average Daily Trips (ADT)

7. Proportionate Share Impact Mitigation: All applicants have two options in determining the amount of their traffic mitigation payment:

   _____ For determining the amount based on a percentage of the county fee go to section two.

   _____ For determining the amount based on a comprehensive traffic study go to section three.

Section Two (2) Proportionate Share Determined by Percentage of County Impact Fee

2(a) Calculation of Payment Amount

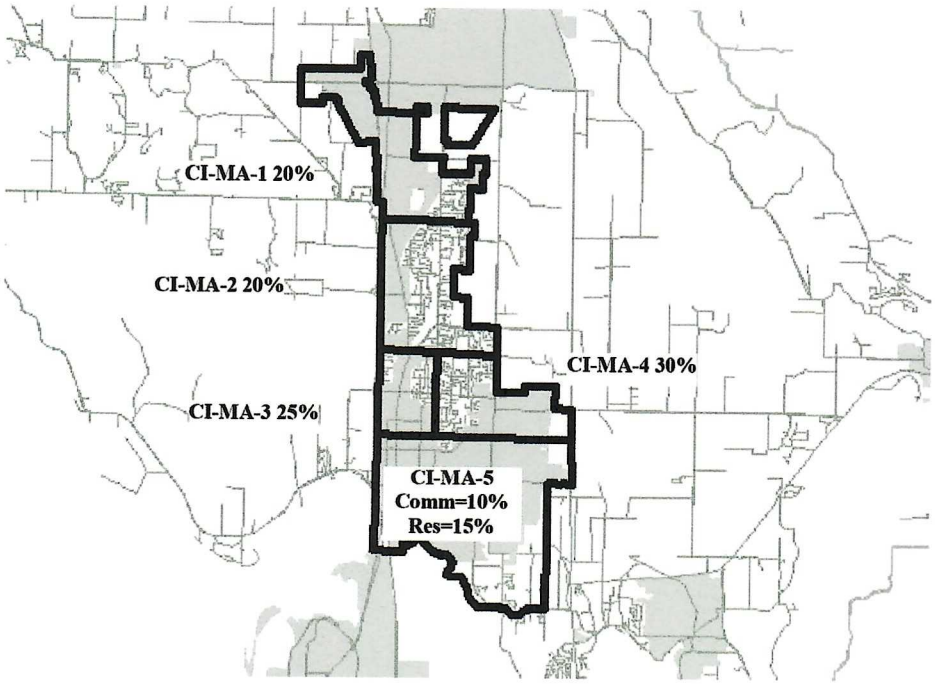
1. Standard default estimated percentage of trips impacting the City streets based on subareas (See below) _____%

or

2. Other Percentage: (Note: See author's qualifications in section three below.) Estimated percentage of trips impacting county roads from attached trip distribution: _____%

Sub-Area ID #	* City Subarea Description	Residential Developments	Commercial Developments
CI-MA-1	North of 136th ST SE.	20%	20%
CI-MA-2	North of 100th ST NE and South of 136th ST SE.	20%	20%
CI-MA-3	North of 76th ST NE, South of 100th ST SE, and West of 51st AV NE.	25%	25%
CI-MA-4	North of 76th ST NE, South of 100th ST SE, and East of 51st AV NE.	30%	30%
CI-MA-5	South of 76th ST NE.	15%	10%

* Note: Boundaries are either street centerlines or imaginary extensions of street centerlines in places where the actual streets do not exist.



3. Development New Average Daily Trip Generation (ADT)_____

4. Type of Development (Residential or Commercial)_____

5. County Commercial Fee Rate $_____ 6. County Residential Fee Rate $_____

(Note: Consistent with county code and the ILA, developments pay the rate in effect at the time of their submittal. As of 07/13/11 the rates were $39 for commercial developments and $46 for residential developments. Through ordinance, the County Council can change these rates at any time, so consult with the County or look at Snohomish County Code 30.66B.330 to find the latest fee rates.)

7. Calculation of Proportionate Share Impact Mitigation

_____	×	_____	×	_____	=	$_____
#1 or #2 above: % of trips		#3 above: ADT		#5 or #6 above: Fee Rate		proportionate share mitigating payment

2(b) Determining whether or not an additional traffic study is necessary

Will the development generate more than 10 peak-hour trips *or* are there other impacts that need to be addressed (e.g., level of service, safety, or access and circulation)

_____ No. Skip section three and go to section four.

_____ Yes. Read the introduction to section three and skip to section 3(b).

Section Three (3) Traffic Study Requirements

Introduction: This section outlines requirements for traffic studies for impacts on County roads. If an applicant chooses (or is required) to complete a traffic study, then it should be submitted along with this worksheet and a mitigation offer. (Note on Author's Qualifications: A traffic study under this section must be conducted by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and, preferably, membership in the institute of transportation engineers. For individuals/firms not on the City's approved list, the developer will provide, with the traffic study, the credentials of the individual or firm performing the traffic study certifying compliance with these qualifications.)

3(a) Proportionate share impact mitigation based on comprehensive traffic study

1. Development's Trip Generation and Distribution. Determine the PM peak-hour trip generation and distribution for the development consistent with Section 3(b) below.
2. Impacted Improvements. Determine which of the road sections with planned improvements in the county's impact fee cost basis (Transportation Needs Report Appendix D) are impacted by three or more development-generated *directional* PM peak hour trips (PM PHT).
3. Current Counts. For each impacted improvement, provide current traffic counts to determine the PM PHT.
4. Reserve Capacity. Determine "reserve capacity" for each impacted improvement by subtracting the current PM PHT from the maximum service volume (MSV) for the existing facility. Reserve capacity is set to zero if current PM PHT exceeds the MSV. For MSVs see County DPW Rule 4224.
5. New Capacity. New capacity is the incremental increase in PHT that could be accommodated with the planned improvement. Determine the new capacity of each impacted improvement by subtracting the current MSV from the future MSV after the improvement.
6. Chargeable Capacity. For each impacted improvement, add the reserve capacity to the new capacity.
7. Final Adjusted Cost. Find the cost of each impacted improvement and make any adjustments used by the County for tax credits (see Transportation Needs Report Appendix D).
8. Capacity Cost per Peak-Hour Trip. For each impacted improvement, determine the capacity cost per PM PHT by dividing the final adjusted improvement cost by the chargeable capacity.
9. Traffic Impacts. From step one above, take the *total* number of PM PHT (in both directions) impacting each planned improvement.
10. Proportionate Share. For each impacted improvement, determine the proportionate share impact mitigation by multiplying the capacity cost per peak-hour trip by the number of PM PHT impacting the improvement.

3(b) Trip Generation and AM and PM Peak Hour Trip Distribution and Assignment

Calculate AM, PM and Daily trip generation consistent with the ITE Trip Generation Handbook and Snohomish County Public Works Rule 4220. Determine the trip distribution and assignments consistent with the County's document titled "Format for Trip Distributions"(available at County web site, see below).

- Within the developments transportation service area (TSA) the distributions will be carried out to each key intersection at which the approach or departure volumes on any leg have three (3) or more peak hour trips. Get the most current list of key intersections on the web site described below. Trips should be distributed onto the road system as it is expected to be in six years.
- The distribution should be a schematic map showing the broad distributions of trips in terms of percentages on different roads. Show all City boundaries.
- The assignment should be a schematic map with the impacted key intersections identified by ID# and turning movements for each shown in separate diagrams on the same page or on different pages. The assignment should also be presented in tabular form listing each intersection by intersection ID#, and the number of trips at each movement.

3(c) Additional Analysis for Developments Generating More Than Fifty (50) Peak Hour Trips

For large developments (i.e., those generating more than 50 peak-hour trips), the County may request mitigation for impacts on the level of service of County roads, documented safety locations (the County calls such locations "inadequate road conditions" or "IRCs"), and access or circulation. The traffic study requirements below are intended to disclose impacts. Based on this information the County may request through the City that the applicant provide additional information showing possible mitigation measures. If any off-site improvements were needed for mitigation the County would work with the applicant to determine requirements for right-of-way, construction plans, right-of-way use permits, construction/maintenance bonds, and other issues.

Impacts on Level of Service (LOS) of County Arterials

Contact Snohomish County Public Works for the most current list of arterial units in arrears and critical arterial units. Identify any arterial units in arrears or critical arterial units impacted by three or more directional peak-hour trips.

Impacts on Inadequate Road Conditions

Contact Snohomish County Public Works for a list of the current IRCs. Identify any IRCs impacted by three or more peak-hour trips. Note: Unlike LOS impacts in which at least three or more peak hour trips have to be added in one direction to require disclosure (e.g., 3 westbound), for IRCs, any three peak hour trips added to IRC locations are considered an impact for which disclosure is necessary (e.g., 2 westbound plus 1 eastbound).

Impacts on Access or Circulation

The County may request improvements to existing roads to provide safe and efficient access and/or circulation. In some instances, the County may request provisions for future County roads identified in the Comprehensive Plan or in Small Area Transportation Studies. If so, the County will request specific additional information through the City.

Section Four (4) Traffic Mitigation Offer to Snohomish County

The applicant should complete a traffic mitigation offer to Snohomish County that summarizes the mitigation identified in the county traffic worksheet and any additional traffic study. This will facilitate timely review of the development and processing of the application. The form to use for the mitigation offer is titled "Traffic Mitigation Offer to Snohomish County." This form is typically provided to all applicants along with this traffic study checklist. In addition, copies are available from the county contacts or the Snohomish County web site shown below.

Additional Information

County Web Site

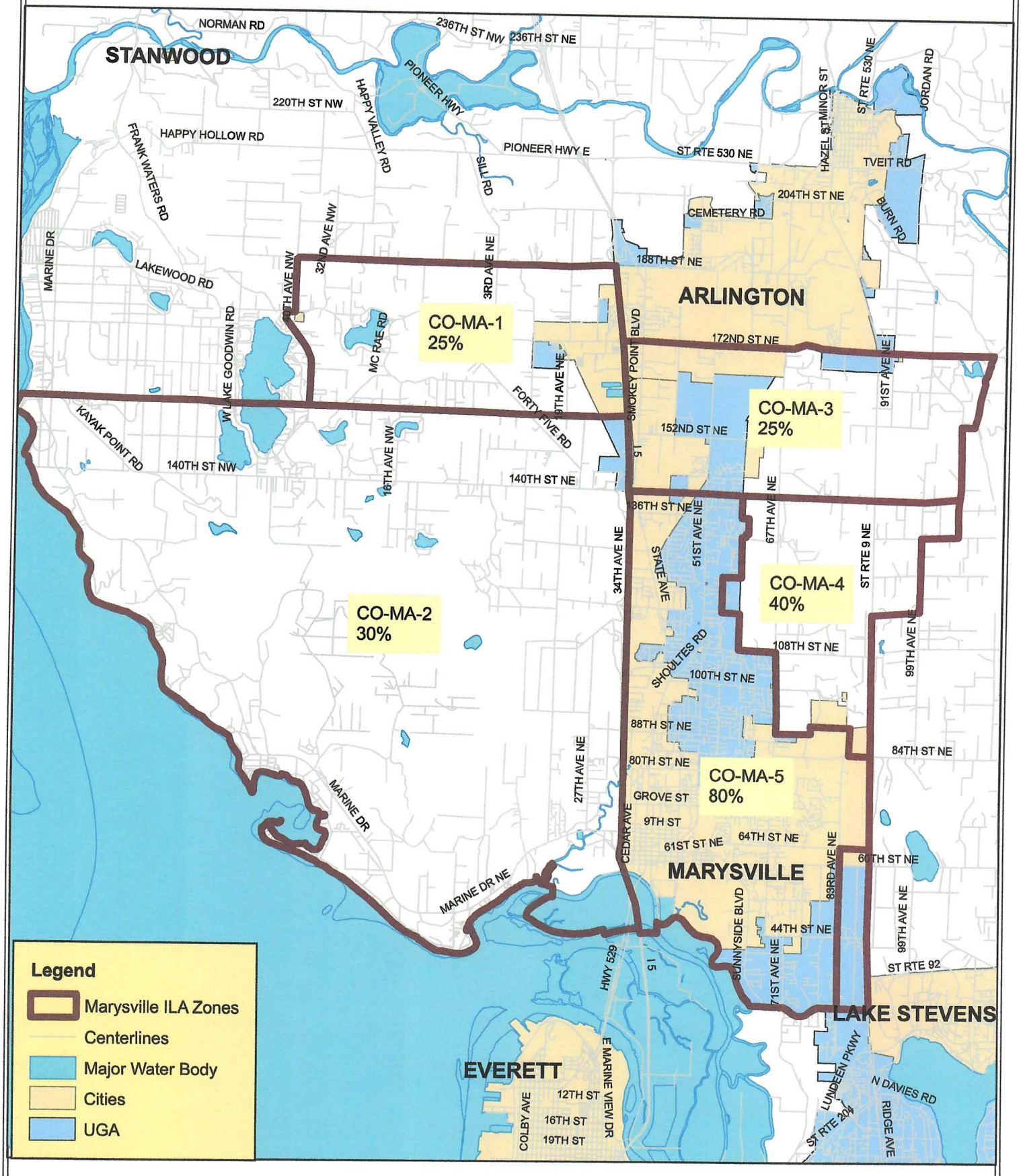
Snohomish County Public Works has a web site with many documents related to traffic studies and mitigation requirements for developers. From the Snohomish County Home Page go to:

Departments/Public Works/Divisions/TES/ProgramPlanning/3066B

County Contacts

- Elbert Esparza, Snohomish County DPW Traffic, 3000 Rockefeller M/S 607, Everett WA 98201, (425) 388-3184, elbert.esparza@snoco.org

Marysville ILA Zone Map



COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue ◆ Marysville, WA 98270
(360) 363-8000

May 10, 2024

Jen Haugen
Land Resolutions
3605 Colby Ave
Everett, WA 98201

Re: Chapel Hill Subdivision – PA23-030 – Technical Review 2
6114 83rd Ave NE – APN(s) 30052600403700, 30052600404300

Dear Jen,

After preliminary review of the above referenced proposal, the following comment(s) are provided:

SUBDIVISION COMMENTS

1. Per MMC 22G.090.670(5), lots should be composed of straight lines. Please either put the access easement for Lots 14 and 15 into an access easement tract or have the access be a panhandle for Lot 14. The zig-zagging lot arrangement currently proposed is not a desired configuration.

CRITICAL AREA REVIEW

2. In reviewing the updated Critical Area Report, it is noted that a Wetland Variance for the stormwater dispersion trench is proposed. Variances require a review fee of $1,034.

   Please follow the following steps to submit the Variance review fee:

APPLICANT OR PROPERTY OWNERS

1. Visit https://permits.marysvillewa.gov/
2. At the top of the page select SET UP ACCOUNT
3. Once you have created an account and logged in, click on DASHBOARD in the top ribbon
4. Once on your dashboard click on LINK TO PROJECT
5. Enter the project # referenced above and hit enter.
6. Your permit will now show up under Active Permits on the Dashboard.

After you have had an opportunity to review, please let me know what technical review comments you need clarification on. Once received I can set up a conference meeting with all of the applicable city and agency representatives, if needed. If you have any questions, please do not hesitate to contact me at 360.363.8216, or by e-mail at emorgan@marysvillewa.gov.

Sincerely,

Emily Morgan

Emily Morgan
Senior Planner

From: Gresham, Doug (ECY)
To: Emily Morgan
Subject: [External!] PA23-030 - Chapel Hill Subdivision
Date: Friday, May 10, 2024 8:51:14 AM
Attachments: image001.png

You don't often get email from dgre461@ecy.wa.gov. Learn why this is important

[CAUTION:] This email originated from outside the City of Marysville. **Do not click links or open attachments** unless you recognize the sender and know the content is safe. Contact helpdesk if you have any concerns or questions.

Emily,

I reviewed the critical area report for the Chapel Hill subdivision project. Although I don't like having a stormwater dispersion trench within 14' of the wetland, all of the buffer enhancement and additional buffer area will protect the wetland better than current conditions. So I view this as an acceptable trade off.

Doug Gresham, Wetland Specialist (he/him)
Washington State Department of Ecology
PO Box 330316
Shoreline, WA 98133-9716
Cell: (425) 429-1846
Email: Doug.Gresham@ecy.wa.gov



MARYSVILLE
PUBLIC WORKS

MEMORANDUM

TO: Emily Morgan, Senior Planner

FROM: Kim Bryant, Water Operations Supervisor
Tim King, Utility Construction Lead II
Ryan Keefe, Water Operations Lead II

DATE: April 25th, 2024

SUBJECT: Chapel Hill Subdivision, PA23-030

Public Works Operations has reviewed the Chapel Hill Subdivision submittal and has the following comments:

1. No comment.

If the applicant has any questions about these comments, I can be contacted at (360) 363-8163 or kbryant@marysvillewa.gov.

(360) 363-8100

Public Works
80 Columbia Avenue
Marysville, WA 98270

MEMORANDUM

TO: Emily Morgan - Senior Planner

FROM: Jesse Hannahs, P.E. – Traffic Engineering Manager

DATE: April 26, 2024

SUBJECT: PA 23-030 – Chapel Hill Subdivision

I have reviewed the Site Plan for the proposed Chapel Hill Subdivision at 6114 83rd Ave NE and have the following comments:

1) Traffic impact fees will be required from the City and depending on trip generation/distribution, may be required from the County and State.
2) A Traffic Impact Analysis (TIA) will be required.
    i. TIA is acceptable.
3) 83rd Ave NE Frontage Improvements:
    a. Lane transitions as proposed appear much too short and not per AASHTO standards for taper length/transition for a 35 mph roadway.
4) Proposed Residential Roadways:
    a. 50' ROW residential roadway cross-section with 28' of asphalt width shall be required per EDDS Standard Plan 3-202-002.
5) ADA Curb Ramps:
    a. Rotate side street ADA ramps across 61st PL NE approximately 5'-10' around radius to provide ramps closer to 83rd Ave NE.
        i. Stop bar and stop sign are dependent on curb ramp locations as they cannot be in front of curb ramps with less compliance for stopping for pedestrians. Sign/bar are too far from arterial.
6) Undergrounding of existing overhead utilities along frontage of 83rd Ave NE shall be required.
7) Per EDDS 3-506, street lighting will be required as part of civil construction plans.
    a. Proposed residential streets shall be designed as neighborhood collector/residential utilizing 100 watt equivalent LED fixtures.
    b. 83rd Ave NE shall be designed as minor arterial/residential utilizing 200 watt equivalent LED fixtures.
    c. Spacing of fixtures should be approximately 180'-220'.
    d. As part of civil construction approval process, proposed PUD street lighting locations will be provided by the City to the developer for submission to PUD and incorporation into the PUD site electrical plans.
        i. 83rd Ave NE street light locations:
            1. Near Northern Property line.
                a. Existing street lights upon existing PUD poles near STA 2+50 and STA 4+50 may suffice for street lighting.

MARYSVILLE
PUBLIC WORKS

(360) 363-8100

Public Works
80 Columbia Avenue
Marysville, WA 98270

ii. 61st PL NE:
    1. STA 14+75
    2. STA 12+75
    3. STA 11+50

e. Contact Eddie Haugen of Snohomish County PUD at (425) 783-8276 or for more information regarding PUD design.

8) A Signing and Channelization plan shall be required as part of civil construction plans.

a. Signing:
    i. Any signs located upon development frontage will need to be identified and relocated as part of project.
    ii. Signs within development:
        1. Stop sign upon EB approach of 61st PL NE to 83rd Ave NE.
        2. Dead End sign at entrance from 83rd Ave NE
        3. 25 mph speed limit sign 50'-100' after entrance from 83rd Ave NE
        4. Street Name signs at 90 degree corner of 61st PL NE and New N/S Street.
        5. No Parking In Cul-De-Sac sign at entrance to temporary cul-de-sac.
        6. No parking with arrow signs 10'-20' to each side of outside of 90 degree corner.
            a. Without these parking restrictions it has been found that Sanitation has consistent challenges picking up garage.
        7. Type IV Object Markers (2) with Future Roadway Connection sign at northern end of dead end street.

b. Channelization:
    i. Stop bar upon EB approach of 61st PL NE to 83rd Ave NE.
    ii. 83rd Ave NE channelization shall not extend into the intersection beyond location of ADA curb ramps to cross 83rd Ave NE.
    iii. 83rd Ave NE shall be channelized to the extent feasible for ultimate roadway cross-section of three lanes with bike lanes.

PRELIMINARY PLAT OF CHAPEL HILL

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

ZONING NOTES:

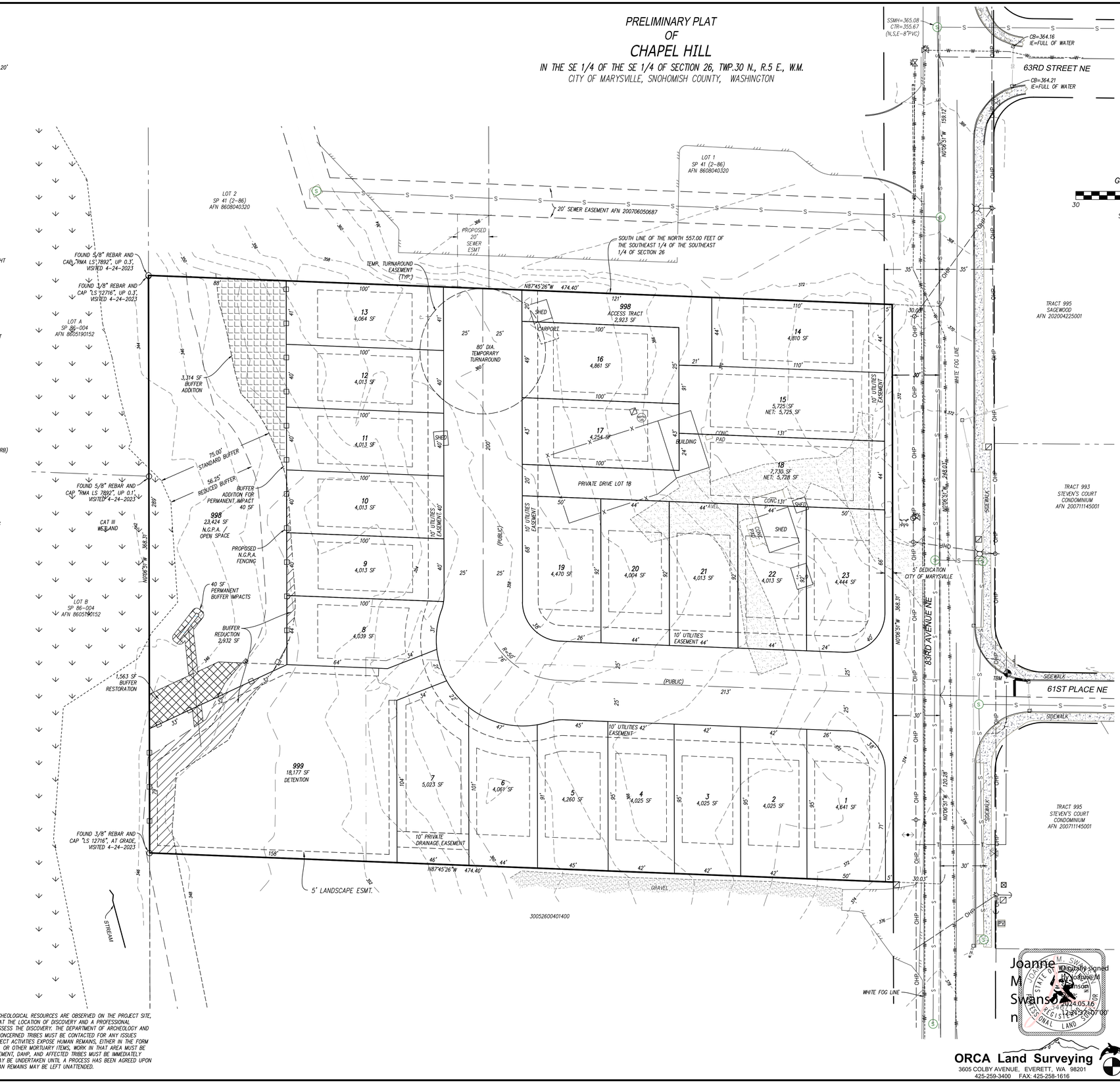
R-8
MINIMUM LOT AREA 4,000 SF
MINIMUM DUPLEX AREA 7,200 SF
MINIMUM LOT WIDTH 40'
MINIMUM LOT FRONTAGE ON PANHANDLE 20'
MAXIMUM BUILDING HEIGHT 30'
MAXIMUM BUILDING COVERAGE 50%
MAXIMUM IMPERVIOUS SURFACES 50%
FRONT YARD SETBACK 20'
STREET SETBACK 10'
REAR YARD SETBACK 20'
SIDE YARD SETBACK 5'
CORNER LOT SETBACK 10'

LEGEND

- BENCHMARK
- FOUND MONUMENT, AS NOTED
- FOUND REBAR, AS NOTED
- WV WATER VALVE
- WATER METER
- FIRE HYDRANT
- POWER/UTILITY POLE
- POWER POLE WITH STREET LIGHT
- UTILITY POLE WITH CONDUIT
- GUY ANCHOR
- JUNCTION BOX
- PV POWER VAULT
- POWER TRANSFORMER
- TPED TELEPHONE PEDESTAL / VAULT
- TELEPHONE MANHOLE
- S SANITARY SEWER MANHOLE
- CATCH BASIN
- GV GAS VALVE
- GAS METER
- SIGN
- MAILBOX
- GRAVEL
- CONCRETE (WALKS, SLABS, CURB)
- UTILITY PAINT MARK

BUFFER AVERAGING:

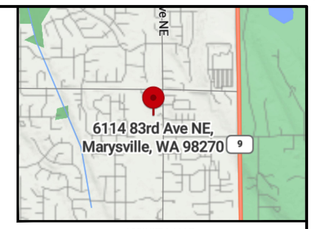
SEE CRITICAL AREA STUDY PREPARED BY WETLAND RESOURCES FOR BUFFER AVERAGING AND MITIGATION MEASURES.



GRAPHIC SCALE

30 0 30 60

SCALE: 1" = 30'



VICINITY MAP
N.T.S.

OWNER/APPLICANT:
ROBINETT INVESTMENT COMPANY
2825 COLBY AVENUE, SUITE #304
EVERETT, WASHINGTON 98201
(425) 259-9000
EMAIL: GINGER@ROBINETTLAND.COM
CONTACT: GINGER AMUNDSON

PLANNER\CONTACT:
LAND RESOLUTIONS
ATTN: JEN HAUGEN
3605 COLBY AVENUE
EVERETT, WASHINGTON 98201
(425) 258-4438
JEN@ORCALANDSURVEYING.COM

SURVEYOR:
ORCA LAND SURVEYING
ATTN: JOANNE M. SWANSON, PLS.
3605 COLBY AVENUE
EVERETT, WASHINGTON 98201
(425) 259-3400
JOANNE@ORCALANDSURVEYING.COM

LANDSCAPE ARCHITECT:
PAUL JAY LANDSCAPE ARCHITECT
ATTN: PAUL JAY
1115 BRIDGE ROAD
EASTHAM, MASSECHUSETS 02642
(360) 659-8159
PAULJAYLA@GMAIL.COM

ENGINEER:
OMEGA ENGINEERING
ATTN: JOSEPH SMEBY, P.E.
2707 WETMORE AVE
EVERETT, WASHINGTON 98201
(425) 903-48452
JOE@OMEGA-ENG.COM

WETLAND ECOLOGIST:
WETLAND RESOURCES, INC
ATTN: JOHN LAUTENBERG
9505 19TH AVE SE, SUITE 106
EVERETT, WA 98208
(425) 337-3174
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOT 1 AND LOT 2, CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

PROJECT INFORMATION

SITE ADDRESS:	6114 83RD AVENUE NE MARYSVILLE, WASHINGTON 98270	
TAX NUMBER:	300526-004-037-00 AND 300526-004-043-00	
PROPOSED LAND USE	HIGH DENSITY SINGLE FAMILY RESIDENTIAL	
EXISTING ZONING:	R 6.5	
SEWAGE DISPOSAL	CITY OF MARYSVILLE SEWER DEPARTMENT	
WATER SUPPLY	CITY OF MARYSVILLE WATER DEPARTMENT	
SCHOOL DISTRICT	MARYSVILLE SCHOOL DISTRICT NO. 25	
FIRE DISTRICT	MARYSVILLE FIRE DISTRICT	
AVERAGE LOT SIZE	4,651 SF	0.11 ACRES
SMALLEST LOT SIZE	4,004 SF	0.09 ACRES

CITY OF MARYSVILLE DENSITY CALCULATION:

TOTAL SITE AREA	174,580 SF	4.01 ACRES
MINUS FLOOD PLAINS	0 SF	0.00 ACRES
MINUS UTILITY EASEMENTS OVER 30'	0 SF	0.00 ACRES
MINUS PUBLIC OWNED FACILITY & R.O.W.	27,517 SF	0.63 ACRES
MINUS STORM WATER DETENTION TRACTS OR EASEMENTS	18,177 SF	0.42 ACRES
MINUS ACCESS EASEMENTS	2,923 SF	0.07 ACRES
MINUS CRITICAL AREAS UNDER WATER	0 SF	0.00 ACRES
MINUS PANHANDLES	2,002 SF	0.05 ACRES
NET SITE AREA	123,717 SF	2.84 ACRES

SFR UNITS = 2.84 X 8 = 22.74
TOTAL = 23 UNITS MAXIMUM
WE ARE PROPOSING 23 UNITS WITH THIS APPLICATION.

PROJECT NOTES:

1) ONSITE DENSITY PROVISIONS PER MMC 22.E.010.360 ARE PROPOSED WITH THIS APPLICATION DUE TO CRITICAL AREAS ON SITE.
2) NEAREST FIRE HYDRANT IS LOCATED APPROXIMATELY 230' NORTH OF THE SOUTHEAST CORNER OF THE SITE ON THE WEST SIDE OF 83RD AVENUE NE, ALONG SITE FRONTAGE.
3) 10' UTILITIES EASEMENT ABUTTING ROAD FRONTAGE ON ALL LOTS AND TRACTS AT TIME OF RECORDING.
4) ALL LOT AREAS ARE GROSS AREAS UNLESS OTHERWISE NOTED.
5) PROJECT SHALL BE CONSTRUCTED IN ONE PHASE.
6) HOUSE AND DRIVEWAY LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS WITHIN PERMITTED BUILDING SETBACKS TO BE DETERMINED AT TIME OF BUILDING PERMIT.
7) ALL EXISTING STRUCTURES TO BE REMOVED.
8) FRONT BUILDING SETBACK 10' FACE OF BUILDING, 20' TO GARAGE.

EQUIPMENT & PROCEDURES

INSTRUMENTATION: LEICA TCRM1205 TOTAL STATION AND STONEX S900 GNSS

METHOD OF SURVEY: COMBINED FIELD TRAVERSE AND GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) OBSERVATION

PRECISION: MEETS OR EXCEEDS W.A.C. 332-130-090 REQUIREMENTS.

BASIS OF BEARING: THE EAST LINE OF THE SOUTHEAST 1/4, AS THE BEARING OF N 01°14'11" E, PER RECORD OF SURVEY, RECORDED UNDER A.F. NO. 9012075006. ROTATED TO (GNSS) OBSERVATIONS BEING N 0°06'51" W.

REFERENCES: RECORD OF SURVEY, A.F. NO. 9012075006

VERTICAL DATUM: NAVD 88, AS OBTAINED BY (GNSS) OBSERVATION. (CONVERSION TO NGVD29 - 3.734)

TBM - TEMPORARY BENCH MARK: MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

NOTES

1) THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT, AND DOES NOT PURPORT TO SHOW ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND/OR OCCUPATION WHICH MAY ENCUMBER TITLE TO OR USE THIS PROPERTY.
2) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT THE EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.
3) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

ARCHEOLOGICAL NOTE:

IF AT ANY TIME DURING CONSTRUCTION ARCHEOLOGICAL RESOURCES ARE OBSERVED ON THE PROJECT SITE, WORK SHALL BE TEMPORARILY SUSPENDED AT THE LOCATION OF DISCOVERY AND A PROFESSIONAL ARCHAEOLOGIST SHOULD DOCUMENT AND ASSESS THE DISCOVERY. THE DEPARTMENT OF ARCHEOLOGY AND HISTORIC PRESERVATION (DAHP) AND ALL CONCERNED TRIBES MUST BE CONTACTED FOR ANY ISSUES INVOLVING NATIVE AMERICAN SITES. IF PROJECT ACTIVITIES EXPOSE HUMAN REMAINS, EITHER IN THE FORM OF BURIALS OR ISOLATED BONES OR TEETH, OR OTHER MORTUARY ITEMS, WORK IN THAT AREA MUST BE STOPPED IMMEDIATELY. LOCAL LAW ENFORCEMENT, DAHP, AND AFFECTED TRIBES MUST BE IMMEDIATELY CONTACTED. NO ADDITIONAL EXCAVATION MAY BE UNDERTAKEN UNTIL A PROCESS HAS BEEN AGREED UPON BY THESE PARTIES, AND NO EXPOSED HUMAN REMAINS MAY BE LEFT UNATTENDED.

Joanne M. Swanson

STATE OF WASHINGTON — JOANNE M. SWANSON — 22400 — REGISTERED PROFESSIONAL LAND SURVEYOR

Digitally signed by Joanne M Swanson
Date: 2024.05.16 12:34:21 -07'00'

ORCA Land Surveying
3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
3605 Colby Avenue :: Everett, WA 98201
tele (425) 258-4438 :: fax (425) 258-1616

PRELIMINARY PLAT MAP OF CHAPEL HILL
CITY FILE NO. PA23-030

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M. & CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

SHEET 1 OF 1

PROJECT: 2023-017 | DWG BY: JLH | DATE: 5/16/2024 | REV:

EST. 1891
MARYSVILLE
WASHINGTON

PUBLIC WORKS DEPARTMENT
80 Columbia Avenue ◆ Marysville, WA 98270
(360) 363-8100 ◆ (360) 363-8284 FAX

May 17, 2024

Land Resolutions
Attn: Jen Haugen
3605 Colby Ave
Everett, WA 98201

Re: **Chapel Hill Subdivision – PA23-030 – *Concurrency Recommendation***

Robinett Investment Company is proposing the development of a 23-lot single-family residential subdivision on 4.01 acres, located at site addresses 6114 83rd Ave NE (APN(s): 30052600403700 / 30052600404300. The existing residence located on site is to be demolished with development.

Based on the Traffic Impact Analysis (TIA) prepared by Jake Traffic Engineering, INC, dated February 19, 2024, the proposed development would generate the following Average Daily Trips (ADT), AM peak hour trips (AMPHT), and PM peak hour trips (PMPHT):

USE	**UNITS** (new)	ADT	AMPHT	PMPHT
Land Use Code 210 - Single-Family Detached	22*	207	15	22

**There are 23-single family units proposed to be constructed with 1 existing single family unit being removed; therefore, credit would be given to Lot and the development would result in 22 new units.*

Based on our review of existing conditions, as well as other applicable supplemental information submitted with the application, and on file with the City, the following impacts and mitigation obligations are recommended for the Chapel Hills Subdivision:

1. The applicant shall be required to construct frontage improvements along 83rd Ave NE and the new internal plat road NE, prior to the recording the final subdivision. Roadway improvements, channelization, site access and lighting plans shall be required to be reviewed and approved by the City Engineer, prior to construction plan approval.

   1.1. 83rd Ave NE shall be built compliant with SP 3-201-004.

   1.2. The proposed internal plat road shall be built compliant with SP 3-202-002.

2. The applicant shall be required to dedicate public right-of-way in order to accommodate the required frontage improvements, in accordance with MMC 12.02A.110(1)(c), *Dedication of Road right-of-way – Required setbacks*. Right-of-way widths and required dedication shall be determined by the City Engineer.

3. In order to mitigate impacts upon the future capacity of the road system, the applicant shall be required to submit payment to the City of Marysville, on a proportionate share cost of the future capacity improvements as set forth in MMC 22D.030.070(3), for the development. **Traffic impact fees shall be vested at a rate of $6,300.00, per PMPHT.**

Marysville Municipal Code (MMC) 22D.030.070(1)(d), requires an applicant to make a written proposal for mitigation of a development's traffic impacts to the Public Works Director, prior to finalizing a concurrency determination and conditions of approval. If you have any questions, regarding the developments impacts and recommended

mitigation obligations outlined above, please contact Emily Morgan, Senior Planner, at emorgan@marysvillewa.gov or by phone at 360.363.8216.

Sincerely,

Jesse Hannahs, PE
Traffic Engineering Manager

cc: Jeff Laycock, PE, PW Director
Max T. Phan, PE, City Engineer
Ken McIntyre, PE, Assistant City Engineer
Jesse Birchman, Transportation & Parks Maintenance Manager
Haylie Miller, CD Director
Chris Holland, Planning Manager

LAND RESOLUTIONS

LAND USE CONSULTANTS
Design · Planning · Management
3605 Colby Ave – Everett, WA 98201
(Office) 425-258-4438 (Fax) 425-258-1616

May 22, 2024

Project Information
Project Name: Chapel Hill
Site Address: 6114 83rd Avenue NE, Marysville
Parcel Number: 30052600403700 & 30052600404300

RE: Traffic Concurrency Response

Please accept this response to the City's Traffic Concurrency Recommendation for Chapel Hill.
I, Martin H. Robinett, applicant for the project, approve the City's Concurrency recommendation dated March 17, 2024.

Martin H. Robinett

5/22/24
Date

Thank you for your continued review of this application. We look forward to working with the City to obtain approvals. If you have any questions, please do not hesitate to reach out to me at 425-258-4438, or via email ry@orcalandsurveying.com or jen@orcalandsurveying.com .

Sincerely,

Ry McDuffy

MARYSVILLE
COMMUNITY DEVELOPMENT

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that open record public hearing will be held before the Hearing Examiner on **Thursday, June 20th at 6:00 PM** at 501 Delta Avenue, 2nd Floor – Council Chambers for the following proposal:

File Number: PA 23-030

Project Title: Chapel Hill Subdivision

Applicant: Robinett Investment Company

Project Agent: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021

Project Location: 6114 83rd Ave NE

APN(s): 30052600403700 / 30052600404300

Scan to View Project Materials

Project Description:

The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also pursued in order to locate a stormwater dispersion trench further into the wetland buffer allows per MMC 22E.010.100(10).

Open Record Public Hearing: The public hearing will take place in person at 501 Delta Avenue, 2nd Floor – Council Chambers and via Zoom/teleconference. The Hearing Examiner and the City's project manager will attend in person; however, other staff, the applicant, and the public may attend either in person or via Zoom.

- Anyone wishing to provide written or verbal public comment must pre-register by the staff contact listed below by ***noon on Wednesday, June 19th***. If you wish to provide verbal public comment, you will need to provide your name, address, e-mail and phone number.
- **Zoom Meeting Link:** https://us06web.zoom.us/j/83053223470?pwd=fZ195n9Ex0lW70GT4B5UVVviAjryEp.1
  - **Passcode:** 084520
- To listen to the meeting without providing public comment:
  - **Dial in:** 1.253.215.8782
  - **Meeting ID:** 830 5322 3470

Document Availability: http://docs.marysvillewa.gov/htcomnet/public/?folder=7736a130

For Project Information: **Emily Morgan, Senior Planner - 360.363.8216 or emorgan@marysvillewa.gov**
Community Development Department, 501 Delta Ave, Marysville, WA 98270

THIS NOTICE IS NOT TO BE REMOVED CONCEALED OR DESTROYED

From: John Laufenberg
To: Emily Morgan
Cc: Jen Haugen; Ry McDuffy
Subject: [External!] Re: Wetland Report - Chapel Hill Subdivision (PA23-030)
Date: Thursday, June 6, 2024 3:14:52 PM

[CAUTION:] This email originated from outside the City of Marysville. **Do not click links or open attachments** unless you recognize the sender and know the content is safe. Contact helpdesk if you have any concerns or questions.

Hi Emily,

I apologize for the inconsistency. The trench is still 14 feet from the wetland at its closest point. The temporary impacts around the trench are estimated at 5 feet, which is where the 9 foot measurement came from.

Thanks,

John Laufenberg
Principal Ecologist
Professional Wetland Scientist
Wetland Resources, Inc.
9505 19th Ave SE, Suite 106, Everett WA 98208
office: 425.337.3174 mobile: 425.238.5811

> On Jun 6, 2024, at 2:57 PM, Emily Morgan <emorgan@marysvillewa.gov> wrote:
>
> Hi John,
>
> I am drafting the staff recommendation for the above subdivision that includes a wetland variance for the location of the dispersion trench. That said, there seems to be some conflicting measurements that I am looking for clarification.
>
> The original report (attached Exhibit 005) mentions/reference that the dispersion trench will be 14 ft. to the closest point of the wetland boundary. This is shown on the site plan on page 46 and referenced in section 5.3.
>
> But the new report (attached Exhibit 021), the site plan on page 48 shows a 9 ft. setback while section 5.2 still mentions the trench will be 14 ft. from the wetland at its closest point.
>
> Can you please clarify whether the proposed trench is to be 9 ft. or 14 ft. from the closest point of the wetland boundary?
>
> Thank you!
>
> <image002.png> **Emily Morgan** (she/her)
> Senior Planner
> 501 Delta Ave

Marysville, WA 98270
360.363.8216 Direct

How are we doing? Please take our survey and let us know!

<E005 - Critical Areas Report - PA23-030.pdf><E021 - Critical Areas Report - PA23-030.pdf>

MARYSVILLE

Community Development Department

AFFIDAVIT OF POSTING

Before the Marysville Hearing Examiner

Date of Hearing June 20, 2024

Purpose of Hearing The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also pursued in order to locate a stormwater dispersion trench further into the wetland buffer allows per MMC 22E.010.100(10).

Please be advised that on this day, the undersigned, representing the City of Marysville, did post in a minimum of three (3) separate placed as provided by City Ordinances and State Laws the following Notice of Public Hearing:

File Number: PA23-030 Reviewed by:EM

Place Posted	Date Posted	Signature
1. Property: # of signs -	1	EM
2. City Hall	QR	
3. Channel 21 **(email to Leah Tocco)**		
4. Library	QR	
5. MIRS/NewsFlash	6.6.2024	EM
6. Publication in Everett Herald Email to legals@heraldnet.com	06/05/2024	MN
7. Mailings (300') # 6 , Date 06/05/2024	By MN	
8. Lakewood P.O. (per Planner)	QR	

Everett Daily Herald

Affidavit of Publication

State of Washington }
County of Snohomish } ss

Michael Gates being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the Everett Daily Herald a daily newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a daily newspaper in Snohomish County, Washington and is and always has been printed in whole or part in the Everett Daily Herald and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Snohomish County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of EDH997406 NOPH PA23-030 as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 1 issue(s), such publication commencing on 06/07/2024 and ending on 06/07/2024 and that said newspaper was regularly distributed to its subscribers during all of said period.

The amount of the fee for such publication is $87.84.

Subscribed and sworn before me on this 7th day of June, 2024.

Randie Pospical

Notary Public in and for the State of Washington.

COMM DEVEL - CITY OF MARYSVILLE | 88522148
MARISA NISHIMURA

RANDIE POSPICAL
Commission Expires
10-20-2027
NOTARY PUBLIC
License Number 23034934
STATE OF WASHINGTON

MARYSVILLE

CITY OF MARYSVILLE
COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue • Marysville, WA 98270 • (360) 363-8000

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that open record public hearing will be held before the Hearing Examiner on Thursday, June 20th at 6:00 PM at 501 Delta Avenue, 2nd Floor – Council Chambers for the following proposal:

File Number: PA 23-030
Project Title: Chapel Hill Subdivision
Applicant: Robinett Investment Company
Project Agent: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021
Project Location: 6114 83rd Ave NE
APN(s): 30052600403700 / 30052600404300

Project Description:
The applicant is proposing a 23-lot subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also pursued in order to locate a stormwater dispersion trench further into the wetland buffer allows per MMC 22E.010.100(10).

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- Anyone wishing to provide written or verbal public comment must pre-register by the staff contact listed below by noon on Wednesday, June 19th. If you wish to provide verbal public comment, you will need to provide your name, address, e-mail and phone number.
- Zoom Meeting Link: https://us06web.zoom.us/j/83053223470?pwd=fZ195n9Ex0lW70GT4B5UVVviAjryEp.1
- Passcode: 084520
- To listen to the meeting without providing public comment:
- Dial in: 1.253.215.8782
- Meeting ID: 830 5322 3470

Document Availability:
http://docs.marysvillewa.gov/htcomnet/public/?folder=7736a130
For Project Information: Emily Morgan, Senior Planner - 360.363.8216 or emorgan@marysvillewa.gov
Community Development Department, 501 Delta Ave, Marysville, WA 98270
Published: June 7, 2024. EDH997406

PRELIMINARY PLANNED RESIDENTIAL DEVELOPMENT AND SITE PLAN FOR CHAPEL HILL

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M.
CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

ZONING NOTES:

R-8
MINIMUM LOT AREA 4,000 SF
MINIMUM DUPLEX AREA 7,200 SF
MINIMUM LOT WIDTH 40'
MINIMUM LOT FRONTAGE ON PANHANDLE 20'
MAXIMUM BUILDING HEIGHT 30'
MAXIMUM BUILDING COVERAGE 50%
MAXIMUM IMPERVIOUS SURFACES 50%
FRONT YARD SETBACK 20'
STREET SETBACK 10'
REAR YARD SETBACK 20'
SIDE YARD SETBACK 5'
CORNER LOT SETBACK 10'

PRD DEVELOPMENT STANDARDS:

SETBACKS:
MINIMUM STREET: 10'
MINIMUM SIDE YARD: 5'
MINIMUM REAR YARD: 10'
MAXIMUM LOT COVERAGE: 70%
MINIMUM LOT AREA: 3,500 SINGLE FAMILY
2,000 SF – ATTACHED SINGLE FAMILY
MINIMUM LOT WIDTH: 30'
MAXIMUM DRIVEWAY WIDTH: 20' (PER ENGINEERING SERVICES MANAGER)

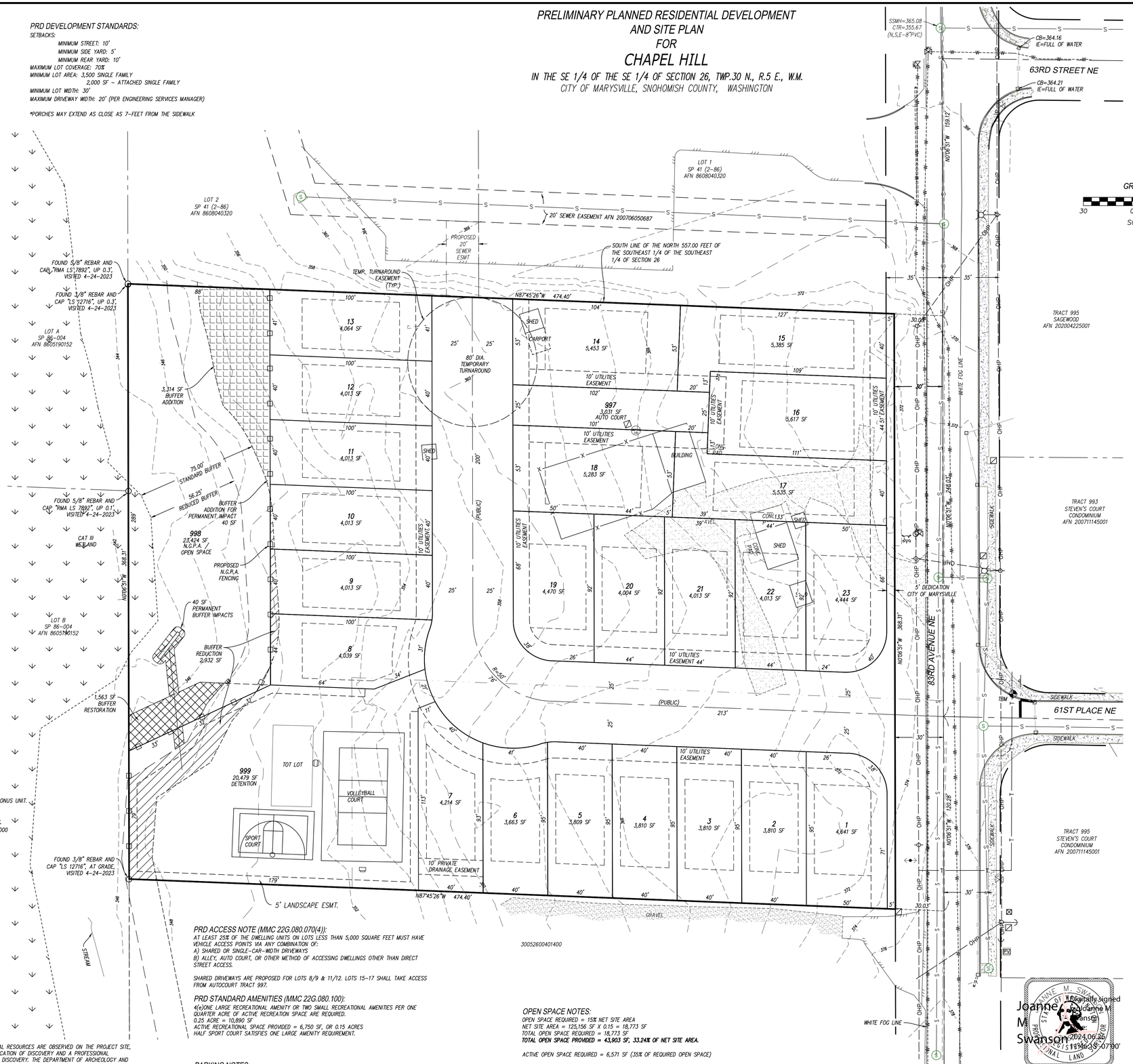
*PORCHES MAY EXTEND AS CLOSE AS 7-FEET FROM THE SIDEWALK

LEGEND

BENCHMARK
FOUND MONUMENT, AS NOTED
FOUND REBAR, AS NOTED
WV WATER VALVE
WATER METER
FIRE HYDRANT
POWER/UTILITY POLE
POWER POLE WITH STREET LIGHT
UTILITY POLE WITH CONDUIT
GUY ANCHOR
JUNCTION BOX
PV POWER VAULT
POWER TRANSFORMER
TPED TELEPHONE PEDESTAL / VAULT
T TELEPHONE MANHOLE
S SANITARY SEWER MANHOLE
CATCH BASIN
GV GAS VALVE
GAS METER
SIGN
MAILBOX
GRAVEL
CONCRETE (WALKS, SLABS, CURB)
UTILITY PAINT MARK

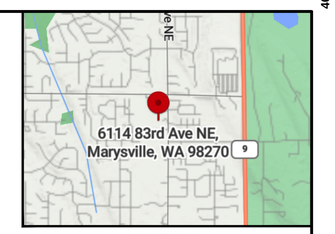
BUFFER AVERAGING:

SEE CRITICAL AREA STUDY PREPARED BY WETLAND RESOURCES FOR BUFFER AVERAGING AND MITIGATION MEASURES.



GRAPHIC SCALE

30 0 30 60
SCALE: 1" = 30'



VICINITY MAP
N.T.S.

OWNER/APPLICANT:
ROBINETT INVESTMENT COMPANY
2825 COLBY AVENUE, SUITE #304
EVERETT, WASHINGTON 98201
(425) 259-9000
EMAIL: GINGER@ROBINETTLAND.COM
CONTACT: GINGER AMUNDSON

PLANNER\CONTACT:
LAND RESOLUTIONS
ATTN: JEN HAUGEN
3605 COLBY AVENUE
EVERETT, WASHINGTON 98201
(425) 258-4438
JEN@ORCALANDSURVEYING.COM

SURVEYOR:
ORCA LAND SURVEYING
ATTN: JOANNE M. SWANSON, PLS.
3605 COLBY AVENUE
EVERETT, WASHINGTON 98201
(425) 259-3400
JOANNE@ORCALANDSURVEYING.COM

LANDSCAPE ARCHITECT:
PAUL JAY LANDSCAPE ARCHITECT
ATTN: PAUL JAY
1115 BRIDGE ROAD
EASTHAM, MASSECHUSETS 02642
(360) 659-8159
PAULJAYLA@GMAIL.COM

ENGINEER:
OMEGA ENGINEERING
ATTN: JOSEPH SMEBY, P.E.
2707 WETMORE AVE
EVERETT, WASHINGTON 98201
(425) 903-48452
JOE@OMEGA-ENG.COM

WETLAND ECOLOGIST:
WETLAND RESOURCES, INC
ATTN: JOHN LAUFENBERG
9505 19TH AVE SE, SUITE 106
EVERETT, WA 98208
(425) 337-3174
JOHN@WETLANDRESOURCES.COM

LEGAL DESCRIPTION

LOT 1 AND LOT 2, CITY OF MARYSVILLE SHORT PLAT NO. 90-007 RECORDED UNDER RECORDING NUMBER 9104180195, BEING A PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 30 NORTH, RANGE 5 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

PROJECT INFORMATION

SITE ADDRESS:	6114 83RD AVENUE NE MARYSVILLE, WASHINGTON 98270	
TAX NUMBER:	300526-004-037-00 AND 300526-004-043-00	
PROPOSED LAND USE	HIGH DENSITY SINGLE FAMILY RESIDENTIAL	
EXISTING ZONING:	R 6.5	
SEWAGE DISPOSAL	CITY OF MARYSVILLE SEWER DEPARTMENT	
WATER SUPPLY	CITY OF MARYSVILLE WATER DEPARTMENT	
SCHOOL DISTRICT	MARYSVILLE SCHOOL DISTRICT NO. 25	
FIRE DISTRICT	MARYSVILLE FIRE DISTRICT	
AVERAGE LOT SIZE	4,651 SF	0.11 ACRES
SMALLEST LOT SIZE	4,004 SF	0.09 ACRES

CITY OF MARYSVILLE DENSITY CALCULATION:

TOTAL SITE AREA	174,580 SF	4.01 ACRES
MINUS FLOOD PLAINS	0 SF	0.00 ACRES
MINUS UTILITY EASEMENTS OVER 30'	0 SF	0.00 ACRES
MINUS PUBLIC OWNED FACILITY & R.O.W.	27,517 SF	0.63 ACRES
MINUS STORM WATER DETENTION TRACTS OR EASEMENTS	18,177 SF	0.42 ACRES
MINUS ACCESS EASEMENTS / SHARED DRIVEWAY	699 SF	0.02 ACRES
MINUS AUTOCOURT 998	3,031 SF	0.07 ACRES
MINUS CRITICAL AREAS UNDER WATER	0 SF	0.00 ACRES
MINUS PANHANDLES	0 SF	0.00 ACRES
NET SITE AREA	125,156 SF	2.87 ACRES

SFR UNITS = 2.87 X 6.5 = 18.67
Base Density TOTAL = 19 UNITS ~~MAXIMUM~~
WE ARE PROPOSING 23 UNITS WITH THIS APPLICATION.

Maximum density for PRD developments may be increase by 20% through application of RDI provisions of MMC 22C.090

19 units x 20% = 3.8 or 4 units - 23 max. density

PROJECT NOTES:

1) ONSITE DENSITY PROVISIONS PER MMC 22.E.010.360 ARE PROPOSED WITH THIS APPLICATION DUE TO CRITICAL AREAS ON SITE.
2) NEAREST FIRE HYDRANT IS LOCATED APPROXIMATELY 230' NORTH OF THE SOUTHEAST CORNER OF THE SITE ON THE WEST SIDE OF 83RD AVENUE NE, ALONG SITE FRONTAGE.
3) 10' UTILITIES EASEMENT ABUTTING ROAD FRONTAGE ON ALL LOTS AND TRACTS AT TIME OF RECORDING.
4) ALL LOT AREAS ARE GROSS AREAS UNLESS OTHERWISE NOTED.
5) PROJECT SHALL BE CONSTRUCTED IN ONE PHASE.
6) HOUSE AND DRIVEWAY LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS WITHIN PERMITTED BUILDING SETBACKS TO BE DETERMINED AT TIME OF BUILDING PERMIT.
7) ALL EXISTING STRUCTURES TO BE REMOVED.
8) FRONT BUILDING SETBACK 10' FACE OF BUILDING, 20' TO GARAGE.

EQUIPMENT & PROCEDURES

INSTRUMENTATION: LEICA TCRM1205 TOTAL STATION AND STONEX S900 GNSS

METHOD OF SURVEY: COMBINED FIELD TRAVERSE AND GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) OBSERVATION

PRECISION: MEETS OR EXCEEDS W.A.C. 332-130-090 REQUIREMENTS.

BASIS OF BEARING: THE EAST LINE OF THE SOUTHEAST 1/4, AS THE BEARING OF N 01°41'11" E, PER RECORD OF SURVEY, RECORDED UNDER A.F. NO. 9012075006. ROTATED TO (GNSS) OBSERVATIONS BEING N 0°06'51" W.

REFERENCES: RECORD OF SURVEY, A.F. NO. 9012075006

VERTICAL DATUM: NAVD 88, AS OBTAINED BY (GNSS) OBSERVATION. (CONVERSION TO NGVD29 – 3.734)

TBM – TEMPORARY BENCH MARK: MAGNETIC NAIL WITH WASHER SET IN NORTHEAST QUADRANT OF SIDEWALK AT THE INTERSECTION OF 83RD AVE NE AND 61ST PLACE NE. ELEVATION = 374.81'

NOTES

1) THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT, AND DOES NOT PURPORT TO SHOW ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND/OR OCCUPATION WHICH MAY ENCUMBER TITLE TO OR USE THIS PROPERTY.
2) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT THE EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.
3) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

RDI BONUSES PROPOSED (22C.090.030):

(3e). COMMUNITY IMAGE AND IDENTITY – $25,000 PER BONUS UNIT.
TOTAL DENSITY BONUSES = 4 UNITS

4 BONUS UNITS + 19 BASE DENSITY UNITS = 23 UNITS.
4 UNITS TO BE PURCHASED AT $25,000 EACH = $100,000
TOTAL LOTS ALLOWED = 23

PRD ACCESS NOTE (MMC 22G.080.070(4)):

AT LEAST 25% OF THE DWELLING UNITS ON LOTS LESS THAN 5,000 SQUARE FEET MUST HAVE VEHICLE ACCESS POINTS VIA ANY COMBINATION OF:
A) SHARED OR SINGLE-CAR-WIDTH DRIVEWAYS
B) ALLEY, AUTO COURT, OR OTHER METHOD OF ACCESSING DWELLINGS OTHER THAN DIRECT STREET ACCESS.

SHARED DRIVEWAYS ARE PROPOSED FOR LOTS 8/9 & 11/12. LOTS 15-17 SHALL TAKE ACCESS FROM AUTOCOURT TRACT 997.

PRD STANDARD AMENITIES (MMC 22G.080.100):

4(a)ONE LARGE RECREATIONAL AMENITY OR TWO SMALL RECREATIONAL AMENITIES PER ONE QUARTER ACRE OF ACTIVE RECREATION SPACE ARE REQUIRED.
0.25 ACRE = 10,890 SF
ACTIVE RECREATIONAL SPACE PROVIDED = 6,750 SF, OR 0.15 ACRES
HALF SPORT COURT SATISFIES ONE LARGE AMENITY REQUIREMENT.

OPEN SPACE NOTES:

OPEN SPACE REQUIRED = 15% NET SITE AREA
NET SITE AREA = 125,156 SF X 0.15 = 18,773 SF
TOTAL OPEN SPACE REQUIRED = 18,773 SF
TOTAL OPEN SPACE PROVIDED = 43,903 SF, 33.24% OF NET SITE AREA.

ACTIVE OPEN SPACE REQUIRED = 6,571 SF (35% OF REQUIRED OPEN SPACE)

ACTIVE OPEN SPACE PROVIDED:

VOLLEYBALL COURT	4,000 SF
HALF SPORT COURT:	1,500 SF
TOT LOT:	1,250 SF
	6,750 SF

TOTAL ACTIVE OPEN SPACE = 6,750 SF, 35.96% OF TOTAL OPEN SPACE REQUIRED

PARKING NOTES:

REQUIRED PARKING: 2 STALLS + 1 GUEST PARKING SPACE PER DWELLING UNIT.
REQUIRED PARKING = 23 UNITS X 3 UNITS = 69 STALLS.

23 DWELLING UNITS X 4 PROVIDED STALLS PER UNIT = 92 STALLS
TOTAL STALLS PROVIDED = 92 STALLS.

ARCHEOLOGICAL NOTE:

IF AT ANY TIME DURING CONSTRUCTION ARCHEOLOGICAL RESOURCES ARE OBSERVED ON THE PROJECT SITE, WORK SHALL BE TEMPORARILY SUSPENDED AT THE LOCATION OF DISCOVERY AND A PROFESSIONAL ARCHAEOLOGIST SHOULD DOCUMENT AND ASSESS THE DISCOVERY. THE DEPARTMENT OF ARCHEOLOGY AND HISTORIC PRESERVATION (DAHP) AND ALL CONCERNED TRIBES MUST BE CONTACTED FOR ANY ISSUES INVOLVING NATIVE AMERICAN SITES. IF PROJECT ACTIVITIES EXPOSE HUMAN REMAINS, EITHER IN THE FORM OF BURIALS OR ISOLATED BONES OR TEETH, OR OTHER MORTUARY ITEMS, WORK IN THAT AREA MUST BE STOPPED IMMEDIATELY. LOCAL LAW ENFORCEMENT, DAHP, AND AFFECTED TRIBES MUST BE IMMEDIATELY CONTACTED. NO ADDITIONAL EXCAVATION MAY BE UNDERTAKEN UNTIL A PROCESS HAS BEEN AGREED UPON BY THESE PARTIES, AND NO EXPOSED HUMAN REMAINS MAY BE LEFT UNATTENDED.

Digitally signed by Joanne M. Swanson
Date: 2024.06.26 11:48:35 -07'00'

ORCA Land Surveying
3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
3605 Colby Avenue - Everett, WA 98201
tele (425) 258-4438 - fax (425) 258-1616

PRELIMINARY PLANNED RESIDENTIAL DEVELOPMENT & SITE PLAN
FOR
CHAPEL HILL
CITY FILE NO. PA23-030

IN THE SE 1/4 OF THE SE 1/4 OF SECTION 26, TWP.30 N., R.5 E., W.M. & CITY OF MARYSVILLE, SNOHOMISH COUNTY, WASHINGTON

SHEET 1 OF 1

PROJECT: 2023-017 | DWG BY: JLH | DATE: 6/26/2024 | REV:

From: Brian Merkley
To: Emily Morgan
Subject: [External!] RE: Fire Sprinklers?
Date: Wednesday, June 26, 2024 4:16:29 PM
Attachments: image001.png
image003.png

[CAUTION:] This email originated from outside the City of Marysville. **Do not click links or open attachments** unless you recognize the sender and know the content is safe. Contact helpdesk if you have any concerns or questions.

Hi Emily,

Looks like lots 15, 16, 17 will require fire sprinklers due to distance from ROW. That looks like the only change to our requirements, provided the hydrant locations are the same. Do you need an updated letter for those lot numbers?

Thanks,

***Brian Merkley*, Assistant Fire Marshal**
Marysville Fire District RFA | 1635 Grove St. | Marysville, WA 98270
360.363.8541 BMerkley@MFDRFA.org

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential, proprietary, and/or privileged information protected by law. If you are not the intended recipient, you may not use, copy, or distribute this e-mail message or its attachments. If you believe you have received this e-mail message in error, please contact the sender by reply e-mail and telephone immediately and destroy all copies of the original message. Thank you.

From: Emily Morgan <emorgan@marysvillewa.gov>
Sent: Wednesday, June 26, 2024 3:53 PM
To: Brian Merkley <bmerkley@mfdrfa.org>
Subject: Fire Sprinklers?

Hi Brian,

The Chapel Hill Subdivision (PA23-030) has changed their layout a bit. Can you look at the new layout and see what the fire requirements will be?

Thank you in advance!

Emily Morgan (she/her)
Senior Planner
501 Delta Ave
Marysville, WA 98270
360.363.8216 Direct

MARYSVILLE COMMUNITY DEVELOPMENT

How are we doing? Please take our survey and let us know!

MARYSVILLE
COMMUNITY DEVELOPMENT

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that open record public hearing will be held before the Hearing Examiner on **Wednesday, July 24th at 6:00 PM** at 501 Delta Avenue, 2nd Floor – Council Chambers for the following proposal:

File Number: PA 23-030

Project Title: Chapel Hill Subdivision

Applicant: Robinett Investment Company

Project Agent: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021

Project Location: 6114 83rd Ave NE

APN(s): 30052600403700 / 30052600404300

Scan to View Project Materials

Project Description:

The applicant is proposing a 23-lot Planned Residential Development (PRD) Subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also proposed in order to locate a stormwater dispersion trench further into the wetland buffer than is allowed per MMC 22E.010.100(10); compensatory mitigation for the temporary and permanent wetland impacts is proposed with development.

Open Record Public Hearing: The public hearing will take place in person at **501 Delta Avenue, 2nd Floor – Council Chambers** and via Zoom/teleconference. The Hearing Examiner and the City's project manager will attend in person; however, other staff, the applicant, and the public may attend either in person or via Zoom.

- Anyone wishing to provide written or verbal public comment must pre-register by the staff contact listed below by ***noon on Tuesday, July 23rd.*** If you wish to provide verbal public comment, you will need to provide your name, address, e-mail and phone number.
- **Zoom Meeting Link: https://us06web.zoom.us/j/82201931923?pwd=6pSaMRbbYqpKe03dCgx18H0iZpHc4l.1**
  - **Passcode:** 895046
- To listen to the meeting without providing public comment:
  - **Dial in:** 1.253.215.8782
  - **Meeting ID:** 830 5322 3470

Document Availability: http://docs.marysvillewa.gov/htcomnet/public/?folder=7736a130

For Project Information: **Emily Morgan, Senior Planner - 360.363.8216 or emorgan@marysvillewa.gov**
Community Development Department, 501 Delta Ave, Marysville, WA 98270

THIS NOTICE IS NOT TO BE REMOVED CONCEALED OR DESTROYED

MARYSVILLE

Community Development Department

AFFIDAVIT OF POSTING

Before the Marysville Hearing Examiner

Date of Hearing July 24, 2024

Purpose of Hearing The applicant is proposing a 23-lot Planned Residential Development (PRD) Subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also proposed in order to locate a stormwater dispersion trench further into the wetland buffer than is allowed per MMC 22E.010.100(10); compensatory mitigation for the temporary and permanent wetland impacts is proposed with development..

Please be advised that on this day, the undersigned, representing the City of Marysville, did post in a minimum of three (3) separate placed as provided by City Ordinances and State Laws the following Notice of Public Hearing:

File Number: PA23-030 Reviewed by:EM

Place Posted	Date Posted	Signature
1. Property: # of signs - 1	7.10.2024	EM
2. City Hall	QR	
3. Channel 21 **(email to Leah Tocco)**		
4. Library	QR	
5. MIRS/NewsFlash	7.9.2024	EM
6. Publication in Everett Herald Email to legals@heraldnet.com	7/8/2024	MN

7. Mailings (300') # 6, Date 7/8/2024 By MN

8. Lakewood P.O. (per Planner) _____QR_____ _____

STAFF RECOMMENDATION

Community Development Department ◆ 501 Delta Avenue ◆ Marysville, WA 98270
Office Hours: Mon - Fri 8:00 AM - 4:30 PM ◆ Phone: (360) 363-8000

PROJECT INFORMATION			
Project Title	Chapel Hill Subdivision	**Date of Report**	July 2, 2024
File Number	PA23-030	**Attachments**	Public Hearing Exhibits (1 - 35)
Administrative Recommendation	Approve the Preliminary Planned Residential Development (PRD) Subdivision and Wetland Variance for the creation of (23) single family lots.		

BACKGROUND SUMMARY									
Applicant	Robinett Investment Company / Land Resolutions								
Request	The applicant requested a 23-lot PRD subdivision and a wetland variance for the placement of a stormwater dispersion trench within the Category III wetland buffer.								
SEPA Status	Exempt per MMC 22E.030.090.								
Site Address	6114 83rd Ave NE			**APN**(s)	30052600403700 / 30052600404300				
Legal Description (abbreviated)	Lot 1 and 2 of SP 90-007			**Section**	26	**Township**	30	**Range**	05E
Comprehensive Plan	SFH	**Zoning**	R-6.5	**Shoreline Environment**	N/A				
Water Supply	**Current**	**Proposed**		**Sewer Supply**	**Current**	**Proposed**			
	Marysville	Marysville			Private (septic)	Marysville			

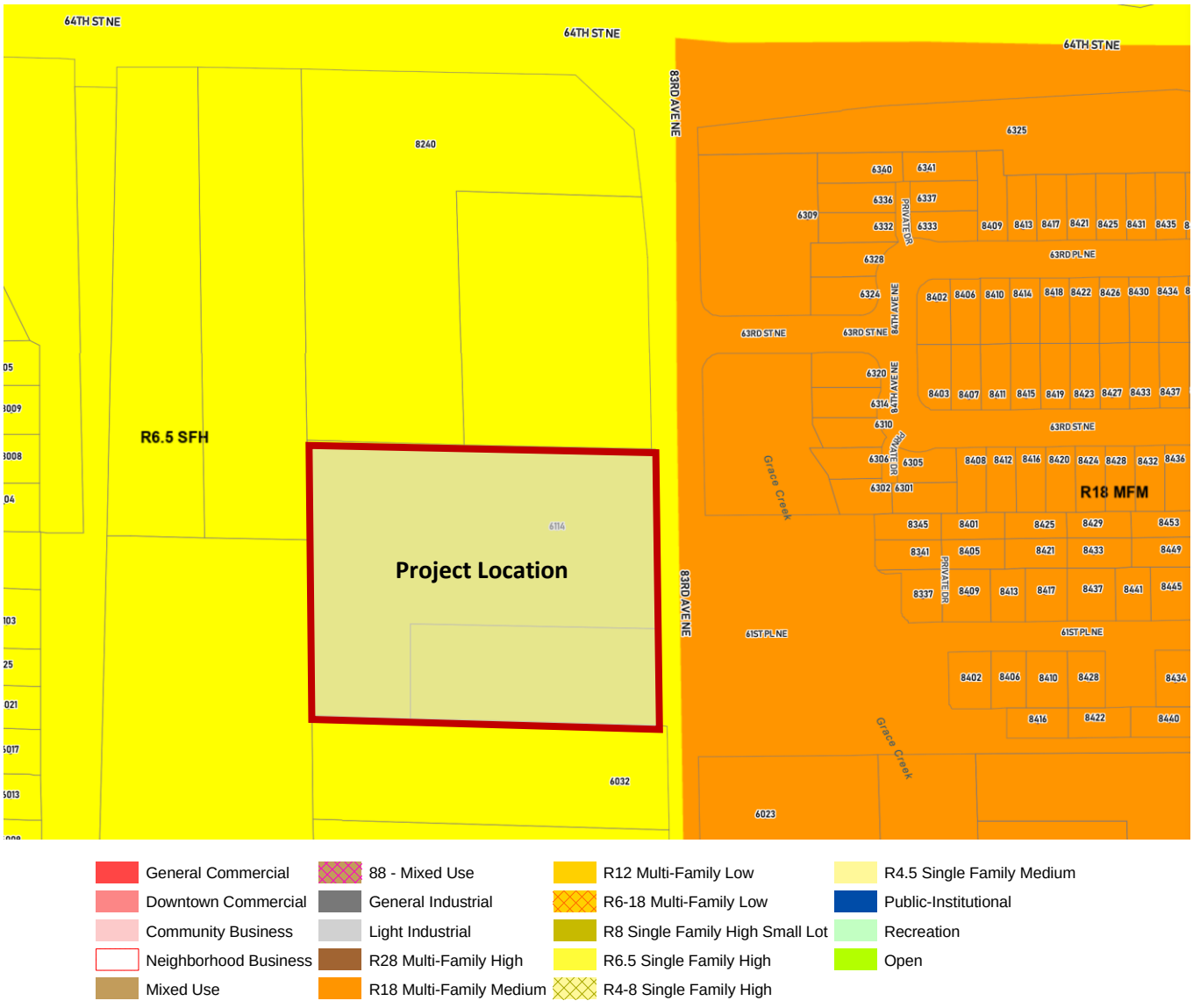
REVIEWING AGENCIES				
Marysville	**Local Agencies**	**State & Federal**	**County**	**Other**
☒ Building ☐ Parks ☒ Police ☒ PW – Dev. Services ☒ PW – Engineering ☒ PW – Operations ☒ PW – Solid Waste ☒ PW – Streets ☒ PW – Traffic Eng. ☒ PW – Water Res. ☒ PW – WWTP	☐ Arlington (city) ☐ Community Transit ☐ Everett (city) ☒ Comcast ☒ Marysville SD #25 ☒ PUD No. 1 ☒ Ziply	☒ US Army Corps of Engineers ☐ BNSF ☒ DAHP ☒ DOE ☐ WDFW ☐ WSDOT ☐ USDFW	☐ Health District ☐ Planning ☒ Public Works - Land Development ☐ Public Works	☐ Olympic Pipeline ☐ Puget Sound Energy ☒ Tulalip Tribes ☒ Stillaguamish Tribe

ACTION			
☐ **Administrative**	☐ **City Council**	☒ **Quasi-Judicial**	☐ **Planning Commission**
Date of Hearing	July 24, 2024	☐ **Approved**	☐ **Denied** ☐ **Continued**

STAFF			
Name Emily Morgan	**Title** Senior Planner	**Phone** 360.363.8216	**E-mail** emorgan@marysvillewa.gov

SURROUNDING USES			
	Comprehensive Plan	**Zoning**	**Land Use**
North	Single Family High Density	R-6.5	Church of the Nazarene
East	Multi-Family Medium	R18	NGPA and stormwater tracts associated with residential subdivisions
South	Single Family High Density	R-6.5	Single family residential on larger lots
West	Single Family High Density	R-6.5	Category III wetland and power line corridor

Vicinity Map



FINDINGS AND CONCLUSIONS

1. **Description of Proposal.** An application was submitted for a Preliminary Planned Residential Development Subdivision for the construction of 23-lot single family residential lots. This application also includes a wetland variance for the placement of a stormwater dispersion trench within the Category III wetland buffer.

   1.1. Major subdivisions and variances require a quasi-judicial decision action; therefore, a public hearing is required per MMC 22G.090.

2. **Project Location.** The proposed development is located at 6114 83rd Ave NE, and is identified as Assessor's Parcel Numbers (APNs) 30052600403700 & 30052600404300.

3. **Site Description.** The project site is approximately 4.01 acres in size and currently developed with a single-family residence and accessory buildings that are proposed to be removed with development. The site has a downward slope from east to west at a 5 to 15% grade. There are lawn areas with sparse trees and bushes around the residence; the remainder of the site is heavily vegetated with grasses, various greenery, and variable diameter trees.

4. **Project History.** A pre-application request (PreA 23-011) was submitted on March 14, 2023 with comments provided to the applicant, dated April 11, 2023.

5. **Letter of Completeness.** A letter of completeness was issued January 3, 2024 and provided to the applicant in accordance with MMC 22G.010.050.

6. **Public Notice.** Public notice of the development application was provided in accordance with MMC 22G.010.090. No public comments were received for the Notice of Application.

   6.1. The public hearing for the proposed request was advertised in accordance with MMC 22G.010.110, *Notice of public hearing.*

   6.2. A Notice of Public Hearing was published for an open record public hearing on June 20, 2024. However, the hearing was canceled as revisions to the project were needed.

   The subsequent Notice of Public Hearing was issued and advertised in accordance with the above provision.

7. **Request for Review.** A Request for Review of the proposed development was sent to the Local, County, State & Federal Agencies and Districts identified on page 1 of this report. The following comments were received; if above-referenced agencies are not listed below, no comments were received:

	Nature of Comment
Public Works, Traffic	• *Requirements and recommendations are addressed in the approved Traffic Concurrency Recommendation, dated May 17, 2024.*
Public Works, Development Services	• *Provided information regarding the required improvements which are to be further reviewed with Civil Plan Review.* • *The project is vested under the 2019 Stormwater Management Manual for Western Washington. Formal drainage review will be conducted during Civil Plan Review.* • *Capital facility fees would be required to be paid prior to issuance of the building permit.*

Marysville Fire District	• *Some lots will require 13D sprinkler systems due to access and distance from ROW.* • *Fire hydrants shall be provided along the new and existing roadways at approved locations, at all intersections and with maximum spacing of 600 ft. apart. The location of fire hydrants requires fire marshal approval on civil construction plans.* • *"NO PARKING - FIRE LANE" signs are required on both sides of all roads that are 26 feet wide or less. The signage shall be identified on the approved Civil Plans.*
Building Department	*Provided requirements for the building permit submittal.*
Snohomish County Public Works	*Snohomish County Public Works concurs with the distribution and the conclusion that this development will not impact any county capital improvement projects or county road with three or more directional peak hour trips. Therefore, no mitigation and no offer are required of this development to the county under the county/city interlocal agreement.*
Public Works, Operations	*Provided water connection standards and requirements.*
Snohomish County PUD	• *Snohomish County PUD has adequate system capacity to serve the proposed development, but upgrades may be needed. Securing of easements for the necessary utilities would be required, if applicable.* • *The PUD requires a minimum 14 ft. clearance from any structure to accommodate workers, scaffolding, and ladders. Minimum worker safety clearance from 115kC transmission wires is 20 ft.*

8. **State Environmental Policy Act Review.** Pursuant to MMC 22E.030.090, the proposed subdivision is exempt from SEPA Review as it does not exceed the flexible threshold, which allows for up to 30 dwelling units.

9. **Critical Areas.** Based on the Critical Area Study and Buffer Mitigation Plan (Exhibit 005), prepared by Wetland Resources, Inc., dated November 15, 2023, the project site contains a Category III wetland and an off-site Type Ns, seasonal non-fish bearing stream. Per MMC 22E.010.100, the Category III wetland requires a 75 ft. buffer. Per MMC 22E.010.220(1)(a), the Type Ns stream requires a 50 ft. protective buffer. Due to location of the stream, the entire protective 50 ft. buffer is within the 75 ft. wetland buffer. Pursuant to MMC 22E.010.030(1), areas that are subject to multiple critical area regulations, the regulations which provide greater protection to environmentally critical areas shall apply. The protective provisions regulating wetlands per MMC 22E.010.100 would offer the greatest protection and would therefore be applied to the proposed development.

   With the development, a stormwater dispersion trench is proposed to be located within the associated wetland buffer. Pursuant to MMC 22E.010.100 (10), *stormwater management facilities, such as biofiltration swales and dispersion facilities, may be located within the outer 25 percent of wetland buffers only if they will have no negative effect on the functions and purpose the buffers serve for the wetland or on the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated beneficial uses.* As proposed and noted in the revised Critical Area Study and Buffer Mitigation Plan (Exhibit 021), prepared by Wetland Resources, Inc, dated March 28, 2024, the dispersion trench is to be located 14 ft. from the wetland boundary, thus exceeding the allowance of this code section.

The applicant has applied for a wetland variance to allow for the proposed location of the stormwater dispersion trench. Along with this requested wetland variance and to accommodate the proposed development, the applicant is proposing to utilize buffer averaging and provide buffer enhancement and restoration as mitigation for permanent and temporary buffer impacts. The buffer averaging would reduce the standard buffer area by 2,932 sq. ft. but would add 3,314 sq. ft. to the overall buffer area. As noted in the study, the buffer of the wetland is sparsely vegetated, contains invasive species and is fragmented by cleared paths. To demonstrate compliance with MMC 22E.010.100 (3), the applicant is proposing to enhance 17,322 sq. ft. of degraded buffer area. Analysis of the said wetland variance criteria is provided below in Finding 16.

10. **Access and Circulation.** Access to development is proposed through the construction of a new internal roadway off of 83rd Ave NE. Said internal road is to be 50 ft. of right of way and constructed to EDDS SP 3-202-002, which requires 28 ft. of pavement with 5 ft. sidewalks and 5 ft. landscape strips along both sides.

11. **Traffic Impacts.** A traffic impact analysis (TIA) was prepared by Jake Traffic Engineering, Inc, dated February 9, 2024. According to the TIA, the proposed development would generate approximately 207 Average Daily Trips (ADT), 15 AM peak hour trips (AMPHT), and 22 PM peak hour trips (PMPHT). There are 23-single family units proposed to be constructed with (1) existing single family unit to be removed; therefore, credit would be given to Lot 1 and the development would result in 22 new units.

    The City's Traffic Engineering Manager reviewed the TIA, and issued a written concurrency recommendation dated May 17, 2024 (Exhibit 026), informing the developer of the project's impacts and mitigation obligation pursuant to MMC 22D.030, *Traffic Impact Fees and Mitigation*. Pursuant to MMC 22D.030.070(1)(d), an applicant is required to make a written proposal for mitigation of traffic impacts based on the concurrency recommendation. The applicant accepted the requirements outlined in the traffic concurrency recommendation on May 22, 2024 (Exhibit 027).

12. **Utilities.** Per MMC 14.03.250, utilities are to be extended along the street frontages of the proposed project. Extensions of sewer and water mains as well as a storm drain system for the roadway extension will be required. The following utilities will be provided to the site:

    - ***Storm Drainage:*** According to the Preliminary Drainage Report, prepared by Joseph M. Smeby, P.E., dated August 2023 and revised February 2024 (Exhibit 022), the project is designed to comply with the Department of Ecology 2019 Stormwater Management Manual for Western Washington. All new impervious and pervious surfaces would be collected and treated/detained on site via a detention pond located in Tract 999. The single detention system will be discharged to the west via a level spreader within the existing wetland buffer.
    - ***Water:*** The applicant is proposing to tie into the existing 12-inch ductile iron water main within 83rd Ave NE and extend the line through the new internal plat road.
    - ***Sewer:*** The applicant is proposing to tie into the existing 8-inch PVC main within 83rd Ave NE and extend the line through the new internal plat road.

13. **Park Impacts.** Pursuant to MMC 22D.020, the applicant shall mitigate City of Marysville parks impacts through payment of the park impact fee in effect at the time of building permit application.

14. **School Impacts.** Pursuant to MMC 22D.040, the applicant shall mitigate Marysville School District No. 25 impacts through the payment of the school impact fee in effect at the time of building permit application.

15. **Application Review.** MMC 22G.010.140(3) requires the City to determine whether or not the project is consistent with the following items described in the applicable plans and regulations:

15.1. *Type of land use permitted at the site, including uses that may be allowed under certain circumstances, such as planned residential development and conditional uses, if the criteria for their approval have been satisfied.*

Staff Comment: The proposed PRD subdivision is for the creation of single family residential lots. Per MMC 22C.010.060, single family detached units are permitted outright in the High Density Single Family (R-6.5) zone; therefore, the proposed development would comply with this provision.

15.2. *Density of residential development in urban growth areas.*

Staff Comment: The base density allowed in the R-6.5 zone is 6.5 dwelling units per acre. Per MMC 22C.010.080(2) and MMC 22C.010.090(1)(b), the maximum net density is the same as the base density, in this case, 6.5 dwelling units per acre, provided that for PRD developments, the maximum density may be increased up to 20% through the application of the Residential Density Incentives (RDI) provisions outlined in MMC 22C.090.

Per the site plan of record (Exhibit 032), the applicant calculated that the net project area as 2.87 acres (125,156 sq. ft.) per the definition of "Net Project Area" of MMC 22A.020.150.

The applicant has proposed utilizing RDI benefits pursuant to MMC 22C.090.030 to achieve bonus density. The following is the RDI calculation for the proposed development:

BASE DENSITY – 6.5 DU/Acre	2.87 acres x 6.5 DU/Acre = **18.67 or 19 units/lots**
MAX DENSITY ALLOWED **20% increase of base allowance**	19 units/lots x 20% = **3.8 or 4 units/lots**
RDI CALCULATION	
Benefit 3a: Community Image & Identification – Capital Contribution ($25,000 per unit)	$100,000 contribution **= 4 Units**
TOTAL UNITS PROPOSED	**23 UNITS**

15.3. *Availability and adequacy of public facilities identified in the Comprehensive Plan.*

Staff Comment: The Comprehensive Plan designation for the subject property is High Density Single Family. The proposed development and subsequent use of the property would be consistent with the pertinent development policies outlined in the Marysville Comprehensive Plan, and is located within the East Sunnyside Neighborhood Planning Area 4.

Planning Area 4 demonstrates that adequate water and sewer is available to this development and is located within the Marysville School District.

The following development policies outlined in the Comprehensive Plan that are specifically pertinent to the overall subdivision request, and were used to establish appropriate conditions, are as follows:

- **LAND USE ELEMENT – Policies:** LU-3, LU-5, LU-6, LU-20, LU-21, LU-23, LU-28, LU-29, LU-30, LU-31, LU-33, LU-34, LU-38, LU-42
- **HOUSING ELEMENT – Policies:** HO-18, HO-19, HO-22, HO-25, HO-30, HO-32, HO-37

- **ENVIRONMENTAL ELEMENT – Policies:** EN-20, EN-21, EN-26, EN-27, 28, EN-29, EN-30, EN-32, EN-40, EN-41
- **TRANSPORTATION ELEMENT – Policies:** T-3, T-7, T-8, T-25, T-26, T-27, T-29, T-30, T-40, T-41, T-46, T-47, T-48
- **UTILITIES ELEMENT – Policies**: UT-1, UT-3, UT-8, UT-9, UT-10, UT-14
- **PUBLIC FACILITIES & SERVICES ELEMENT – Policies:**
  - **Police, Fire, Library:** PS-1, PS-10, PS-11
  - **Schools:** SC-6
  - **Water, Sewer, Storm Drainage, Solid Waste:** PF-1, PF-2, PF-7, PF-9, PF-10, PF-19, PF-20, PF-23, PF-26, PF-28

Staff finds that the proposed development, as conditioned, is consistent with the City of Marysville Comprehensive Plan.

15.4. *Development Standards*

Staff Comment: The project site is currently zoned R-6.5. The R-6.5 zone allows single-family residences at base density of 6.5 dwelling units per acre with an allowable 20% increased based density by utilizing Residential Density Incentives outlined in MMC 22C.090.

The proposed PRD would meet all bulk and dimensional requirements set forth in MMC 22G.080.080(1), *Modification of development regulations*. Demonstrated compliance with said development regulations would be reviewed at time of building permit submittal.

15% (125,156 x 15%=18,773 sq. ft.) of the net project area is required to be dedicated as open space with 35% of that total being dedicated as active open space (18,773 x 35%=6,571 sq. ft.) as required by MMC 22G.080.100. As proposed, the total area of dedicated open spaces exceed the required provisions. Improvements within the open space area would include, but are not limited to, landscaping, volleyball court, benches, sports court and tot lot.

As proposed and conditioned, the PRD meets all of the requirements set forth in MMC 22G.080.050, *Procedures for review and approval*, including subsections: (a) Consistency with Applicable Plans and Laws, (b) Quality Design, (c) Design Criteria (i), (iii), and (iv), (d) Public Facilities, (e) Consistency with adjacent single family development, (f) Perimeter Design, (g) Open Space and Recreation, (h) Streets, Sidewalks, and Parking, (i) Landscaping, and (j) Maintenance Provisions.

The proposed development and subsequent use of the property would comply with the intent of the R-6.5 zone, and as conditioned herein, complies with all of the applicable design and development standards outlined in Title 22, *Unified Development Code*.

As conditioned, the proposed development makes appropriate provisions for the public use and interest, health, safety and general welfare.

16. **Wetland Variance Review.** Pursuant to MMC 22E.010.100(13), a variance from buffer width requirements may be granted by the hearing examiner upon showing by the applicant that:

16.1. *There are special circumstances applicable to the subject property or to the intended use such as shape, topography, location or surroundings that do not apply generally to other properties and which support the granting of a variance from buffer width requirements.*

Applicant's Response: The location of the proposed stormwater dispersion trench is constrained due to topography of the site. The stormwater vault is proposed in the lower, southwest corner of the site, and the outfall for the pond needs to be located at a lower elevation while still being outside of the wetland. Hence, the dispersion pad must be located within the inner portion of the buffer to provide positive drainage from the pond while maintaining hydrology to the wetland.

Staff Comment: Per the Geotechnical Report (Exhibit 007), prepared by Cobalt Geosciences, dated September 15, 2023, the site was anticipated to have a perched groundwater during the wet season, likely 3 to 8 ft. below site elevations with groundwater likely at shallower depths in the western portion for the site. The Drainage Report (Exhibit 022) states that based on the soil logs, the site does not have infiltration capacity due to the shallow mottling at 24 in. and hard pan at 32 in. Based on Finding 3 and as referenced in the Geotechnical Report, the site slopes east to west with the lowest point being in the southwest corner. Common practice of stormwater detention tends to site a facility at the lowest feasible grade due to natural gravity flow. Further and based on these findings, the site would not be suited for an infiltration system due to the high water table. Therefore, the detention facility with dispersion trench located at the lowest feasible site grade is the recommended method for on-site stormwater management.

In reviewing the provided application materials, staff notes that the site has the challenge of topography when it comes to siting a stormwater facility that complies with standards for on-site stormwater management. The proposed location of the dispersion trench is at a grade that allows for downhill flow without being within the low point of the wetland boundary.

As conditioned, staff finds that the special circumstances on the site would support the granting of the wetland variance for the location of the stormwater dispersion trench.

16.2. *Such buffer width variance is necessary for the preservation and enjoyment of a substantial property right or use possessed by other similarly situated property but which because of special circumstances is denied to the property in question.*

Applicant's Response: The buffer width reduction is necessary to enjoy the right to use the property for residential development, in the same manner as other similar properties that are not constrained by the on-site wetlands and buffers.

Staff Comment: As stated in the Staff Comment for Finding 16.1, staff finds that the project site has topographical restraints as well as the wetland restrictions which create challenges when siting stormwater facilities that would not adversely affect the wetland's hydrologic function. The proposed stormwater facility allows for adequate on-site detention as well as providing treated water runoff to feed the wetland's hydrologic function.

16.3. *The granting of such buffer width variance will not be materially detrimental to the public welfare or injurious to the property or improvement.*

Applicant's Response: The buffer width reduction will not be materially detrimental to the public welfare or injurious to the property or improvement. The proposed dispersion trench will be designed under appropriate civil engineering standards to adequately serve the development. The dispersion trench will be located in an area with limited access by residents and will not interfere with the on-site wetland.

Staff Comment: The total area of buffer disturbance from the installation of the dispersion trench is approximately 1,563 sq. ft. of temporary impact with 40 sq. ft. of permanent

impact. The temporary area of impact would be mitigated at a ratio of 1:1 with an additional 40 sq. ft. of mitigation planting to compensate for the 40 sq. ft. permanent wetland buffer impact.

As conditioned, the buffer width variance would not be anticipated to be materially detrimental to the public welfare or injurious to the property or improvement.

16.4. *The granting of the buffer width variance will not materially affect the subject wetland.*

Applicant's Response: Prior to construction, erosion control measures will be installed to protect the wetland and its buffer. After project construction, any temporary impacts to the wetland buffer will be restored with native vegetation at the same time that other portions of the buffer will be enhanced. Enhancement of the wetland buffer will increase habitat conditions on site.

Staff Comment: Based on the provided critical area study, the stormwater dispersion trench is a low impact facility that would not materially affect the wetland as the water dispersed would feed the wetland with the treated stormwater runoff, supporting its hydrologic function. Additionally, the applicant proposes compensatory mitigation to the buffer which would include restoration and enhancement.

As conditioned, staff does not anticipated the proposed buffer variance to materially affect the wetland.

16.5. *Best available science, as set forth in MMC 22E.010.040, shall be taken into consideration in the granting of a buffer width variance.*

Applicant's Response: Best available science has been applied through an analysis of existing wetland and buffer functions, proposed project actions, and post-construction conditions/functions. An assessment of these functions and values is provided in section 7.0 of this report [Exhibit 021].

Staff Comment: Staff reviewed the revised Critical Area Study and Buffer Mitigation Plan (Exhibit 021), prepared by Wetland Resources, Inc, dated March 28, 2024, for compliance with MMC 22E.010 and concurs with the findings.

17. **Hearing Examiner – Required Findings.** MMC 22G.010.170(3) requires that the Hearing Examiner not approve a proposed development without first making the following findings and conclusions:

17.1. *The development is consistent with the comprehensive plan and meets the requirements and intent of the Marysville Municipal Code.*

Staff Comment: The Comprehensive Plan designation for the subject property is High Density Single Family. The proposed development and subsequent use of the property would be consistent with the pertinent development policies outlined in the Marysville Comprehensive Plan and the intent of the Marysville Municipal Code, as conditioned herein.

17.2. *The development makes adequate provisions for open space, environmentally sensitive areas, drainage, streets and other public ways, transit stops, water supply, sanitary wastes, public utilities and infrastructure, parks and recreation facilities, playgrounds, sites for schools and school grounds.*

Staff Comment: Based on a review of the preliminary plat map and application materials, the development makes adequate provisions for open space, environmentally sensitive areas, drainage, streets and other public ways, transit stops, water supply, sanitary wastes,

public utilities and infrastructure, parks and recreation facilities, playgrounds, sites for schools and school grounds.

17.3. *The development is beneficial to the public health, safety and welfare and is in the public interest.*

Staff Comment: Per Finding 15, the proposed PRD subdivision would be beneficial to the public health, safety and welfare and would be in the public interest as the subdivision has been designed in accordance with applicable Marysville Municipal Code requirements.

17.4. *The development does not lower the level of service of transportation and/or neighborhood park facilities below the minimum standards established within the comprehensive plan. If the development results in a level of service lower than those set forth in the comprehensive plan, the development may be approved if improvements or strategies to raise the level of service above the minimum standard are made concurrent with the development. For the purpose of this section, "concurrent with the development" is defined as the required improvements or strategies in place at the time of occupancy, or a financial commitment is in place to complete the improvements or strategies within six years of approval of the development.*

Staff Comment: As conditioned, the development would not lower the level of service of transportation and/or neighborhood park facilities below the minimum standards established within the comprehensive plan.

17.5. *The area, location and features of land proposed for dedication are a direct result of the development proposal, are reasonably needed to mitigate the effects of the development, and are proportional to the impacts created by the development.*

Staff Comment: As conditioned, the area, location and features of land proposed for dedication are a direct result of the development proposal, are reasonably needed to mitigate the effects of the development, and are proportional to the impacts created by the development.

18. **Preliminary Subdivision Review, Public Hearing – Elements Considered.** MMC 22G.090.130 requires the hearing examiner provide a basis for approval or disapproval of a proposed subdivision, as follows:

18.1. ***Public Use and Interest.*** *Evaluation of the proposed subdivision to determine whether the public use and interest are served by permitting the proposed subdivision.*

Staff Comment: After evaluation of the application materials and other supporting documentation available to the City, staff concludes that, as conditioned, the public use and interest are served by the proposed PRD subdivision.

18.2. ***Public Health, Safety and General Welfare****. Evaluation of the proposed subdivision to determine whether the public health, safety and general welfare have been served.*

Staff Comment: After evaluation of the application materials and other supporting documentation available to the City, staff concludes that, as conditioned, the public health, safety and general welfare have been served and that the PRD subdivision is consistent with the requirements of RCW 58.17.110.

18.3. ***Comprehensive Plan.*** *Evaluation of all elements of the comprehensive plan and its consistency with the proposed subdivision.*

Staff Comment: The proposed PRD subdivision and development of the parcel relate to all elements of the Comprehensive Plan. Compliance with the various elements of the Comprehensive Plan is specifically demonstrated in Finding 15.3.

18.4. ***Existing Zoning***. *Evaluation of existing zoning and its compliance with the proposed subdivision and MMC 22G.090, Article V, Land Division Requirements.*

Staff Comment: The existing zoning and its compliance with the proposed PRD subdivision and Article V of this chapter, Land Division Requirements has been evaluated. Compliance with specific zoning regulations is demonstrated in Finding 15.2.

18.5. ***Natural Environment.*** *Evaluation of the impacts and provision for mitigation of all impacts on all elements of the natural environment including topography, vegetation, soils, geology and all environmental issues as defined in the State Environmental Policy Act, Chapter 197-11 WAC, and MMC 22G.090, Article V , Land Division Requirements.*

Staff Comment: The project site is not subject to environmental review via the SEPA review process pursuant to MMC 22E.030.090(1)(a) and WAC 197-11-800(6); therefore, this provision would not apply.

However, staff reviewed impacts on all elements of the natural environment including topography, vegetation, soils, geology, and all environmental issues, and determined compliance with MMC 22G.090, Article V, Land Division Requirements, as conditioned herein.

Drainage. *Evaluation of all drainage impacts and provisions made for mitigation of all drainage impacts as defined in the city's drainage codes, and MMC 22G.090, Article V, Land Division Requirements.*

Staff Comment: All drainage impacts have been evaluated, and adequate provisions have been made to mitigate for all drainage impacts as defined in the City's drainage codes, and MMC 22G.090, Article V, Land Division Requirements.

18.6. ***Open Space.*** *Evaluation of all impacts and provision for open space as defined in MMC 22G.090, Article V, Land Division Requirements.*

Staff Comment: As a condition of final PRD subdivision, the applicant must submit copies of restrictions and covenants for the maintenance of the common open space areas pursuant to MMC 22G.090.240 and MMC 22G.080.120.

Further, no division or redivision of land shall be approved unless appropriate provisions are made for, but not limited to, the public health, safety and general welfare, relating to open space, drainage ways, streets, alleys, other public ways, water supplies, sanitary wastes, parks, school facilities and other standards as may be required by this title.

18.7. ***Public Systems Capacity***. *Evaluation of all impacts and provisions made for mitigation of impacts on public systems including parks, schools, and community facilities as defined in MMC 22G.090, Article V, Land Division Requirements.*

Staff Comment: The applicant is required to pay mitigation fees for each new dwelling unit in accordance with MMC 22D.020 and MMC 22D.040 in order to mitigate potential impacts on parks, schools, and community facilities.

18.8. ***Public Services**. Evaluation of all impacts and provisions made for mitigation of impacts on public services including streets, all public utilities, and fire and police protection as defined in MMC 22G.090, Article V, Land Division Requirements.*

Staff Comment: The proposed PRD subdivision would construct streets providing appropriate access and circulation to all proposed new lots. Public utilities are to be extended to serve all new units in accordance with City standards. Appropriate improvements for fire safety in accordance with the city's fire code would be provided. Capital improvement fees are required to be collected for water, sewer, and stormwater.

18.9. ***Floodplain.** Identification of subdivisions proposed in the floodplain and compliance with requirements of this chapter and MMC 22E.020, Floodplain Management.*

Staff Comment: The project is not located within an identified floodplain; therefore, this provision would not apply.

RECOMMENDATION

Based on the foregoing findings and conclusions, review of the application materials and other supporting documentation available to the Community Development Department, and the City's regulatory authority to implement the policies, standards, and regulations of the Marysville Comprehensive Plan and Marysville Municipal Code, the Community Development Department respectfully recommends that the Hearing Examiner ***APPROVE*** the proposed Preliminary Subdivision with Wetland Variance, subject to the following conditions:

1. The preliminary configuration (Exhibit 032) shall be the approved plat configuration. The final PRD subdivision shall be processed in strict compliance with the provisions of Article III Final Subdivision Review and Article V Land Division Requirements of MMC 22G.090 and Planned Residential Developments of MMC 22G.080.
2. The final plat shall be approved and recorded within 5 years of the date of preliminary approval. A 2-year extension may be granted in accordance with MMC 22G.090.170.
3. Prior to final PRD approval, the applicant shall submit to the City for its approval, covenants, deed restrictions, homeowners' association bylaws, and other documents providing for preservation and maintenance of all common open space, parking areas, walkways, landscaping, signs, lights, roads, and community facilities consistent with MMC 22G.080.120. All common areas and facilities shall be continuously maintained at a minimum standard at least equal to that required by the City, and shall be approved by the City at the time of initial occupancy. Said restrictive covenants shall also include provisions to address parking enforcement and a statement from a private attorney as the adequacy of the covenants to fulfill the requirement of the PRD.
4. In order to achieve density greater than 6.5 dwelling units per acre, the applicant shall be required to demonstrate compliance with MMC 22C.090 *Residential Density Incentives*. Any and all RDI financial contributions shall be paid prior to final plat being recorded.

   If the proposed RDI tools proposed are not possible to implement, the total number of lots proposed would be reduced accordingly.
5. Residential fire sprinklers shall be required for Lots 15, 16, and 17, unless adequate alternative provisions are reviewed and approved the Marysville Fire Marshal.

6. Any lots under 5,000 sq. ft. must demonstrate compliance with MMC 22C.010.310, Small lot single family dwelling development standards, prior to building permit issuance.

   6.1. Lots 15 – 17 must be oriented to have the front façade facing 83rd Avenue NE

7. The maximum height of solid (more than 50% opaque) free-standing walls, fences, or hedges in any front yard or other location between the street and the façade shall be 3½ feet unless a taller wall is required, per the Community Development Director, to mitigate significant noise and traffic impacts.

8. In development configurations where side yards abut a street, fences taller than 3½ ft. shall be setback at least 5 ft. from the sidewalk to allow for landscaping to soften the view of the fence. Provisions for long-term maintenance of this landscaping shall be addressed on the FINAL plat map.

9. All ground disturbing activities shall be in strict compliance with the approved site plan and as outlined in the approved Critical Area Study and Buffer Mitigation Plan, prepared by Wetland Resources, Inc, dated March 28, 2024 (Exhibit 021), or as amended and approved by Community Development.

10. Prior to recording of the final plat, all mitigation measures as proposed in the approved Buffer Mitigation Plan, shall be implemented with final approval by Community Development. Security for performance and/ or maintenance of the required mitigation and monitoring shall be in strict compliance with MMC 22E.010.160.

11. The onsite wetland and buffer area that will be retained must be placed in a separate Native Growth Protection Area (NGPA) tract. The boundary of the tract shall be delineated by the installation of City approved fencing and signage.

12. Prior to issuing any ground disturbing activity permits, the applicant is required to obtain all necessary permits and approvals from Federal, State and local agencies for the proposed critical areas impacts.

13. Prior to any ground disturbing activities, all wetland buffer areas shall be temporarily fenced between the construction activity and the buffer area with highly visible and durable protective barrier(s). Said barriers shall be retained during construction to prevent access and sedimentation from disturbed areas from entering the wetland or its buffer.

14. A final landscape plan shall be required to be approved, prior to civil construction plan approval, and designed to comply with the applicable provisions outlined in MMC 22C.120, *Landscaping and Screening* and MMC 22G.090.570

    14.1. All required landscaping shall be bonded prior to final plat approval per MMC 22C.120.060.

15. Pursuant to MMC 22D.030.070(6)(a)(ii), the traffic concurrency determination and the project's impacts and mitigation obligations shall expire upon expiration of the subdivision. The project is subject to the (3) traffic mitigation obligations as required by the Traffic Concurrency Recommendation, dated May 17, 2024. Said obligations are as follows:

    15.1. The applicant shall be required to construct frontage improvements along 83rd Ave NE and the new internal plat road NE, prior to the recording the final subdivision. Roadway improvements, channelization, site access and lighting plans shall be required to be reviewed and approved by the City Engineer, prior to construction plan approval.

    - 83rd Ave NE shall be built compliant with SP 3-201-004.
    - The proposed internal plat road shall be built compliant with SP 3-202-002.

15.2. The applicant shall be required to dedicate public right-of-way in order to accommodate the required frontage improvements, in accordance with MMC 12.02A.110(1)(c), *Dedication of Road right-of-way – Required setbacks*. Right-of-way widths and required dedication shall be determined by the City Engineer.

15.3. In order to mitigate impacts upon the future capacity of the road system, the applicant shall be required to submit payment to the City of Marysville, on a proportionate share cost of the future capacity improvements as set forth in MMC 22D.030.070(3), for the development. Traffic impact fees shall be vested at a rate of $6,300.00, per PMPHT.

16. The applicant shall submit payment to the City of Marysville for park impacts caused by the development in accordance with MMC 22D.020, *Parks, Recreation, Open Space and Trail Impact Fees and Mitigation*. Park mitigation fees will be based on the fee schedules in effect at the time an individual building permit application is accepted by the City, and will be required to be paid prior to building permit issuance unless deferred until a time preceding final building inspections being granted.

17. The applicant shall submit payment to Marysville School District for school impacts caused by the development in accordance with MMC 22D.040, *School Impact Fees and Mitigation.* School mitigation fees will be based on the fee schedules in effect at the time an individual building permit application is accepted by the City, and will be required to be paid prior to building permit issuance unless deferred until a time preceding final building inspections being granted.

18. Credit for impact fees shall be given to compensate for the existing single family residence. Therefore, impact fees shall be collected for Lots 2 – 23, excluding Lot 1.

19. All necessary power lines, telephones wires, television cables, fire alarm systems and other communication wires, cables or shall be placed in underground location either by direct burial or by means of conduit or duct. All such underground installations or systems shall be approved by the appropriate utility company and shall adhere to all governing applicable regulations including, but not limited to, the applicable City and State regulations and specific requirements of the appropriate utility pursuant to MMC 22G.090.710(1).

Prepared by: Emily

Reviewed by: Chris

EXHIBITS

The following Exhibits can be accessed electronically via the link provided in the exhibit header below:

PA23-030 – Chapel Hill Subdivision

01) Land Use Application
02) Project Narrative
03) Title Report/Legal Description
04) Fire Flow
05) Critical Area Report, dated November 15, 2023
06) Traffic Impact Analysis
07) Geotechnical Report
08) Drainage Report
09) Landscape Plan
010) Plat Map
011) Preliminary Civil Plans
012) Letter of Completeness
013) Request for Review
014) Notice of Application
015) Notice of Application Affidavit of Publication
016) Technical Review Comments 1
017) Resubmittal Letter
018) Preliminary Site Plan, Revision 1
019) Preliminary Civil Plans, Revision 1
020) Landscape Plan, Revision 1
021) REVISED Critical Area Report, dated March 28, 2024
022) Drainage Report, Revision 1
023) Traffic Impact Analysis, Revision 1
024) Technical Review Comments 2
025) Approved Preliminary Site Plan
026) Concurrency Recommendation
027) Concurrency Acceptance
028) Notice of Public Hearing
029) WRI Report Clarification Correspondence
030) NOPH Affidavit of Posting
031) NOPH Affidavit of Publication
032) Updated PRD Plat Map
033) Comments from Fire District
034) Revised Notice of Public Hearing
035) Revised NOPH Affidavits of Publication & Posting

Everett Daily Herald

Affidavit of Publication

State of Washington }
County of Snohomish } ss

Michael Gates being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the Everett Daily Herald a daily newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a daily newspaper in Snohomish County, Washington and is and always has been printed in whole or part in the Everett Daily Herald and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Snohomish County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of EDH999043 PA 23-030 as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 1 issue(s), such publication commencing on 07/10/2024 and ending on 07/10/2024 and that said newspaper was regularly distributed to its subscribers during all of said period.

The amount of the fee for such publication is $80.84.

Subscribed and sworn before me on this 10th day of July, 2024.

RANDIE POSPICAL
Commission Expires 10-20-2027
NOTARY PUBLIC
License Number 23034934
STATE OF WASHINGTON

Notary Public in and for the State of Washington.

COMM DEVEL - CITY OF MARYSVILLE | 88522148
MARISA NISHIMURA

MARYSVILLE

CITY OF MARYSVILLE
COMMUNITY DEVELOPMENT DEPARTMENT
501 Delta Avenue • Marysville, WA 98270 • (360) 363-8000

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that open record public hearing will be held before the Hearing Examiner on Wednesday, July 24th at 6:00 PM at 501 Delta Avenue, 2nd Floor – Council Chambers for the following proposal:

File Number: PA 23-030
Project Title: Chapel Hill Subdivision
Applicant: Robinett Investment Company
Project Agent: Jen Haugen, Land Resolutions
3605 Colby Ave, Everett, WA 98021
Project Location: 6114 83rd Ave NE
APN(s): 30052600403700 / 30052600404300

Project Description:
The applicant is proposing a 23-lot Planned Residential Development (PRD) Subdivision of approximately 4.01 acres. Access to the development would be from 83rd Ave NE onto a new internal roadway proposed with development. The site contains a category III wetland to be retained in a Native Growth Protective Area (NGPA) tract. A Wetland Variance is also proposed in order to locate a stormwater dispersion trench further into the wetland buffer than is allowed per MMC 22E.010.100(10); compensatory mitigation for the temporary and permanent wetland impacts is proposed with development.

Open Record Public Hearing: The public hearing will take place in person at 501 Delta Avenue, 2nd Floor – Council Chambers and via Zoom/teleconference. The Hearing Examiner and the City's project manager will attend in person; however, other staff, the applicant, and the public may attend either in person or via Zoom.

- Anyone wishing to provide written or verbal public comment must pre-register by the staff contact listed below by noon on Tuesday, July 23rd. If you wish to provide verbal public comment, you will need to provide your name, address, e-mail and phone number.
- Zoom Meeting Link: https://us06web.zoom.us/j/82201931923?pwd=6pSaMRbbYqpKe03dCgx18H0iZpHc4I.1
- Passcode: 895046
- To listen to the meeting without providing public comment:
- Dial In: 1.253.215.8782
- Meeting ID: 830 5322 3470

Document Availability:
http://docs.marysvillewa.gov/htcomnet/public/?folder=7736a130
For Project Information: Emily Morgan, Senior Planner - 360.363.8216 or emorgan@marysvillewa.gov
Published: July 10, 2024.

EDH999043