PROJECT INFORMATION

ADDRESS:	1002 WEST LAKE SAMMAMISH PKWY NE BELLEVUE, WA 98008	
ASSESSOR'S PARCEL NO:	743050-0431	
ZONE:	R2.5 SHORELINE OVERLAY DISTRICT	
SITE AREA:	KING COUNTY PARCEL AREA = 23,256 SF SURVEY PARCEL AREA = 19,790 SF	
BUILDING AREA:	LOWER LEVEL	1,285 GROSS SF
	MAIN LEVEL	1,285 GROSS SF
	UPPER LEVEL	1,583 GROSS SF
	TOTAL	4,153 GROSS SF
	UNCONDITIONED STORAGE	300 GROSS SF
	GARAGE	454 GROSS SF
	MAIN LEVEL DECK	284 GROSS SF
	TOTAL	1,038 GROSS SF
MAX. BUILDING HEIGHT:	30' - 0" BASED ON AVERAGE EXISTING GRADE	
CONSTRUCTION TYPE:	TYPE VB	
GARAGE PARKING:	2	
PROJECT DESCRIPTION:	TO RENOVATE AN EXISTING 2 STORY HOME, ADDING A 3RD LEVEL AND GARAGE. PROJECT WILL INCLUDE PAVER AND GRASS RE-SEEDING AND WILL NEED TO FOLLOW BEST MANAGEMENT PRACTICES FOR SHORELINE PROPERTIES. DECONSTRUCTION PROCESS TO LOOK AT RESPONSIBLE WAYS TO RECYCLE/REDUCE WASTE FOR COST SAVING OPPORTUNITIES	
FIRE SPRINKLERS:	OTC REVIEW SAID REQUIRED DUE TO ACCESS ROAD	

LEGAL DESCRIPTION

THE SOUTWESTERLY HALF OF TRACT 84 AND ALL OF TRACT 85, ROSEMONT BEACH, ACCORDING TO THE PLAT RECORDED IN VOL. 34 OF PLATS, PAGE 28, IN KING COUNTY, WASHINGTON.

EXCEPT THE NORTHEASTERLY 5 FEET OF THE SOUTHWESTERLY HALF OF LOT 84 OF SAID ADDITION.

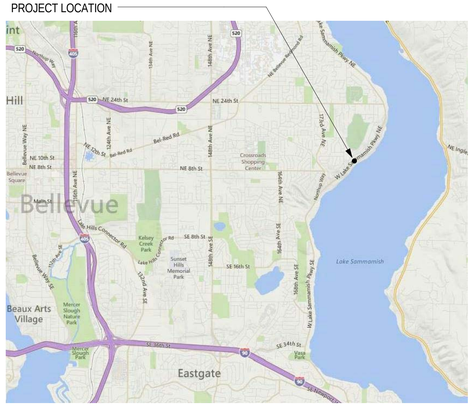
SUBJECT TO A 40' EASEMENT FOR EXISTING PRIVATE ROAD AND UTILITIES ACROSS THE ABOVE DESCRIBED PROPERTY AS RECORDED UNDER A.F. NO. 3577970.

CODE REQUIREMENTS

BUILDING CODE:	2012 IRC, WAC 51-51
ENERGY CODE:	2012 WSEC, WAC 51-11 2012 INTERNATIONAL ENERGY CONSERVATION CODE, WAC 51-11R, ENERGY CREDIT 5B - HIGH EFFICIENCY WATER HEATING
MECHANICAL CODE:	2012 INTERNATIONAL MECHANICAL CODE, WAC 51-52
PLUMBING CODE:	2012 UNIFORM PLUMBING CODE, WAC 51-56 AND 51-57

VICINITY MAP

PROJECT LOCATION



Revise the plan or provide a separate plan to clearly show the existing structure, required setback boundaries, and any expansions into those setbacks through use of hashing, color or some other means. Also callout the square footage of the expansion into any protected setbacks. Any temporary disturbance for construction must also be shown with the area calculated.

LOT COVERAGE CALCULATIONS

LOT COVERAGE BY STRUCTURE	
LOT AREA	19,970 SQ. FT.
MINUS <STEEP SLOPE CRITICAL AREA>	6,952 SQ. FT.
MINUS <FLOODPLAIN>	1,754 SQ. FT.
NET LOT SQ. FT.	11,264 SQ. FT.
EXISTING HOME	1,272 SQ. FT.
DECKS > 30" ABOVE GRADE	288 SQ. FT.
PORCHES	176 SQ. FT.
EXTERIOR STAIRS	30 SQ. FT.
BOATHOUSE (WITHIN PROPERTY LINES)	186 SQ. FT.
GARAGE ADDITION	454 SQ. FT.
3RD FLOOR CANTILEVERED ADDITION	186 SQ. FT.
TOTAL	2,592 SQ. FT.
PERCENTAGE OF NET LOT SQ. FT.	23%

IMPERVIOUS SURFACE COVERAGE	
PROPOSED HOUSE / GARAGE ROOF	2,232 SQ. FT.
EXISTING BOATHOUSE ROOF	227 SQ. FT.
REAR PATIO	1,167 SQ. FT.
FRONT PATIO AND WALKWAYS	508 SQ. FT.
EASEMENT	3,077 SQ. FT.
TOTAL	7,211 SQ. FT.
PERCENTAGE OF LOT	36%

1 SITE PLAN

SCALE: 1" = 20'-0"

0' 10' 20' 40'

COATES DESIGN ARCHITECTS
Responsible Architecture.
900 WINSLOW WAY E SUITE 210
BAINBRIDGE ISLAND WA 98110
P 206.780.0876

ISSUED FOR: DATE:

PERMIT SET	06/08/2015
REVISION 1, PERMIT CORRECTIONS	06/25/2015
REVISION 2, PERMIT CORRECTIONS	09/16/2015

9092 REGISTERED ARCHITECT,
MATTHEW G. COATES
STATE OF WASHINGTON

ANDEREGG-EVANS RESIDENCE

1002 W LAKE SAMMAMISH PKWY NE
BELLEVUE, WA 98008

SITE PLAN

A1.00

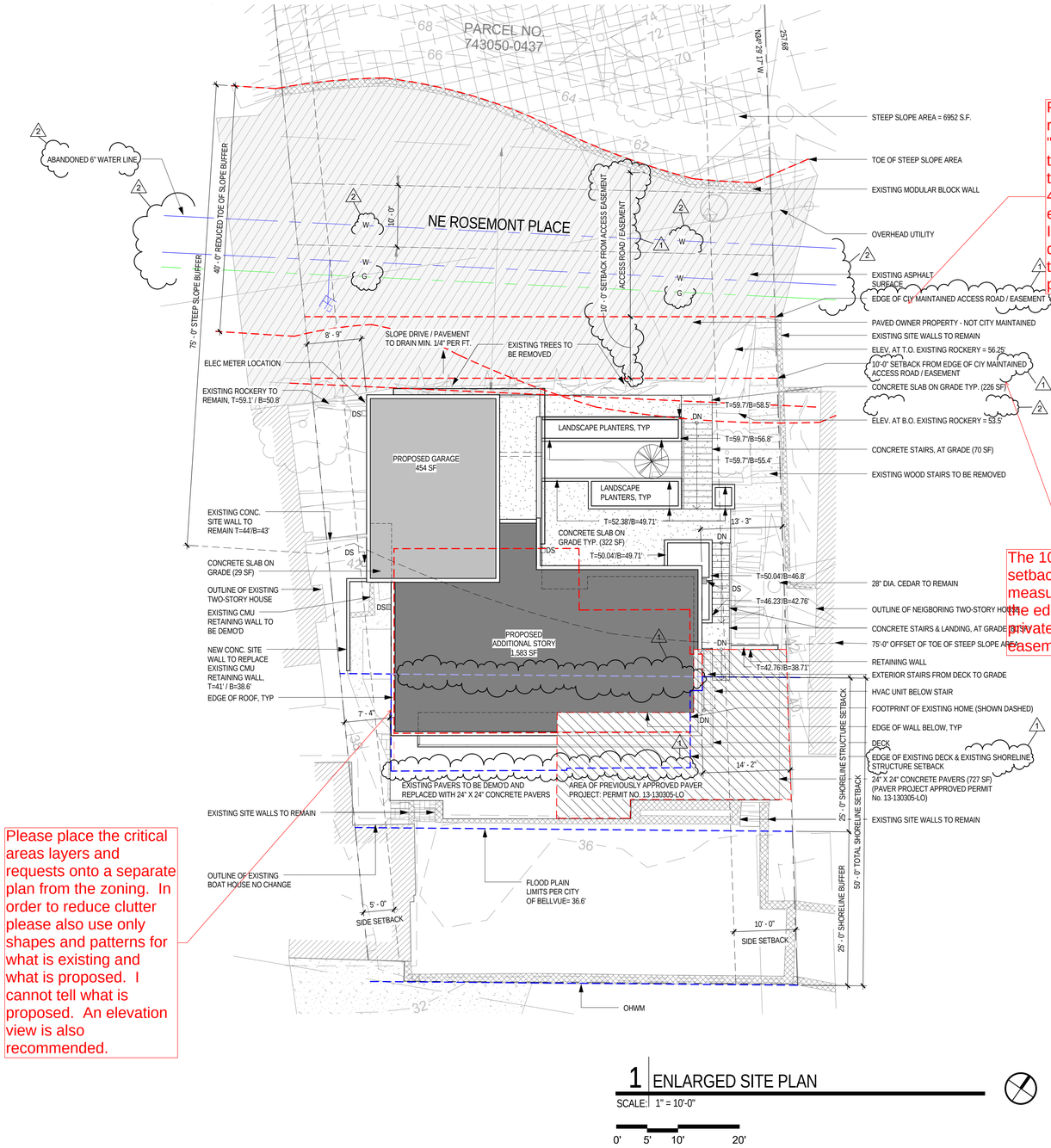
Project Number
ANDEREGG-EVANS RESIDENCE

9/16/2015 3:29:33 PM

\\COATES\Folder Redirection\Brooks\Documents\AE Residence_CENTRAL 2_brooks.rvt

Project Number

ANDEREGG-EVANS RESIDENCE



Please place the critical areas layers and requests onto a separate plan from the zoning. In order to reduce clutter please also use only shapes and patterns for what is existing and what is proposed. I cannot tell what is proposed. An elevation view is also recommended.

Please remove all references on all plans to "City maintained" road as the City does not maintain this private road. There is 40-foot private road easement over the property. If there is some legal documentation available on the easement please provide it.

The 10-foot setback is measured from the edge of a private road easement.

1 ENLARGED SITE PLAN

SCALE: 1" = 10'-0"

0' 5' 10' 20'

COATES DESIGN ARCHITECTS

Responsible Architecture.

900 WINSLOW WAY E SUITE 210
BAINBRIDGE ISLAND WA 98110
P 206.780.0876

DATE:

PERMIT SET	06/08/2015
REVISION 1, PERMIT CORRECTIONS	06/25/2015
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9092 REGISTERED ARCHITECT,

MATTHEW G. COATES
STATE OF WASHINGTON

ANDEREGG-EVANS RESIDENCE

1002 W LAKE SAMMAMISH PKWY NE
BELLEVUE, WA 98008

ENLARGED SITE PLAN

A1.01

LEGAL DESCRIPTION

THE SOUTHWESTERLY HALF OF TRACT 84 AND ALL OF TRACT 85, ROSEMONT BEACH, ACCORING TO THE PLAT THEREOF RECORDED IN VOLUME 34 OF PLATS, PAGE 28, RECORDS OF KING COUNTY, WASHINGTON;
EXCEPT THE NORTHEASTERLY 5 FEET OF THE SOUTHWESTERLY HALF OF LOT 84 OF SAID ADDITION;
SUBJECT TO A 40' EASEMENT FOR EXISTING PRIVATE ROAD AND UTILITIES ACROSS THE ABOVE DESCRIBED PROPERTY AS RECORDED UNDER AF #: 3577970'

SITUATE IN THE CITY OF BELLEVUE, COUNTY OF KING, STATE OF WASHINGTON.

FLOOD ZONE DESIGNATION

FLOOD ZONE DESIGNATION = X, AREA DETERMINED TO BE OUTSIDE OF 500-YEAR FLOOD PLAIN, ACCORDING TO FLOOD INSURANCE RATE MAP (FIRM) NO. 53033C0680 F, COMMUNITY NO. 530074 (CITY OF BELLEVUE), PANEL 0680, SUFFIX F, REVISED MAY 16, 1995, KING COUNTY, WASHINGTON, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA). A PORTION OF THE LOT IS ALSO WITHIN FLOOD ZONE DESIGNATION = AE (BFE 33' NGVD 29 - 36.59' NAVD 88)

VICINITY MAP
NTS

LEGEND

- FOUND MONUMENT IN CASE
- FOUND PROPERTY CORNER AS DESCRIBED
- POWER METER
- GAS METER
- OHU — OVERHEAD UTILITY LINE
- CATCH BASIN
- STORM DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- ELVLT — ELECTRICAL VAULT
- SS — APPROXIMATE LOCATION SANITARY SEWER LINE
- SD — APPROXIMATE LOCATION STORM DRAIN LINE
- X — CHAINLINK FENCE
- CONCRETE / BRICK WALL
- WOOD FENCE
- ROCKERY
- ASPHALT SURFACE
- CONCRETE SURFACE

MP	MAPLE
DS	DECIDUOUS
CE	CEDAR
DF	DOUGLAS FIR
AL	ALDER
MD	MADRONA

* INDICATES MULTI-TRUNK

GENERAL NOTES

1. THIS SURVEY WAS COMPLETED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.
2. INSTRUMENTATION FOR THIS SURVEY WAS A 3-SECOND NIKON NPL 352 TOTAL STATION. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET BY WAC 332-130-090.
3. THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN DECEMBER 2014 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
4. UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE GROUND OBSERVATIONS AND AS-BUILT PLANS WHERE AVAILABLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.
5. ALL MONUMENTS WERE LOCATED DURING THIS SURVEY UNLESS OTHERWISE NOTED.

VERTICAL DATUM & CONTOUR INTERVAL

DATUM

ELEVATIONS SHOWN ON THIS DRAWING WERE DERIVED FROM INFORMATION PROVIDED BY THE CITY OF BELLEVUE.

POINT ID NO. 0512
MONUMENT IN CASE WEST SIDE OF WEST LAKE SAMMAMISH PARKWAY.
ELEVATION: 126.794 FEET (NAVD 88).

2.0' CONTOUR INTERVAL - THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 THE CONTOUR INTERVAL OR PLUS / MINUS 1.0' FOR THIS PROJECT.

PROJECT INFORMATION

SURVEYOR:	SITE SURVEYING, INC. 21923 NE 11TH STREET SAMMAMISH, WA 98074 PHONE: 425.298.4412
PROPERTY OWNER:	KENDALL ANDEREGG 1002 W LAKE SAMMAMISH PARKWAY NE BELLEVUE, WA 98008
TAX PARCEL NUMBER:	743050-0431
PROJECT ADDRESS:	1002 W LAKE SAMMAMISH PARKWAY NE BELLEVUE, WA 98008
ZONING:	R-2.5
JURISDICTION:	CITY OF BELLEVUE
PARCEL ACREAGE:	19,790 S.F. (± 0.454 ACRES) UPLAND OF OHWM AS SURVEYED

SW 1/4, SW 1/4, SEC 30, TWP 25N, RNG 6E, W.M.

Site Surveying, Inc.
21923 NE 11th Street Sammamish, WA 98074
Phone: 425.298.4412
www.allsurveymapping.com

REVISION / DRN / DATE

TOPOGRAPHIC SURVEY

KENDALL ANDEREGG
1002 W LAKE SAMMAMISH PARKWAY NE
BELLEVUE, WA 98008

PROJECT NO. 14-541

DRAWN BY: EFJ
CHECKED BY: TNW
DATE: 12-13-14

SHEET 1 OF 1

MITIGATION PLAN
for
Shoreline Exemption Permit
Environmentally Critical Areas

Parcel # 743050-0431

Anderegg-Evans Residence
1002 West Lake Sammamish Parkway NE
Bellevue WA 98008

Prepared for:

Ms. Kendall Anderegg & Mr. Dan Evans
1002 West Lake Sammamish Parkway NE
Bellevue, WA 98008

Dan.Evans@nwkidney.org

Prepared by

H & S CONSULTING
P. O. Box 731695
Puyallup, WA 98373
253 732-6515

MHeckert@Q.com

May 25, 2015

EXECUTIVE SUMMARY

The Anderegg residence, 1002 West Lake Sammamish Parkway NE (Parcel # 743050-0431) is located generally east of West Lake Sammamish Parkway NE, in the City of Bellevue, Washington. The project site is 23,256 sq. ft.. The site is bounded on the north and south by single-family residential development, and on the east by the shoreline of Lake Sammamish. The site contains a single-family house.

As part of the site planning process an assessment of the project was completed following the procedures outlined in the BMC Chap. 20.25H. The site is totally encumbered by Shoreline Buffer and Slope buffer.

The proposed project is to renovate the landscaping and add an attached garage. The proposed development will result in a net increase in impervious surface area of approximately 750 sq. ft. within the Slope buffer of the slope to the west, which triggers habitat mitigation requirements per BMC 20.25H.125 and 20.25H.210-225.

Mitigation required for this impact is the intensive re-planting of 860 sq. ft. of steep slope area upslope of NE Rosemont Place and the development. The entire parcel upslope of NE Rosemont Place will be enhancement planted to increase soil retention and stability. These areas will be vegetated in native trees and shrubs and maintained as pervious surface.

TABLE OF CONTENTS

STANDARD OF CARE

Prior to extensive site planning, this document should be reviewed and the wetland boundaries verified by the appropriate resource and permitting agencies. Wetland boundaries, wetland classifications, wetland ratings, proposed buffers, and proposed compensatory mitigation should be reviewed and approved by City of Bellevue Planning dept. personnel and potentially other resource agency staff. H & S Consultants has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. H & S Consultants is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Mark Heckert
H & S Consultants

INTRODUCTION

This report details activities to mitigate for unavoidable impacts to regulated City of Bellevue Environmentally Critical Areas as an initial element of the site planning process for the ANDEREGG residence (Parcel # 743050-0431). The project site is approximately 23,256 sq. ft.. The site is bounded on the north and south by single-family residential development, and on the east by the shoreline of Lake Sammamish. The site contains a single-family house.

STUDY PURPOSE

This purpose of this document is to present the plan for mitigation of unavoidable impacts to the regulated steep slope buffer within the project site. This study was designed to accommodate site planning and potential regulatory actions. This report is suitable for submittal to federal, state, and local authorities for permitting actions.

SITE DESCRIPTION

The site is roughly rectangular, approximately 23,256 sq. ft., sloping to the east throughout, and located along the shoreline of Lake Sammamish within the City of Bellevue.

Movement of surface water runoff across the site is generally to the east to Lake Sammamish.

MITIGATION PLAN

The selected site development actions for the Anderegg residence is the remodeling of a single-family residence consistent with the City of Bellevue comprehensive plan and local land use zoning. The proposed project is to renovate and modernize the homesite landscape with the addition of an attached garage. The garage is a necessary addition to the home site, which does not have off-street parking or a garage. The entire site is encumbered by interlacing Shoreline buffer from the east and Slope Critical Area and buffer from the west. Through site planning the project team has been able to design the homesite and associated utilities to minimize adversely impacting the identified onsite steep slope and buffer. The regulated slope critical area and standard buffer must be reduced to accommodate reasonable use of the site.

Mitigation for the required slope impact at the western end of the house will be provided by designating two areas (Enhancement area and Intense planting area) for permanent establishment as permeable areas. These areas will be planted with a variety of native trees and shrubs.

The Intense planting area is part of the steep slope which has been cleared of vegetation and covered with English ivy (*Hedera helix*).

The Enhancement area is mature upland forest on the steep slope which has bare areas suitable for interspersion planting.

Potential impacts to habitat from the development are:

1). **Short-term construction disruption**. This impact will be mitigated thru the placement of silt fence barriers in any area which may convey soil into downslope (see Anderegg residence Site Civil Plans, erosion control Plan) and oversight by the project biologist during construction. The project biologist will observe and consult with construction crews during construction to ensure compliance with best management practices during the excavation of the buffer area.

2). **Long-term impacts from development**:

a). Permanent loss of habitat area. There will be no functional loss of habitat area. At present the mitigation area is moderate functional. Functional buffer area will increase as a result of installation of trees and shrubs.

MITIGATION FUNCTIONAL COMPARISON

ENVIRONMENTAL FUNCTION	EXISTING	PROPOSED
Hydrological Support Function	Low	Moderate
Stormwater Storage Function	Low	Moderate
Floodwater Storage Function	Low	Low
Water Quality Function	Low	Moderate
Groundwater Recharge Function	Moderate	Moderate
Natural Biological Functions	Low	Moderate
Education and Recreational Opportunities	Low	Low
Threatened and Endangered Species	Moderate	Moderate

(after Adamus et al. 1987: Reppert et al. 1979)

DESCRIPTION OF THE MITIGATION PROGRAM

1. As mitigation for the unavoidable impact to 750 sq. ft. of City of Bellevue regulated Environmentally Critical Area, retained Critical Slope area (Intense Planting Area) of 860 sq. ft. will be restored with native plants. The area to be enhanced will be cleared of exotic species.

2. Enhancement Area (8,500 sq. ft.) will be enhanced with native trees, interspersed with existing vegetation (see Attachment 1). The area to be enhanced will be cleared of exotic species.

3. Temporary and long-term erosion control measures will be implemented (see Anderegg residence Site Civil Plans erosion control Plan). These measures include silt fencing during site preparation and buffer enhancement, retention of all possible existing vegetation and planting of new vegetation.

GOAL AND OBJECTIVE OF THE MITIGATION PLAN

The **GOAL** of the Mitigation Plan is to fully compensate for the unavoidable adverse impact to regulated buffer areas. Upon the completion of this mitigation plan there will be no net loss of permeable area.

To achieve the defined **GOAL**, the following **OBJECTIVES and PERFORMANCE CRITERIA** have been established to apply to the compensatory mitigation wetland area.:

Objective A. The enhanced steep slope area will total 9,360 sq. ft. and be located North and South of the remodeled house. The enhanced buffer will be hydrologically connected to the adjacent City of Bellevue Category II wetland. The enhanced buffer area will exhibit a scrub/shrub vegetation classes within five years following initial planting.

Performance Criterion #A1: As defined by plant counts 100% of the shrubs installed as a part of the initial planting phase will be alive at the end of the first growing season.

Performance Criterion #A2: As defined by plant counts 80% of the shrubs installed as a part of the initial planting phase will be alive at the end of the fifth growing season.

Performance Criterion #A3: As defined by aerial cover, invasives will cover less than 10% of the planting area in any one year.

SELECTED PLANT COMMUNITIES

The plant communities and plants selected for the designated buffer areas will be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are selected to increase plant diversity, match present onsite communities, increase wildlife habitats, and enhance the aquatic environment. Plantings will be located as depicted on the attached Anderegg Mitigation Plan drawing.

INTENSE PLANTING AREA: – 860 sq. ft.

	COMMON NAME SCIENTIFIC NAME	LOCATION	PROPOSED SPACING (oc)	PROPOSED SIZE
20	Red Currant (*Ribes sanquineum*)	SLOPE	3 ft	2 gal
20	Kinnickinick (*Arctostaphylos Uva-ursi*)	Slope	3 ft	1 gal

ENHANCEMENT PLANTING AREA: by opportunity – 8,500 sq. ft.

	COMMON NAME SCIENTIFIC NAME	LOCATION	PROPOSED SPACING (oc)	PROPOSED SIZE
25	Vine Maple (*Acer circinatum*)	slope	By opportunity	2 gal
25	Salmonberry *(Rubus spectabilis)*	Slope	By opportunity	1 gal.

0.30P.140 Decision criteria.

The Director may approve or approve with modifications an application for a Critical Areas Land Use Permit if:

A. The proposal obtains all other permits required by the Land Use Code; and

B. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer; and

C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and

D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities; and

E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan; and

F. The proposal complies with other applicable requirements of this code. (Ord. 5683, 6-26-06, § 27)

20.25H.055 Uses and development allowed within critical areas – Performance standards.

C. Performance Standards.

The following performance standards apply as noted in the table in subsection B of this section. The critical areas report may not be used to modify the performance standards set forth in this subsection C:

1. Repair and Maintenance and/or Construction Staging.

a. Work shall be consistent with all applicable City of Bellevue codes and standards;

b. Removal of significant trees is prohibited; and

c. Areas of temporary disturbance associated with the work shall be restored to pre-project conditions, pursuant to a restoration plan meeting the requirements of LUC 20.25H.210.

2. New and Expanded Uses or Development. As used in this section, "facilities and systems" is a general term that encompasses all structures and improvements associated with the allowed uses and development described in the table in subsection B of this section:

a. New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:

i. The location of existing infrastructure;

ii. The function or objective of the proposed new or expanded facility or system;

iii. Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside of the critical area;

iv. Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and

v. The ability of both permanent and temporary disturbance to be mitigated.

b. If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:

i. Location and design shall result in the least impacts on the critical area or critical area buffer;

ii. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized;

iii. Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;

iv. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer;

v. All work shall be consistent with applicable City of Bellevue codes and standards;

vi. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;

vii. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and

viii. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

20.25H.220 Mitigation and restoration plan requirements.

The applicant shall submit a mitigation or restoration plan for approval as part of the review of the underlying proposal. Where standard restoration requirements or templates have been approved by the Director for the proposal in question, those requirements or templates may be followed without need for submission of an individual mitigation or restoration plan. These general requirements shall be modified for areas of temporary disturbance included as part of an approved Critical Areas Land Use Permit or use or development allowed under LUC 20.25H.055, so long as the requirements of subsection H of this section are met.

A. Plan Phases.

Where an applicant is seeking modifications to this part or Part 20.25E LUC through a critical areas report pursuant to LUC 20.25H.230, the mitigation plan required for the proposal may be submitted in phases. A conceptual plan shall be submitted as part of the critical areas report and approved with the land use approval for the proposal. A detailed

plan shall be approved prior to or with approval of the first permit or other approval required to perform work associated with the proposal.

B. Restoration and Mitigation Project Details.

The plan shall be prepared by a qualified professional and shall at minimum include the content identified in this section. Additional requirements may be found for specific critical areas in LUC 20.25H.085 (streams); 20.25H.105 (wetlands); and 20.25H.135 (geologic hazard areas). Additional detail about the contents of restoration and mitigation plans may be developed by the Director in submittal requirements. The Director may waive any of the plan requirements where, in the Director's discretion, the information is not necessary to develop a mitigation or restoration plan that addresses the impacts of the proposed action.

1. A written report identifying environmental goals and objectives of the restoration or compensation proposed, based on replacing or restoring the critical area and critical area buffer functions and values impacted by the proposal;

2. Measurable specific criteria for evaluating whether or not the goals and objectives of the mitigation or restoration project have been successfully attained and whether or not the requirements of this part have been met; and

3. Written specifications and descriptions of the restoration or mitigation proposed.

a. When the mitigation plan is submitted as a single-phase, or for the detailed plan phase when submitted in two phases, these written specifications shall be accompanied by detailed site diagrams, scaled cross sectional drawings, topographic maps showing slope percentage and final grade elevations, and any other drawings appropriate to show construction techniques or anticipated final outcome.

b. When the mitigation plan is submitted in phases pursuant to subsection A of this section, the written specifications may be general in nature for the conceptual phase, including general identification of areas for work, planting species, size and number. The more precise details may be provided in the detailed plan phase.

C. Timing of Work.

Unless a different time period is established in another section of this part, or is established by the Director in the approval for a specific project, all work required in a mitigation or restoration plan shall be completed prior to final inspection or issuance of a temporary certificate of occupancy or certificate of occupancy, as applicable, for the development.

D. Monitoring Program.

The plan shall include a program for monitoring construction of the mitigation project and for assessing a completed project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five years. The required monitoring period for a plan involving restoration only shall be reduced to a period of not less than three years.

E. Contingency Plan.

The mitigation plan shall include identification of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met and such failure would result in significant impact on the critical area or buffer. A plan involving restoration only is not required to include a contingency plan.

F. Assurance Devices.

The Director may require assurance devices in compliance with LUC 20.40.490 to ensure that the approved mitigation, monitoring program, contingency plan and any conditions of approval are fully implemented.

G. Mitigation for City Park Projects.

Through a critical areas report, impacts of City park projects on critical areas and critical area buffers may be mitigated through restoration or enhancement of critical areas on other City park sites. Such restoration or enhancement may include restoration or enhancement projects completed prior to the proposal for which mitigation is required, so long as the restoration or enhancement project was not performed as mitigation for any other public or private project. The critical areas report shall demonstrate that the proposed mitigation restores the impacted critical area functions and values at least as well as mitigation performed on-site and in-kind associated with the development proposal. The Director may require an NGPE or NGPA be recorded for the mitigation area to ensure that it is maintained in perpetuity.

CONSTRUCTION INSPECTION

Essential to the success of the compensatory mitigation program is the accurate inspection of onsite activities immediately prior to and during the wetland creation and planting phases. These activities include pre-construction site inspection, onsite inspection and technical direction during wetland creation and planting activities, and post-creation/planting site inspection and evaluation.

The pre-creation site inspection allows the project proponent and the project biologist to evaluate and, if necessary, adjust the onsite construction steps. These steps include analysis of project site elevation features, project sequencing and timing, final grade analysis, unforeseen required minor modifications to the original establishment plan, and

the establishment of environmental protections (silt fences, etc.) required during construction. Interaction with City of Bellevue planning staff is also an essential element during pre-construction site inspections and discussions. Onsite technical inspection during construction and planting activities will be implemented by the project biologist. The project biologist will perform oversight and address minor unforeseen difficulties to assure that the intent of the wetland mitigation plan is met.

The project biologist shall also be responsible for ensuring that the species and sizes of native plants selected are utilized during initial planting. If selected native species become unavailable, the project biologist will consult with City of Bellevue wetland staff for substitute plant species to ensure that the intent of the wetland mitigation plan is met.

VEGETATION MAINTENANCE PLAN

Maintenance of the created wetland and buffer plant communities may be required to assure the long-term health and welfare of the wetland's and buffer's environmental functions. The overall objective is to establish undisturbed plant communities that do not require maintenance.

MITIGATION CONSTRUCTION SCHEDULE

PROJECT TASK	TASK SCHEDULE (on or before)
Placement of protective fencing, final marking, and identification of work area.	September, 2015
Planting of enhancement	October, 2015
Record-drawings report to City	December, 2015

PROJECT MONITORING

Following the successful completion of the proposed mitigation plan a three-year monitoring and evaluation program will be undertaken. The purpose of this program is to assure the success of the selected mitigation as measured by an established set of performance criteria (*see above*). This monitoring will also provide valuable information on the effectiveness of mitigation procedures.

STANDARDS OF SUCCESS

Vegetation Sampling Methodology and Monitoring Schedule

Onsite monitoring will count and clearly identify each tree and shrub installed during the initial planting phase. Such monitoring will also include any subsequent planting required to meet the performance criteria. These defined performance criteria will be applied at the

time of monitoring. All installed trees and shrubs will be visually evaluated to determine the rate of survivorship, health, and vigor of each plant.

Vegetation Monitoring

1. Upon the completion of initial planting and as a part of each monitoring period the project biologist will count the number of live plants which were planted within the enhancement areas. Plants will be identified to species and observations of general plant condition (i.e., plant health, amount of new growth) are to be recorded for each plant.

2. The project biologist will count the number of undesirable invasive plants and estimate the aerial coverage (as if the observer were looking straight down from above) of these invasive plants. Undesirable plants include blackberries, Scot's broom, tansy ragwort, and other such plants listed in the Washington State Noxious Weed List.

3. The project biologist will count the number of desirable "volunteer" plants and estimate the aerial coverage of these plants within the mitigation area.

4. The project biologist will take photographs that show the entire mitigation area. During the three-year monitoring period photos will be taken in the same direction and at the same location to provide a series of photos. These photos will show plant growth, plant species, and plant coverage.

5. Upon the completion of the initial project planting and upon the completion of each monitoring period the project biologist will prepare a report defining methods, observations, and results along with the date the observations were completed. Each report will be sent to the City of Bellevue Planning Dept..

6. The monitoring schedule is defined as:

A. **At the completion of initial project planting**. This report will include a "record drawing" defining the species used, locations, and general site conditions. This report will also include a "lessons learned" section to assist in future monitoring and final project assessment. This "record drawing" and report will be provided to the City within two weeks after the completion of onsite planting.

B. **Twice per year for five years following the completion of initial onsite planting.** Onsite monitoring will be completed once in the spring and once near the end of the growing season (late September). For each onsite monitoring activity a report will be prepared and provided to the City within two weeks after the completion of onsite monitoring.

The last monitoring report will include notification to the City biologist that the monitoring program has concluded and that City review and site inspection is required for project analysis and release of the financial guarantee. This final report will also include a "lessons

learned" section to assist and final project assessment and to potentially assist in the evaluation other mitigation projects.

Vegetation Monitoring Sequencing

IDENTIFIED TASK	DATE OF COMPLETION (on or before)
First growing season fall plant inspection	September 30, 2016
First growing season fall report	October 15, 2016
Second growing season fall plant inspection	September 30, 2016
Second growing season fall report	October 15, 2016
Third growing season fall plant inspection	September 30, 2017
Third growing season fall report	October 15, 2017

WILDLIFE OBSERVATIONS

Observations of wildlife will coincide with the onsite activities undertaken as part of the Vegetation Monitoring Program. The onsite team will document the extent of bird species abundance, site utilization, nesting and feeding activities, and species diversity. In addition, documentation of terrestrial and aquatic reptiles, amphibians, and mammals observable without trapping will also be documented. Wildlife observations will be documented within the Vegetation Monitoring Reports noted above.

REMOVAL OF INVASIVE NON-NATIVE VEGETATION

As a contingency, should the removal of invasive non-native vegetation become necessary, the project proponent will contact City of Bellevue wetland staff to establish and define specific actions to be taken. Resultant contingency plan activities will be implemented when the ongoing vegetation monitoring program indicates that plants listed in the Washington State Noxious Weed List and Scot's broom are becoming dominant in the community (greater than 20%).

Following initial planting of the wetland and buffer areas the project team will undertake an invasive vegetation control program through the five-year monitoring program. This control program will focus on biannual hand-removal of re-sprouting invasive shrubs and will not adversely impact the desirable plants within the wetland and buffer.

COVERAGE FOR EXPOSED BUFFER AREA

Coverage for all exposed surfaces within the mitigation area will be completed within two weeks following the completion of onsite grading.
Coverage will be by heavy (4-inch thick) applications of woodchip mulch as a "blanket" treatment in cleared areas.

CONTINGENCY PLAN

As a contingency, should the proposed compensatory plan fail to meet the performance criteria the project proponent will undertake required remedial actions. Where plant survival is the failing component the project proponent will replant and ensure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Should additional remedial actions be required, the project proponent will meet with City of Bellevue environmental staff to establish and define actions to be taken to meet the desired goal of this program.

PLANTING NOTES

All plant materials shall be native to the southern Puget Sound Region. The project biologist shall inspect plant materials to ensure the appropriate plant schedule and plant characteristics are met. The project proponent shall warrant that all plants will remain alive and healthy for a period of one year following completion of planting activities. The project proponent shall replace all dead and unhealthy plants with plants of the same specifications.

REFERENCE LIST

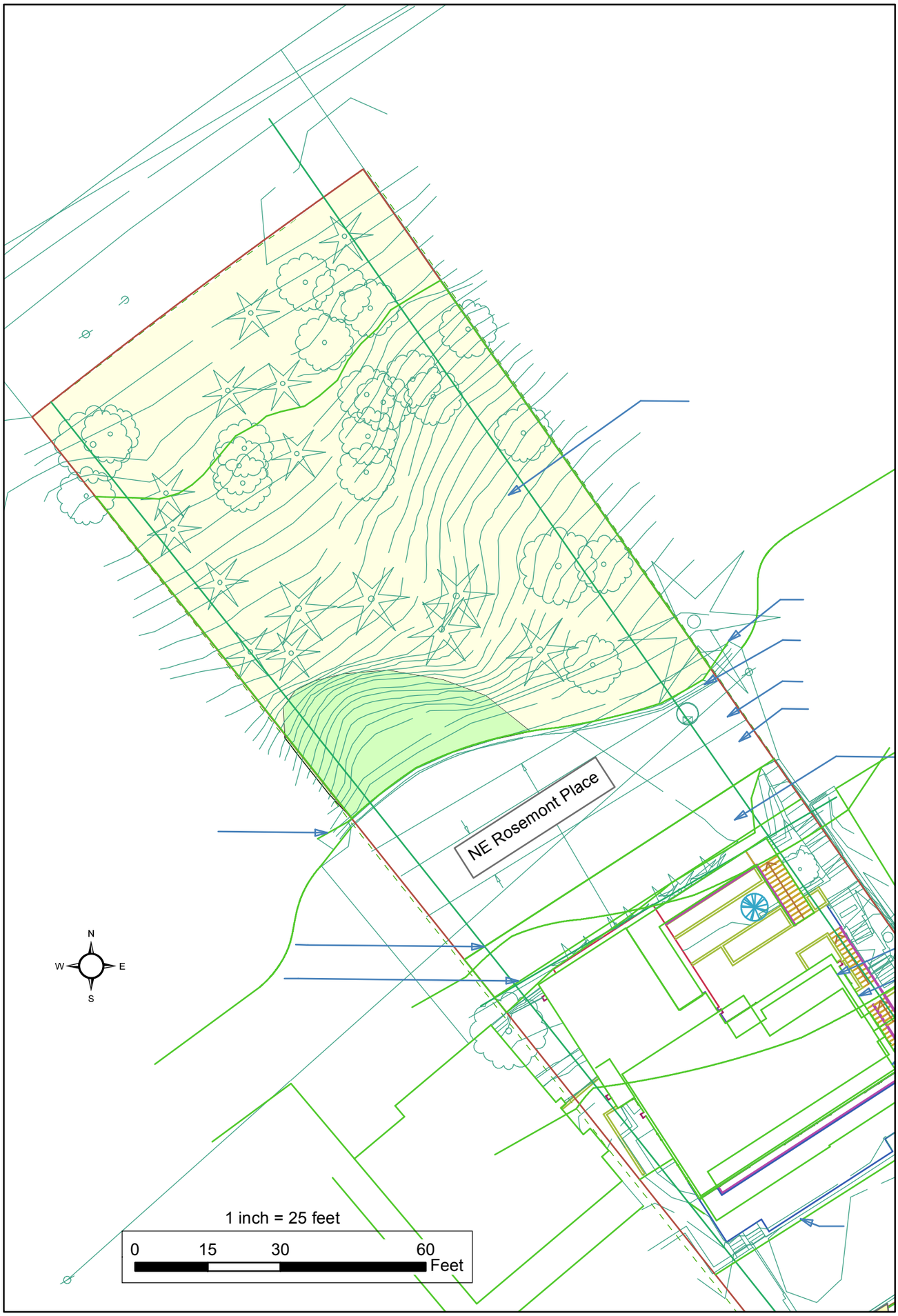
Hitchcock, C.L., A. Cronquist. 1977. Flora of the Pacific Northwest. University of Washington Press. Bellevue, Washington.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture, Soils Conservation Service. Soils Survey of King County Area Washington, February 1979.

Slope looking North from NE Rosemont Place

Detail of Intense Planting Area



Legend

Enhancement Mitigation Areas

Area

Intense Planting - 20 Red Currant & 20 Kinnickinick

Opportunity Planting - 25 Vine Maple & 25 Salmonberry
Where space allows

Att. 1
Parcel # 743050-0431
Anderegg Residence
Slope Critical Area Reduction Mitigation Map
From Survey

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

April 1, 2015
Revised July 30, 2015
ES-3683.02

Ms. Kendall Anderegg
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington 98008

Attention: Ms. Kendall Anderegg

Subject: **Geotechnical Consultation**
Critical Areas Report
Anderegg Residence
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington

Reference: Earth Solutions NW, LLC
Geotechnical Engineering Study
Anderegg Residence
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington
dated January 23, 2015

Coates Design Architects
Anderegg-Evans Residence
Proposed Steep Slope Setback
Sheet A1.00, dated December 8, 2014

Dear Ms. Anderegg:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter providing recommendations regarding the stability of the slopes on the subject site to satisfy the City of Bellevue critical areas report format as described in LUC 20.25H.125, LUC 20.25H.145 ,and LUC 20.25H.140.

Re-development following the demolition of the existing single-family residence is being proposed for the subject site. The planned re-development will include the addition of a third story within the same footprint as is existing, and the construction of a garage located between the existing residential structure and the steep slope on the west side of the access road. We have provided a critical areas report addressing the required provisions below.

LUC 20.25H.125 Performance standards - Landslide hazards and steep slopes.

Sections A and B

The proposed re-development does not include modifications to the steep slope natural contours. The proposed structure will be located to preserve the most critical portion of the site (steep slope) and the vegetation present on the slope.

Section C

In our opinion, through site reconnaissance, subsurface exploration, and analysis described later in this report, the proposed re-development will not result in a greater risk or a need for increased buffers on neighboring properties. The proposed re-development does not include modifications to the critical area. Therefore, no increase in instability to the critical slopes on and around the subject site will result.

Sections D through J

No disturbance or construction is planned for the steep slope present on the west side of the subject site. Therefore, the discussion of retaining walls, grade changes outside of the building footprint, foundation design, pole-type construction, pile deck support, and impervious surfaces in the critical area is not applicable.

The proposed garage to be sited within the normal buffer required by the City of Bellevue, which is being reduced as a part of the re-development proposal to 40 feet, will utilize gutters and downspouts to direct stormwater runoff to an approved discharge point so as to not increase instability in the area surrounding the steep slope.

LUC 20.25H.140 A. Limitation on Modification.

Based on our review of the project plans and available resources, the subject site is not located in a coal mine hazard area.

LUC 20.25H.140 B. Area Addressed in Critical Area Report

1. Site and Construction Plans.

The site plan/topographic survey are attached. The locations of the exploratory borings are shown on the attached site plan..

2. Assessment of Geological Characteristics.

The referenced geologic map resource identifies glacial outwash (Qgo) deposits across the site and surrounding areas. The referenced SCS soil survey identifies Alderwood and Kitsap (AkF) series soils across the entirety of the site. Alderwood and Kitsap soils are typified by glacial till planes, lacustrine (lake) deposits, and moraines. This type of soil typically presents a low to moderate erosion hazard.

The soil conditions observed at the boring locations are generally consistent with glacial outwash, and lacustrine deposits closer to the lake shore.

A representative of ESNW observed, logged and sampled three borings on the site. One boring was located on the east side of the existing single-family residential structure, one on the west side of the existing structure, and the third boring was located on the slope located above the roadway that bisects the site on the west side of the project area. The borings were drilled for the purposes of characterizing the subsurface soil and groundwater conditions.

Fill

Fill was encountered at the boring locations on the east and west side of the existing residential structure; but not on the slope. The fill soil was observed extending to depths of approximately five feet; and was in a loose to medium dense condition.

Topsoil

Topsoil was encountered at the boring locations on the east side of the site, and on the slope. The topsoil was observed in a four inch thicknesses, and was in a loose condition.

Native Soil

Underlying the topsoil at the borings located surrounding the residential structure, fill soil consisting primarily of a loose to medium dense material transitioning to dense glacial outwash was encountered extending to the maximum exploration depth of 26.5 feet below existing grades. The native soil consisted of poorly graded sand (Unified Soil Classification, SP-SM) and silt (ML). The native soil transitioned from a loose to medium dense condition, to dense at approximately five feet in depth at the boring locations.

The subsurface conditions observed at the boring location on the slope consisted of silty sand with gravel (Unified Soil Classification, SM) in a loose condition. The silty sand with gravel transitioned to a silt (ML) at a depth of one foot below existing surface elevation. The silt was observed in a soft condition to a depth of ten feet, where this material transitioned into a stiff condition. Native silty sand (SM) was encountered at a depth of 19 feet on the slope; and was observed in a dense condition extending to a depth of 26 feet. Very stiff silt (ML) and poorly graded sand (SP) in a dense condition were observed to the limits of exploration (28.5 feet below surface elevation) on the slope.

A representative of ESNW performed a visual slope reconnaissance (December 2014 and March 2015) to ascertain the current conditions of the slopes on the west side of the proposed building envelope.

The initial site visit was to perform a cursory visual slope reconnaissance, in order to identify and visual signs of instability on the steep slope. Signs of instability are surface seeps, slumps or scarps, evidence of historic landslides, excessively pistol butted tree trunks, and/or hummocky terrain. No signs of instability on the surface were observed at that time (December 2014) on the subject property.

3. Analysis of Proposal.

A steep slope meeting the criteria for a critical area pursuant with the City of Bellevue LUC 20.25 is present within the western portion of the subject site. The toe-of-slope begins at the retaining wall along the western edge of the access road for the above mentioned address, and ascends approximately 68 feet towards the west where it terminates on the east side of West Lake Sammamish Parkway Northeast. An engineered retaining wall is the demarcation of the toe-of-slope.

The proposed building area is located to the east of the access road on-site. The proposed building envelope with roughly mimic the current footprint for the existing single-family residence, and will be built into a shallow slope that descends from the access road elevation towards Lake Sammamish to the east of the home site.

No modifications to the steep slope on the west side of the access road are a part of the proposed site re-development, as the development envelope is sited below the steep slope area and the access road. Therefore, stormwater runoff volumes on the slope will not be increased; nor will structural loading on the slope be increased.

The proposed building footprint will encroach within the 75 foot steep slope buffer from the toe-of-slope. The proposed shortest distance between the proposed new residential development and toe-of-slope will be 40 feet at the northwest corner of the structure. The western portion of the structure that will encroach on the steep slope buffer is comprised of the proposed garage. The living areas of the existing single-family residence are located 61 feet from the toe-of-steep slope. This distance is not to change as a result of the proposed garage construction.

The proposed re-development plans do not include any modifications to the critical area under concern due to the building envelope being sited below the toe-of-slope, and a 40 foot wide roadway is present at the toe-of-slope providing an area for landslide run-out should a slide occur in the future.

We have evaluated the design and inherent engineering involved in construction of the proposed single-family residential structure with respect to slope stability for the site. This entailed a site visit to perform a slope reconnaissance, in search of evidence of instability in the form of surface seeps, hummocky terrain, excessively pistol-butted tree trunks, or scarps which may be indicative of instability past or present.

No signs of a past landslide, atypical soil movement indicating instability, or active landslides were observed during our site visits (December 2014, and March 2015). Mature native trees were observed on the steep slope.

ESNW performed slope stability analyses of the site, including the slope located on the west side of the site using the data obtained through our subsurface exploration. The data gathered from our fieldwork was utilized in our analysis employing GeoStudio Slope/W software. The stability analysis indicated factors of safety of 1.125 and 1.667 for seismic and static conditions, respectively when modeling a deep seated rotational failure on-site. A factor of safety of 0.934 was indicated for a shallow debris flow (skin slide) type of failure in the slope to the west of the access road through our slope stability modeling of a seismic condition, and 1.387 for a static skin slide condition.

Due to the proposed re-development of the site, and the lack of planned modifications to the steep slope, the risk of instability on the steep slope will not being increased.

4. Minimum Critical Area Buffer and Building Setback

In our opinion, the buffer and setback from the toe-of-slope can be reduced to 40 feet. No indication of past or current instability was observed on the slope during our reconnaissance. However, the potential for landslides, particularly surficial debris flow type failures, exists on the slope. Given the fact that no modifications are planned to the steep slope, the risk of landslide activity will not be increased by the planned development.

LUC 20.25H.145 Critical Areas Report - Approval of modification

A. Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified;

It is our opinion that due to the project plans not including a modification to the slope to the west of the access road, the risk of damage to adjacent properties will not be increased by the proposed re-development on the subject site.

B. Will not adversely impact other critical areas;

The proposed re-development will not entail any modifications to the steep slope on the subject site, therefore it is our opinion that there will be no adverse impact to other critical areas on or around the subject site given best management practices for controlling surface water both during and after construction are employed.

C. Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified.

There is no planned modification to the steep slope. Therefore, the hazard to the project will be no more than would be given the current configuration of the development. However, it is proposed that the geologic hazard setback and buffer combination is being reduced to a minimum of 40 feet. Given this, the access road and proposed garage will provide for catchment of any shallow debris-flow type of landslide should it occur on the slope located above the access road.

D. Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington.

Due to the lack of proposed modifications to the steep slope on the subject site, there is no decrease in the level of safety in regards to the slope.

E. The applicant provides a geotechnical report prepared by a qualified professional demonstrating that modification of the critical area buffer will have no adverse impacts on the stability of any adjacent slopes, and will not impact stability of any existing structures.

Through our review of the proposed re-development, we have determined that there will be no increased risk or adverse impacts on the stability of any adjacent slopes or structures. We base this opinion on the fact that there are no planned modifications to the steep slope, and best management practices will be utilized during and after construction of the proposed single-family residence.

ESNW has previously provided a Geotechnical Engineering Study for the proposed re-development.

F. Any modification complies with recommendations of the geotechnical support with respect to best management practices, construction techniques or other recommendations; and

There is no proposed modification to the steep slope on the subject site, but the reduction of the steep slope buffer and setback to 40 for the garage is being proposed. In our opinion, given that industry-wide best management practices are utilized for stormwater management, construction of the proposed single-family residence and garage, and building design; compliance with the recommendations of the geotechnical support described in this report and the geotechnical engineering study we have provided will have been satisfied.

G. The proposed modification to the critical area or critical area buffer with any associated mitigation does not significantly impact habitat associated with species of local importance, or such habitat that could reasonably be expected to exist during the anticipated life of the development proposal if the area were regulated under this part.

There are no proposed changes, or modification to the steep slope, or vegetation on and around the slope on the subject site. Any species present at the time of proposal on the site will not be adversely affected given the project plans for re-development, and the proposed site layout will not vary from the current site configuration. It is our opinion given the lack of modification to the area to the west of the access road, the risk to any habitat or species of local importance will not be adversely impacted by the proposed re-development.

The access road that is present below the steep slope will remain throughout the construction phase of the proposed re-development, and after. We recommend best management practices for stormwater management be used during and after construction.

Limitations

The recommendations and conclusions provided in this letter are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. Our recommendations are based on the information available at the time of this letter preparation. A warranty is not expressed or implied.

We trust this letter meets your current needs. If you have any questions, or if additional information is required, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

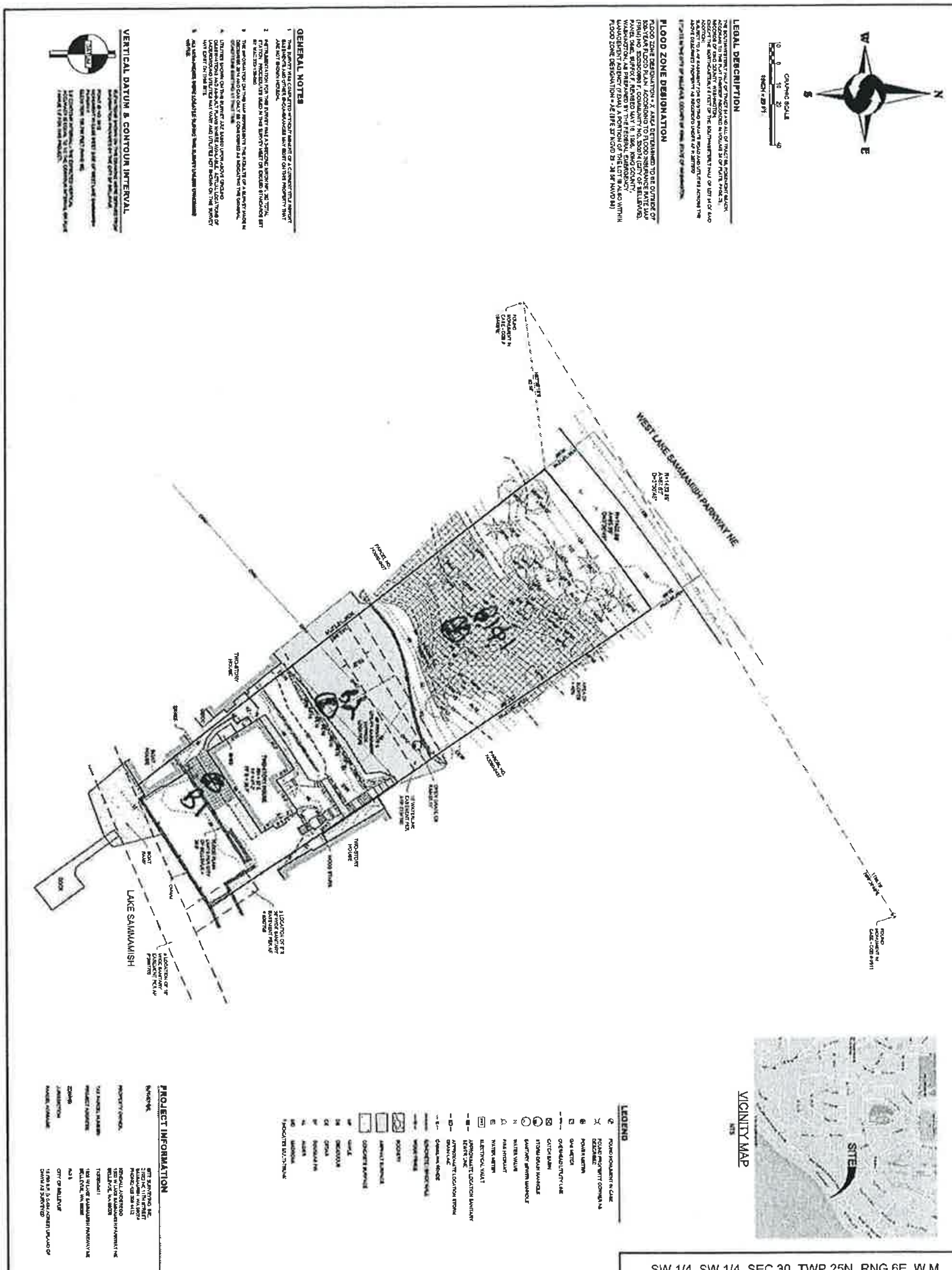
Stephen H. Avril
Project Geologist

Kyle R. Campbell, P.E.
Principal

Attachments: Site Plan, Boring Location Plan with Topographic Survey

cc: Mr. Dan Evans (Email only)

Coates Design
Attention: Ms. Amy Shuster (Email only)



SW 1/4, SW 1/4, SEC 30, TWP 25N, RNG 6E, W.M.

TOPOGRAPHIC SURVEY

KENDALL ANDEREGG
1002 W LAKE SAMMAMISH PARKWAY NE
BELELVUE, WA 98008

PROJECT NO. 14-541
DRAWN BY: EFJ
CHECKED BY: TNW
DATE: 12-15-14
SHEET 1 OF 1

Site Surveying, Inc.

PROJECT INFORMATION

ADDRESS:	1002 WEST LAKE SAMMAMISH PKWY NE BELLEVUE, WA 98008
ASSESSOR'S PARCEL NO	743050-0431
ZONE	R2.5 SHORELINE OVERLAY DISTRICT
SITE AREA:	KING COUNTY PARCEL AREA = 23,256 SF SURVEY PARCEL AREA = 19,790 SF
BUILDING AREA	LOWER LEVEL 1,285 GROSS SF MAIN LEVEL 1,285 GROSS SF UPPER LEVEL 1,583 GROSS SF TOTAL 4,153 GROSS SF
	UNCONDITIONED STORAGE 300 GROSS SF GARAGE 454 GROSS SF MAIN LEVEL DECK 284 GROSS SF TOTAL 1,038 GROSS SF
MAX. BUILDING HEIGHT:	30' - 0" BASED ON AVERAGE EXISTING GRADE
CONSTRUCTION TYPE	TYPE VB
GARAGE PARKING	2
PROJECT DESCRIPTION	TO RENOVATE AN EXISTING 2 STORY HOME, ADDING A 3RD LEVEL AND GARAGE. PROJECT WILL INCLUDE PAVER AND GRASS RE-SEEDING AND WILL NEED TO FOLLOW BEST MANAGEMENT PRACTICES FOR SHORELINE PROPERTIES. DECONSTRUCTION PROCESS TO LOOK AT RESPONSIBLE WAYS TO RECYCLE/REDUCE WASTE FOR COST SAVING OPPORTUNITIES
FIRE SPRINKLERS	OTC REVIEW SAID REQUIRED DUE TO ACCESS ROAD

LEGAL DESCRIPTION

THE SOUTHWESTERLY HALF OF TRACT 84 AND ALL OF TRACT 85, ROSEMONT BEACH, ACCORDING TO THE PLAT RECORDED IN VOL. 54 OF PLATS, PAGE 28, IN KING COUNTY, WASHINGTON

EXCEPT THE NORTHEASTERLY 5 FEET OF THE SOUTHWESTERLY HALF OF LOT 84 OF SAID ADDITION

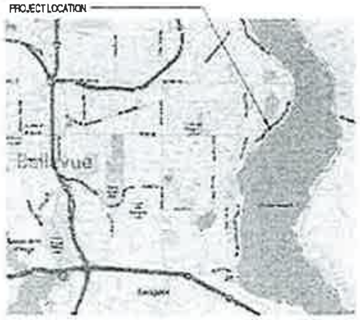
SUBJECT TO A 40' EASEMENT FOR EXISTING PRIVATE ROAD AND UTILITIES ACROSS THE ABOVE DESCRIBED PROPERTY AS RECORDED UNDER A.F. NO. 3577970

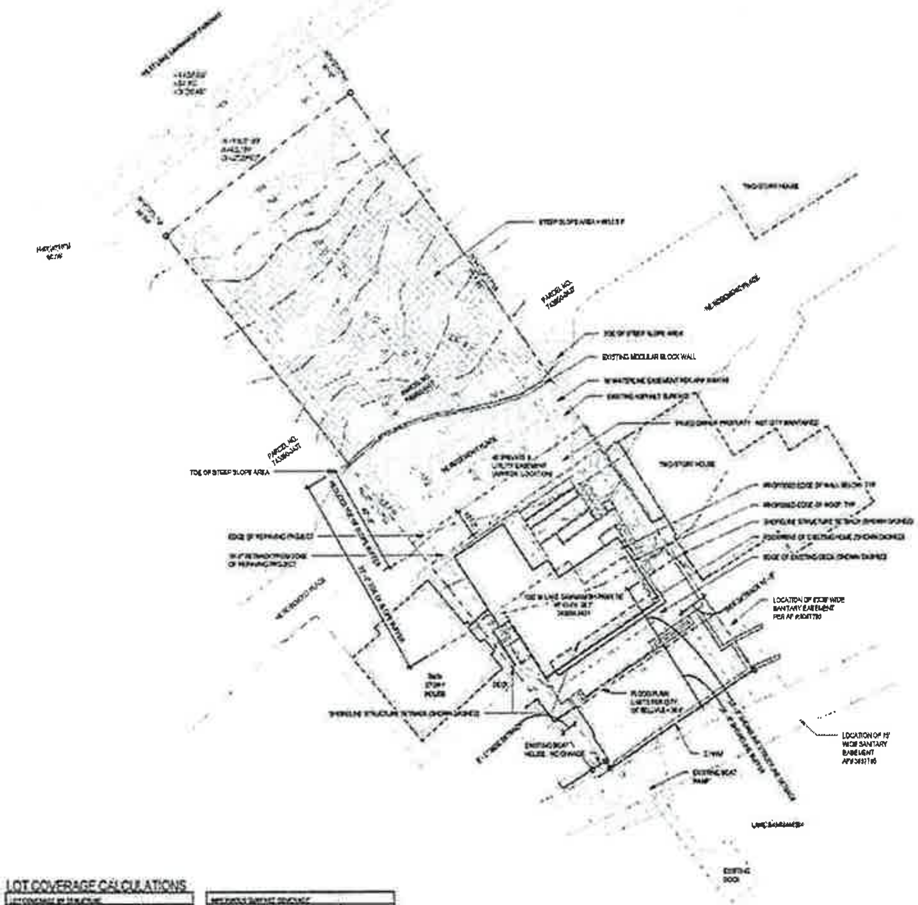
CODE REQUIREMENTS

BUILDING CODE	2012 IRC, WAC 51-51
ENERGY CODE	2012 WSEC, WAC 51-11 2012 INTERNATIONAL ENERGY CONSERVATION CODE, WAC 51-11R ENERGY CREDIT 5B - HIGH EFFICIENCY WATER HEATING
MECHANICAL CODE	2012 INTERNATIONAL MECHANICAL CODE, WAC 51-52
PLUMBING CODE	2012 UNIFORM PLUMBING CODE, WAC 51-56 AND 51-57

VICINITY MAP

PROJECT LOCATION





LOT COVERAGE CALCULATIONS

1 SITE PLAN
SCALE: 1" = 20'-0"
0' 10' 20' 40'

COATES DESIGN ARCHITECTS
Responsible Architecture
600 WINSLOW WAY E SUITE 210
BAINBRIDGE ISLAND WA 98110

ISSUED FOR: DATE:

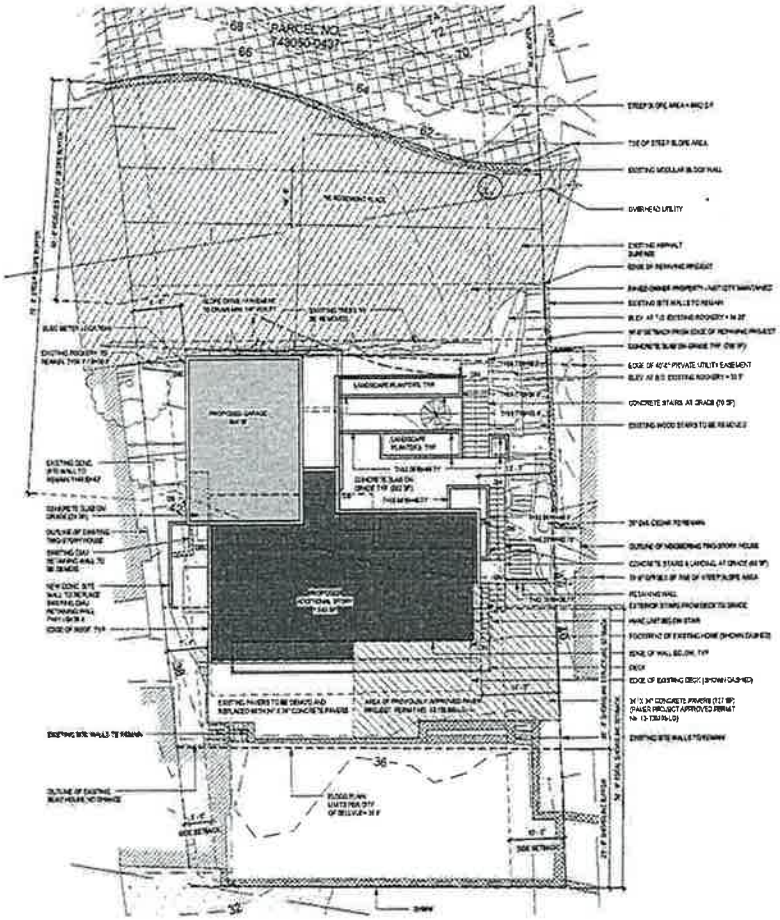
PERMIT SET

ANDEREGG-EVANS RESIDENCE

1002 W LAKE SAMMAMISH PKWY NE
BELLEVUE, WA 98008

SITE PLAN

A1.00



1 ENLARGED SITE PLAN

SCALE: 1" = 10'-0"

0' 5' 10' 20'

COATES DESIGN ARCHITECTS
Redmond, WA
800 WEST SUNSET WAY E SUITE 210
SAMMAMISH ISLAND WA 98610
P: 206.780.0496

ISSUED FOR: DATE:

REGISTERED ARCHITECT
MATTHEW D. COATES
STATE OF WASHINGTON

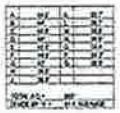
ANDEREGG-EVANS RESIDENCE

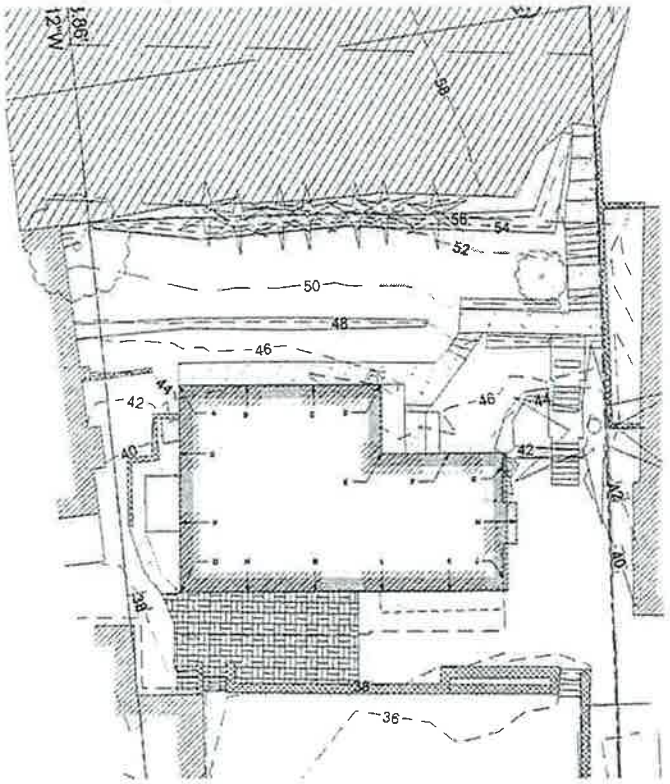
1002 W LAKE SAMMAMISH PKWY NE
BELLEVUE, WA 98008

ENLARGED SITE PLAN

A1.01

AVERAGE GRADE - EXISTING



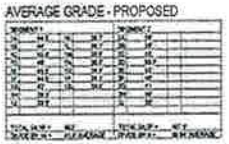


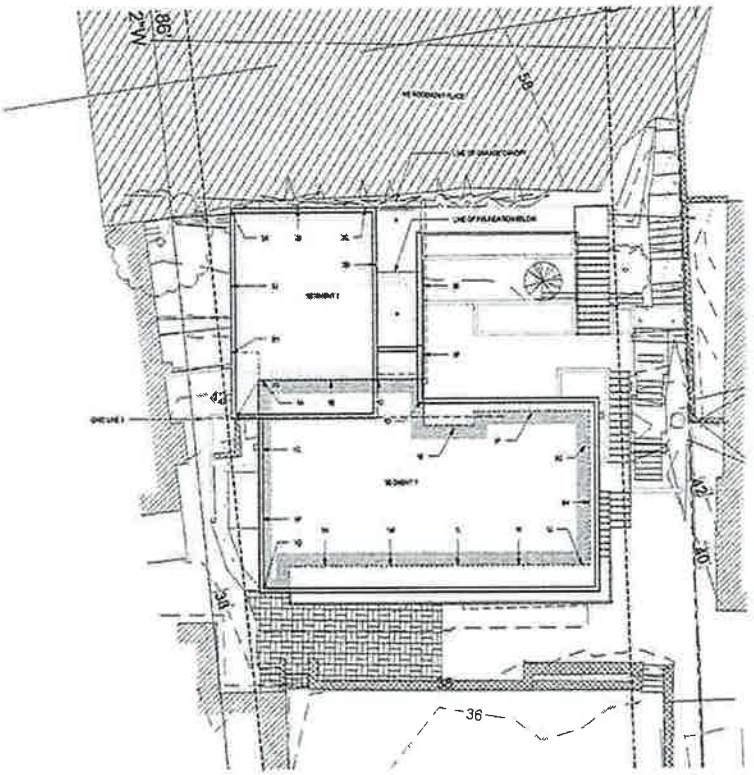
2 SITE PLAN - EXISTING HEIGHT CALCULATIONS

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

AVERAGE GRADE - PROPOSED





1 ENLARGED SITE PLAN - HEIGHT CALCULATIONS

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

CONTES DESIGN ARCHITECTS

Responsible Principal

903 WINSLOW WAY E SUITE 210
BAINBRIDGE ISLAND WA 98110
P 206 780 0676

ISSUED FOR DATE

ANDEREGG-EVANS RESIDENCE

1002 W LAKE SAMMAMISH PKWY NE
BELLEVUE, WA 98008

BUILDING HEIGHT SITE PLAN

A1.02

CRITICAL AREAS REPORT

Parcel # 7430500431
Anderegg-Evans House Remodel

prepared for:

Ms. Kendall Anderegg & Mr. Dan Evans
1002 West Lake Sammamish Parkway NE
Bellevue, WA 98008

Prepared by

H & S CONSULTING
P. O. Box 731695
Puyallup, WA 98373
253 732-6515

mheckert@Q.com

August 26, 2015

EXECUTIVE SUMMARY

The Anderegg-Evans Project Site, 1002 West Lake Sammamish Parkway NE, City of Bellevue, parcel # 7430500431 is 23,256 sq. ft., located generally on the west shoreline of Lake Sammamish in the City of Bellevue, Washington. An assessment of this project area following the City of Bellevue Title 20.25H resulted in the identification of two Critical Areas on the site: One Shoreline Critical Area and one Slope Critical Area was identified on-site.
Onsite assessment included an evaluation of the function and value rating for the Critical Area, a classification of each wetland and stream following the U.S. Fish and Wildlife Service methods, a categorization of each Critical Area following City of Bellevue Title City of Bellevue Title 20.25H, and an identification of the City of Bellevue buffer width.

The Seattle District U.S. Army Corps of Engineers, the Washington Department of Ecology, and City of Bellevue (as well as a number of other resource agencies) regulate activities in and around identified Critical Areas. Such regulations focus on the avoidance of adverse impacts to Critical Areas and the mitigation of such impacts that cannot be avoided. In addition, City of Bellevue has established criteria to categorize Critical Areas for purposes of regulation and requires a buffer along Critical Areas.

The house on the parcel is proposed to be renovated. No new impact will occur to either the Slope or Shoreline Critical areas as a result of this proposal. The entire site south of the Slope Critical Area boundary is developed.

TABLE OF CONTENTS

STANDARD OF CARE

Prior to extensive site planning, this document should be reviewed and the wetland boundaries verified by the appropriate resource and permitting agencies. Wetland boundaries, wetland classifications, wetland ratings, and proposed buffers must be reviewed and approved by City of Bellevue Planning Services and potentially other regulatory agencies. H & S has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. H & S is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Mark Heckert
Principal
H & S Consulting

INTRODUCTION

This report details the culmination of activities and onsite evaluations undertaken to complete a Critical Area evaluation as an element of the planning and site development of the **Anderegg-Evans Project Site**. The Anderegg-Evans Project Site is located generally on the west shoreline of Lake Sammamish, City of Bellevue, Washington (Figure 1). The project site is dominated by a single-family house with a private road.

The evaluation and delineation of onsite and adjacent Critical Areas is a vital element in the planning and selection of a site development action. The goal of this approach is to assure that planned site development does not result in adverse environmental impacts to regulated Critical Areas, streams, and their associated protective buffer areas.

Wetlands are generally defined as **"those areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."**

(City of Bellevue Title 20.25E).

STUDY PURPOSE

The purpose of this document is to present the results of an onsite assessment and evaluation of Critical Areas within the Anderegg-Evans Project Site following the methods and procedures outlined in the *Corps of Engineers Wetland Delineation Manual* (CoE Manual). Critical Areas were also assessed in accordance with the criteria established by City of Bellevue and the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030). This study was designed to accommodate site planning and potential regulatory actions and is suitable for submittal to federal, state, and local authorities for wetland and stream boundary verification and permitting actions.

SITE DESCRIPTION

The overall project area was generally rectangular, 23,256 sq. ft.in size, located on the west shoreline of Lake Sammamish area of the City of Bellevue.
The project area was bounded on the east and west by residential development. The north boundary is West Lake Sammamish Pkwy NE, and the south boundary is the shoreline of Lake Sammamish. A private access road bifurcates the site east – west approximately through the center of the site.

BACKGROUND INFORMATION

NATIONAL WETLAND INVENTORY

The National Wetland Inventory (NWI) mapping completed by the U.S. Fish and Wildlife Service was reviewed as a part of this assessment (figure 2). This mapping resource identified wetlands at the southwest and south boundaries of the project site (Lake Sammamish) as L1UBH (Lacustrine Limnetic Unconsolidated Bottom Permanently Flooded) wetlands.

STATE OF WASHINGTON PRIORITY HABITATS AND SPECIES

The State of Washington Priority Habitats and Species (PHS) Mapping was reviewed as a part of this assessment (attached). This mapping identified No priority habitats or species on, or adjacent to, the project site.

CITY OF BELLEVUE CRITICAL AREAS WETLAND INVENTORY

The City of Bellevue Critical Area Inventory Mapping was reviewed as part of this assessment. This mapping resource identified no wetlands on, or adjacent to, the project site. A Slope Hazard Critical Area was identified encompassing the entire site.
This mapping resource identified Lake Sammamish at the south boundary of the site as a Shoreline Critical Area(Figure 3).

SOILS MAPPING

Soils mapping of the overall project area completed by the Natural Resource Conservation Service identified the soils located generally through the overall project area as Alderwood gravelly loam; Very Steep Slope.

> **Alderwood gravelly loam:** This soil series formed in glacial till and is moderately well drained. This soil is NOT listed as “hydric.”

ONSITE ANALYSIS

CRITERIA FOR WETLAND AND STREAM IDENTIFICATION

Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin et al., 1979). Wetlands are generally defined within land use regulations as "areas that are inundated or saturated by surface or groundwater at a frequency and duration

sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (CoE Manual).

Wetlands exhibit three (3) essential characteristics, all of which must be present for an area to meet the established criteria within the Wash. Manual and the Coe Manual. These essential characteristics are:

1. **Hydrophytic Vegetation:** A predominance of plants that are typically adapted for life in saturated soils.

2. **Hydric Soil:** A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons.

3. **Wetland Hydrology:** Permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

A stream is generally defined as a location where surface waters produce a defined channel or bed. A defined channel or bed is typically an area which demonstrates clear evidence of the passage of water and includes, but not limited to, bedrock channels, gravel beds, sand and silt beds, and defined channel swales. A stream need not contain water year-round. A stream typically does not include irrigation ditches, canals, storm or surface water run-off devices, or other artificial watercourses unless the constructed watercourse conveys a stream which naturally occurred prior to the construction of such watercourse.

STUDY METHODS

H & S completed a specific onsite evaluation of the project site on June 15, 2015. The objective of this evaluation was to define and delineate Critical Areas which may be present within and adjacent to the project area as defined by the three-parameter criteria test noted within the CoE Manual, City of Bellevue 20.25H and the water-typing criteria noted within the WDNR Forest Practice Rules (WAC 222-16-030).

Boundaries between wetland and non-wetland areas were established by examining the transitional gradient between wetland and non-wetland characteristics criteria along transects through the site. Delineation was performed using the *routine methodology for areas less than five acres* as detailed in the CoE Manual. City of Bellevue Wetland category was derived utilizing the *Revised Washington State Wetland Rating System (WSWRS)* rating form.

FIELD OBSERVATION

- **Soils**

The project site was generally comprised of loam, and gravelly sandy loam soils that appeared to drain moderately well. These areas did not exhibit redoximorphic features such as gleying, oxidized root channels, or mottles. This area did not meet the hydric soil criteria.

- **Hydrology**

Hydrology within the overall project area appeared to be the result of seasonal stormwater runoff from onsite and adjacent properties; short-term seasonal ponding within depressional areas and soil characteristics. Stormwater surface runoff through the overall project area was directed by topography to the southeast via overland and drain piping to the southeast to Lake Sammamish.

- **Vegetation**

An upland deciduous forest dominated the north of the project site. The forest canopy was dominated by sapling red-alder (*Alnus rubra*) and big-leaf maple. This plant community was identified as non-hydrophytic in character (i.e. typical of uplands). The plant community ends at the north of the NE Rosemont Place, where a retaining wall is placed. South of that, the entire site is covered or landscaped.

CRITICAL AREA DETERMINATION

Critical Area determination was based on sample plots which contained hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the CoE Manual (with Supplement).

Based on these methods no wetland or stream critical areas were identified within, or adjacent to, the project site.

The steep slope in the north area of the site was determined by geotech analysis (Earth Solutions, attached) to fit the criteria for definition as Slope Critical Area. The boundary for this critical area was determined to be the retaining wall at the north of the NE Rosemont Place road.

City of Bellevue Title 20.25E.017 names Lake Sammamish as a Shoreline Critical Area by definition. As such, the Shoreline Critical Area boundary is the Ordinary High Water Mark (OHWM) which is the location of the bulkhead on the parcel.

FINDINGS AND CONCLUSIONS

Wetlands:
No area on the site, or adjacent to the site, exhibits characteristics for definition as wetland.

Slope:
The hillside on which the site is located is a Slope Critical Area north of the retaining wall on NE Rosemont Place.

Shoreline:
Lake Sammamish is a shoreline critical area by definition in the City of Bellevue Regulations. As such, it mandates a 25 ft. buffer as measured from the OHWM.

SELECTED DEVELOPMENT ACTION

The proposed onsite action selected focuses on the renovation of the house with the addition of ground-level parking garage and modernization improvements. All renovation actions are located shoreward of NE Rosemont Place, within the standard slope hazard buffer of the steep slope. Geotech analysis included in submittal.

The Shoreline Critical Area and buffer will not be impacted.

The Slope Critical Area buffer will be impacted by the addition of 750 sq. ft. of impervious surface. Mitigation for the Slope buffer is proposed to be situated upslope of the retaining wall on NE Rosemont Place. Mitigation actions are detailed in the Slope Buffer Mitigation plan.

FIGURES

REFERENCE LIST

Adamus, P.R., E.J. Clairain Jr., R.D. Smith, and R.E. Young. 1987. Wetland Evaluation Technique (WET); Volume II: Methodology, Operational Draft Technical Report Y-87, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service, U.S. Department of the Interior, FWS/OBS-79/31.

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

Hitchcock, C.L., A. Cronquist. 1977. Flora of the Pacific Northwest. University of Washington Press. Seattle, Washington.

Reppert, R.T., W. Sigleo, E. Stakhiv, L. Messman, and C. Meyers. 1979. Wetland Values - Concepts and Methods for Wetland Evaluation. Research Report 79-R1, U.S. Army Corps of Engineers, Institute for Water Resources, Fort Belvoir, Virginia.

U.S. Department of Agriculture, Soils Conservation Service. Soils Survey of King County Area Washington, February 1979.

Washington State Department of Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Publication Number 96-94.

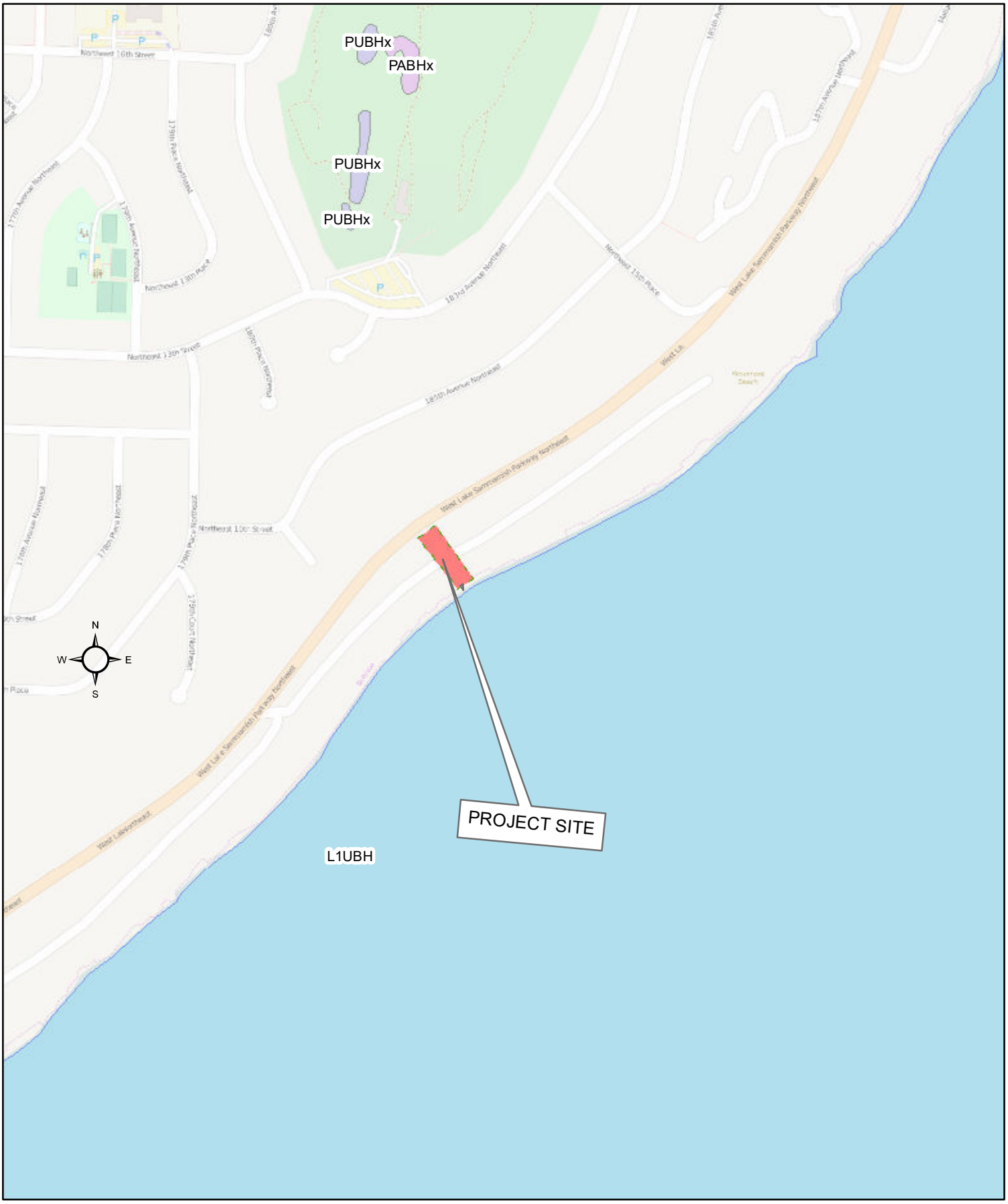
Washington State Department of Fisheries, Catalog of Washington Streams and Salmon Utilization, Volume 1., 1975

ATTACHMENT 1 – CRITICAL AREA DESIGNATION MAP

1 inch = 2,000 feet

0 1,450 2,900 5,800 Feet

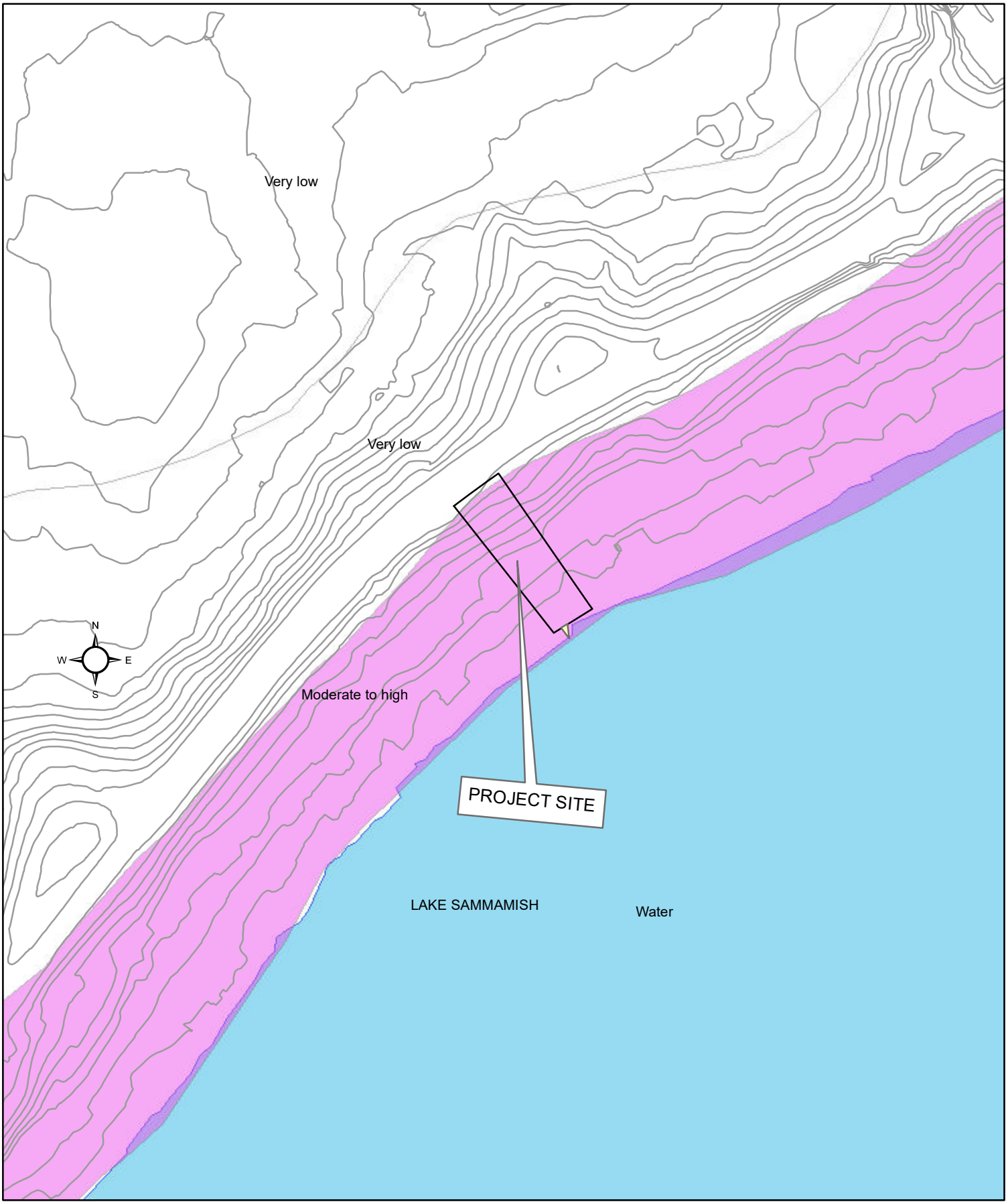
Fig. 1
Parcel # 743050-0431
Anderegg Residence
Site Vicinity Map



1 inch = 500 feet

0 250 500 1,000 Feet

Fig. 2
Parcel # 743050-0431
Anderegg Residence
NWI Map



1 inch = 200 feet

0 100 200 400 Feet

Fig. 3
Parcel # 743050-0431
City of Bellevue
Slope Hazard & Shoreline Critical Area Map

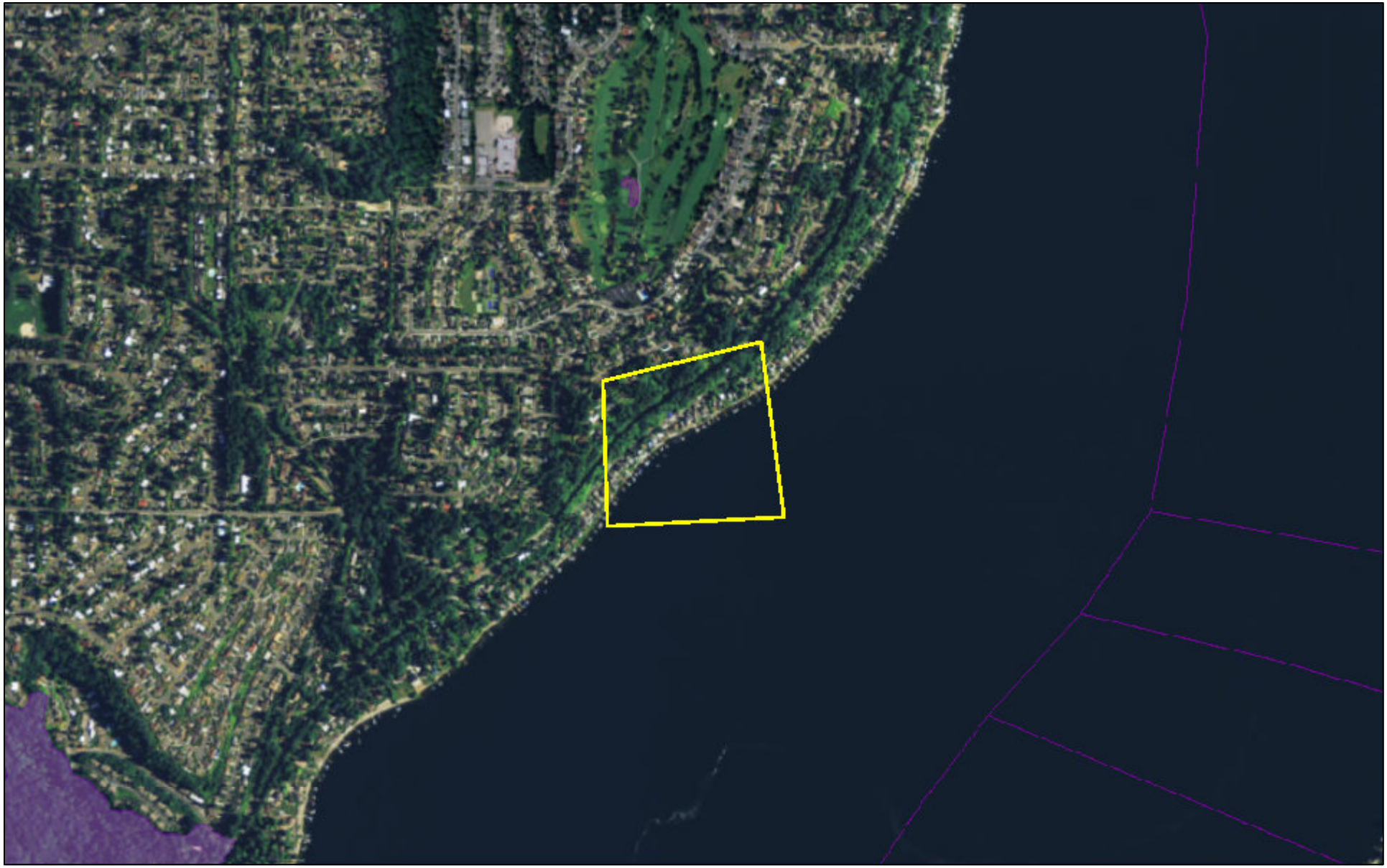
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 08/19/2015 3.25

Query ID: P150819152527

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
	Source Record	More Information (URL)		PHS Listing Status		
Notes	Source Date	Mgmt Recommendations				

WDFW Test Map



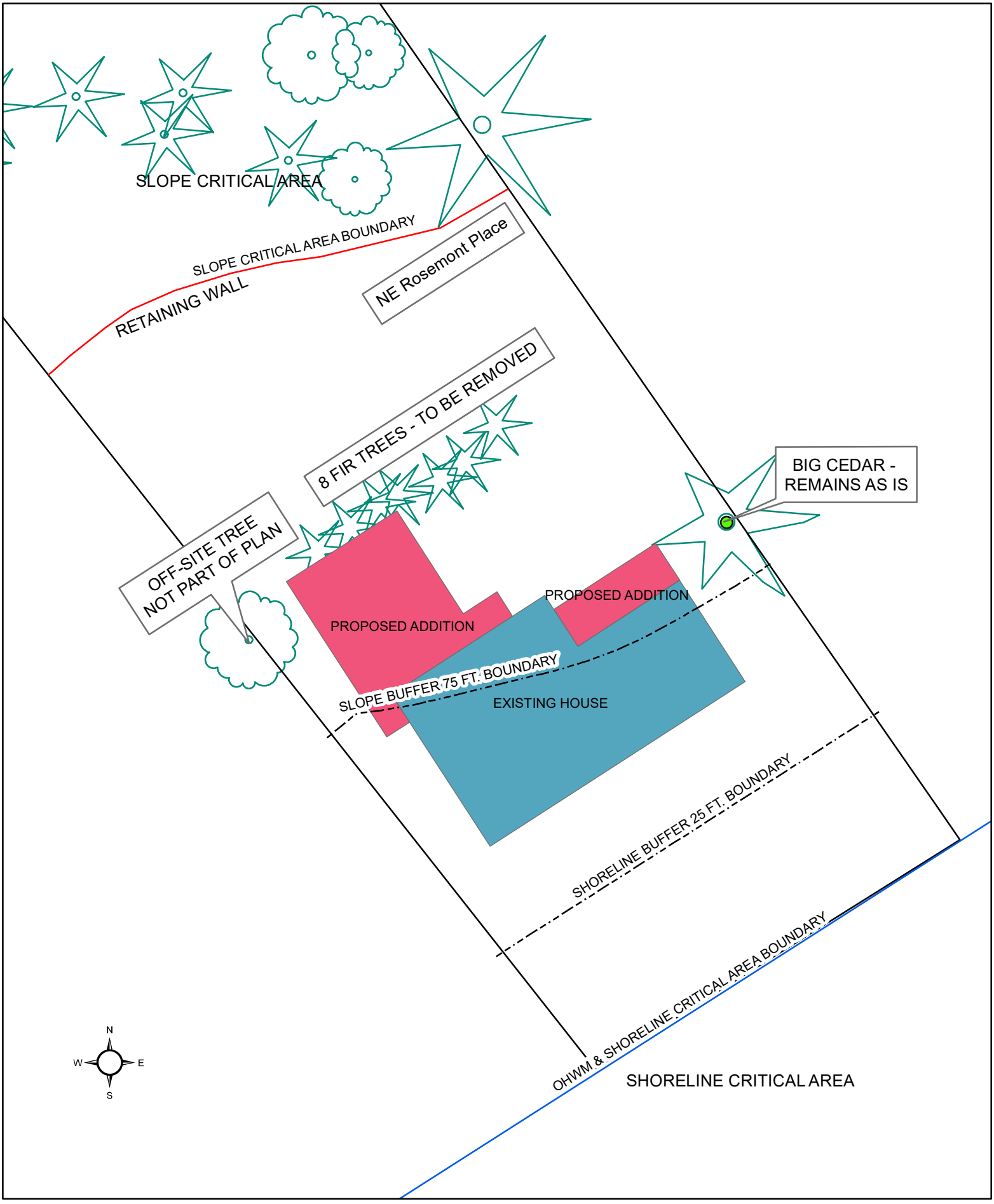
August 19, 2015

PHS Report Clip Area
PT
LN
AS MAPPED
SECTION
QTR-TWP
TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi
0 0.275 0.55 1.1 km

WDFW



1 inch = 20 feet

0 10 20 40 Feet

Att. 1
Parcel # 743050-0431
Critical Area Report Map
From Survey

GEOTECHNICAL ENGINEERING STUDY
ANDEREGG RESIDENCE
1002 WEST LAKE SAMMAMISH PARKWAY NORTHEAST
BELLEVUE, WASHINGTON

ES-3683

1805 - 136th Place N.E., Suite 201 Bellevue, WA 98005
(425) 449-4704 Fax (425) 449-4711
www.earthsolutionsnw.com

PREPARED FOR

MS. KENDALL ANDEREGG

January 23, 2015

Stephen H. Avril
Staff Geologist

Kyle R. Campbell, P.E.
Principal

GEOTECHNICAL ENGINEERING STUDY
ANDEREGG RESIDENCE
1002 WEST LAKE SAMMAMISH PARKWAY NORTHEAST
BELLEVUE, WASHINGTON

ES-3683

Earth Solutions NW, LLC
1805 - 136th Place Northeast, Suite 201
Bellevue, Washington 98005
Phone: 425-449-4704 Fax: 425-449-4711
Toll Free: 866-336-8710

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

IIGER06045.0M

January 23, 2015
ES-3683

Ms. Kendall Anderegg
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington 98008

Attention: Ms. Kendall Anderegg

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Dear Ms. Anderegg:

Earth Solutions NW, LLC (ESNW) is pleased to present this report titled "Geotechnical Engineering Study, Anderegg Residence, 1002 West Lake Sammamish Parkway Northeast, Bellevue, Washington". In general, the site is underlain primarily by glacial outwash deposits, and most likely limited areas of fill surrounding the existing single-family residential structure.

Due to the presence of sandy soils and a shallow groundwater table on the site, liquefaction and lateral soil spread resulting from a seismic event are hazards on the subject site. If desired, foundation support can include the installation of pin piles to reduce the effects of seismic related differential settlement and associated lateral spread.

In our opinion, if the risk of lateral spread can be accepted, the proposed single-family residence can be supported on conventional continuous and spread footing foundations bearing on competent native soil or new structural fill. Overexcavation and backfill with suitable structural fill material may be necessary at some locations due to the loose native soil conditions where encountered.

Groundwater seepage was observed at both of the boring locations. Seepage should be expected during grading activities, particularly during winter, spring and early summer months.

We performed an analysis of the site in regards to infiltration of stormwater runoff; and have determined that due to the presence of silty soil on the site and shallow groundwater, infiltration will be not feasible on the subject site.

Given the topographic conditions on the subject site, there should be no concerns regarding critical areas in our opinion. The lack of slopes down-slope of the building footprint that would meet the criteria for a steep slope pursuant with the City of Bellevue municipal code 20.25H.120 is the reasoning behind this opinion.

Recommendations for foundation design, site preparation, drainage, and other pertinent recommendations are provided in this study. We appreciate the opportunity to be of service to you on this project. If you have questions regarding the content of this geotechnical engineering study, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

Stephen H. Avril
Staff Geologist

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ES-3683

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Cont'd

ES-3683

GEOTECHNICAL ENGINEERING STUDY
ANDEREGG RESIDENCE
1002 WEST LAKE SAMMAMISH PARKWAY NORTHEAST
BELLEVUE, WASHINGTON

ES-3683

INTRODUCTION

General

This geotechnical engineering study was prepared for the proposed single-family residence to be constructed at 1002 West Lake Sammamish Parkway Northeast in Bellevue, Washington. The site is comprised of a single tax parcel; and is located on the east side of West Lake Sammamish Parkway Northeast, and south of the intersection with Northeast 15th Place. The purpose of this study was to explore subsurface conditions across the site and develop geotechnical recommendations for the proposed development. Our scope of services for completing this geotechnical engineering study included the following:

- Reviewing the project details;
- Excavation, logging and sampling of geologic borings excavated at the site;
- Visual reconnaissance of the slope located to the northwest of the building area for signs of instability;
- Engineering analyses of data collected during site exploration, and;
- Preparation of this report.

The following documents/maps were reviewed as part of our report preparation:

- Architectural Plans, Anderegg-Evans Residence, Sheets G 0.01 through A 4.11, by Coates Design Architects, dated November 26, 2014;
- King County iMap online resource;
- Geologic Map of Washington, Southwest Quadrant, by Walsh, et al, 1987, and;
- Washington State USDA Soil Conservation Survey (SCS).

Project Description

We understand the site will be developed with a single-family residential structure following the demolition of the residence that currently occupies the lot. Redevelopment plans also include associated improvements. Given the topographic change across the site, grading activities may likely involve overexcavation and backfill in some areas (due to loose soil) to establish a stable and competent final design grades. We recommend retaining ESNW during the construction phase of work on the subject site to provide supplemental recommendations for foundation support based on observations of the soil bearing characteristics of the soil present in the building footprint.

If overexcavation and backfill of loose soil is not pursued; and pin pile supported foundations are employed to minimize the risk of lateral spread and differential settlement during a seismic event, we anticipate minimal cuts to achieve finish grade elevations.

Final building loads were not available at the time of our report production. However, we anticipate wall loads will be on the order of 1 to 3 kips per lineal foot; and slab-on-grade loading of 150 pounds per square foot (psf).

If the above design estimates are incorrect or change, ESNW should be contacted to review the recommendations in this report. ESNW should review the final design to confirm that our geotechnical recommendations have been incorporated into the final design.

SITE CONDITIONS

Surface

The site is located on the east side of West Lake Sammamish Parkway Northeast; and south of the intersection with Northeast 15th Place in Bellevue, Washington. The site is rectangular in shape and consists of a single tax parcel with frontage on Lake Sammamish. The site is currently developed with a single-family residence and general landscaping.

The existing site topography is sloped in nature with elevation change on the order of approximately eleven feet. The existing single-family residence, like the proposed structure, is day lit into the slope. Vegetation consisted primarily of lawn areas during our fieldwork (December 2014).

Subsurface

A representative of ESNW observed, logged and sampled two borings on the site. The borings were drilled for the purposes of characterizing the subsurface soil and groundwater conditions. The approximate locations of the borings are depicted on the attached Site Plan. Please refer to the boring logs provided for a detailed description of the subsurface conditions.

Fill

Fill was encountered at both boring locations extending to depths of approximately five feet; and was in a loose to medium dense condition. Fill soil will more than likely be encountered surrounding the existing residential structure, and utility alignments on the west side of the site. If fill is encountered, it may be suitable for support of foundations; however a representative of ESNW should be retained during the construction phases of the site development to evaluate the suitability of any on-site soils for use as structural fill and bearing of foundations.

Topsoil

Topsoil was encountered at the boring location on the east side of the site, and was in a four inch thicknesses. Topsoil is not suitable for use as structural fill nor should it be mixed with material to be used as structural fill. Topsoil or otherwise unsuitable material can be used in landscaping areas if desired.

Native Soil

Underlying the topsoil, fill soil consisting primarily of loose to medium dense material transitioning to dense glacial outwash was encountered extending to the maximum exploration depth of 26.5 feet below existing grades. The native soil consisted of poorly graded sand (Unified Soil Classification, SP-SM) and silt (ML). The native soil transitioned from a loose to medium dense condition, to dense at approximately five feet in depth at the boring locations.

Geologic Setting

The referenced geologic map resource identifies glacial outwash (Qgo) deposits across the site and surrounding areas. The referenced SCS soil survey identifies Alderwood and Kitsap (AkF) series soils across the entirety of the site. Alderwood and Kitsap soils are typified by glacial till planes, lacustrine (lake) deposits, and moraines. This type of soil typically present a low to moderate erosion hazard.

The soil conditions observed at the boring locations are generally consistent with glacial outwash and lacustrine deposits.

Groundwater

Groundwater was observed at both of the boring locations during the fieldwork (December 2014). Due to the site being underlain by glacial outwash and lake deposits, groundwater should be expected in all grading activities at this site. Groundwater should be anticipated particularly during the winter, spring and early summer months and at the contact between silt soils and sand and gravel. Groundwater seepage rates and elevations fluctuate depending on many factors, including precipitation duration and intensity, the time of year, and soil conditions.

DISCUSSION AND RECOMMENDATIONS

General

In our opinion, construction of the proposed single-family residence is feasible from a geotechnical standpoint. Due to the presence of loose sandy soil and a shallow groundwater table on the subject site, we have performed software modeling pertaining to liquefaction susceptibility during a seismic event using Liquify Pro software. The potential of differential settlement when modeling the subsurface performance during a magnitude 7.0 earthquake yielded differential settlement on the order of 0.40 inches. If this amount of differential settlement is acceptable to the client, conventional continuous and spread footings bearing on soil can be pursued. We would, however, recommend overexcavation in areas where loose soil is present at the design foundation elevation; and backfill with suitable granular structural fill material. The backfill material must be compacted to 95 percent of the Modified Proctor Method (ASTM D-1557). ESNW should be retained for this portion of the site development to provide geotechnical direction for foundation grade observations.

The risk of lateral spread resulting from seismic activity exists at the site, given the granular soil underlying the site and the proximity of the site to Lake Sammamish. Based on the results of our liquefaction analysis, lateral spread of several inches could occur at the shoreline. The magnitude will decrease with the distance from the shoreline. In our opinion, there is a minor risk of lateral spread affecting the footprint of the building. If the potential risk of differential settlement from liquefaction and lateral spread cannot be accepted, then pile supported foundations should be used. Recommendations for foundation design, pile support, site preparation, drainage, and other pertinent geotechnical recommendations are provided in the following sections of this study.

This study has been prepared for the exclusive use of Ms. Kendall Anderegg and her representatives. No warranty, expressed or implied, is made. This study has been prepared in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area.

Site Preparation and Earthwork

Site preparation activities will involve removal of existing structure, site clearing and stripping, and implementation of temporary erosion control measures. The primary geotechnical considerations associated with site preparation activities include building pad subgrade preparation and underground utility installations.

Temporary construction entrances and drive lanes, consisting of at least 12 inches of quarry spalls can be considered in order to minimize off-site soil tracking and to provide a stable access entrance surface. Erosion control measures should consist of silt fencing placed along the down gradient side of the site, in particular along the lake shore. Soil stockpiles should be covered or otherwise protected to reduce soil erosion. Temporary sedimentation ponds or other approaches for controlling surface water runoff should be in place prior to beginning earthwork activities.

Topsoil and organic-rich soil was encountered generally within the upper four inches at the boring location in the yard of the existing residence. Topsoil and organic-rich soil is not suitable for direct foundation support, nor is it suitable for use as structural fill. Topsoil or organic-rich soil can be used in non-structural areas if desired. A representative of ESNW should observe the initial stripping operations, to provide recommendations for stripping depths based on the soil conditions exposed during stripping.

Subgrade conditions expected to be exposed throughout the proposed building and pavement areas will likely be comprised of silty sand, silt, and poorly graded sand deposits. After the completion of site stripping the subgrade conditions should be evaluated by a representative of ESNW. A proofroll utilizing a fully loaded solo dump truck may be necessary in order to evaluate the suitability of the exposed native soils for support of foundations. ESNW should be retained during this phase of earthwork to observe the proofroll and other earthwork activities. The soils exposed throughout subgrade areas should be compacted to structural fill specifications prior to constructing the foundation, slab, and pavement elements. The subgrade throughout pavement areas should be compacted as necessary and exhibit a firm and unyielding condition when subjected to the proofrolling with a loaded solo dump truck. Overexcavation and replacement with crushed rock may be necessary, depending on the conditions encountered during construction.

Structural fill soils placed throughout foundation, slab, and pavement areas should be placed over a firm base. Loose or otherwise unsuitable areas of native soil exposed at subgrade elevations should be compacted to structural fill requirements or overexcavated and replaced with a suitable structural fill material. Where structural fill soils are used to construct foundation subgrade areas, the soil should be compacted to the requirements of structural fill described in the following section. Foundation subgrade areas should be protected from disturbance, construction traffic, and excessive moisture. Where instability develops below structural fill areas, use of a woven geotextile below the structural fill areas may be required. A representative of ESNW should observe structural fill placement in foundation, slab, and pavement areas.

Wet Season Grading

The moisture sensitivity of the soil present on the subject site will make grading during periods of rain moderately difficult. Mass grading should take place during the late summer months when conditions are more favorable. If grading takes place during the wetter winter, spring or early summer months, a contingency in the project budget should be included to allow for export of native soil and import of structural fill as described below.

In-situ Soils

The soils encountered throughout the majority of the test sites have a moderate to high sensitivity to moisture and were generally in a moist condition at the time of the exploration (December 2014). In this respect, the in-situ soils may not be suitable for use as structural fill if the soil moisture content is more than 3 to 5 percent above the optimum level at the time of construction in the case of the silty sand soil encountered at a number of the test locations. In general, soils encountered during the site excavations that are excessively over the optimum moisture content will require moisture conditioning (aeration) prior to placement and compaction. Conversely, soils that are below the optimum moisture content will require moisture conditioning through the addition of water prior to use as structural fill. If the in-situ soils are determined to not be suitable for use as structural fill, then use of a suitable imported soil may be necessary. In our opinion, a contingency should be included in the project budget for exporting unsuitable soil and importing structural fill; or moisture conditioning recommendations can be provided upon request based on field observations during the construction phase of on-site work.

Imported Soils

Imported soil intended for use as structural fill should consist of a well graded granular soil with a moisture content that is at or near the optimum level. During wet weather conditions, imported soil intended for use as structural fill should consist of a well graded granular soil with a fines content of 5 percent or less defined as the percent passing the #200 sieve, based on the minus three-quarter inch fraction.

Structural Fill

Structural fill is defined as compacted soil placed in foundation, slab-on-grade, and roadway areas. Fills placed to construct permanent slopes and throughout retaining wall and utility trench backfill areas are also considered structural fill. Soils placed in structural areas should be placed in loose lifts of 12 inches or less and compacted to a relative compaction of 90 percent, based on the laboratory maximum dry density as determined by the Modified Proctor Method (ASTM D-1557). Soil placed in utility trenches, pavement areas and in the upper 12 inches of slab-on-grade areas should be compacted to a relative compaction of at least 95 percent. Additionally, more stringent compaction specifications may be required for utility trench backfill zones, depending on the responsible utility district or jurisdiction.

Foundations

Based on the results of our study, the proposed building can be supported on conventional spread and continuous footings bearing on competent native soils where they are encountered below existing grades, if the risk of differential settlement and lateral spread during a seismic event in the range described in this section is acceptable.

If the risk of up to 0.40 inches of differential settlement, as well as lateral spread is unacceptable, pin piles will be necessary for support of the foundations. We have provided pin pile recommendations later in the report. Otherwise, overexcavation of foundation grades that are observed to be loose, like those soils encountered on the southeast side of the site during exploration to a depth of five feet, should be overexcavated and replaced with competent new structural fill compacted to 95 percent of Modified Proctor Method. ESNW should be retained during construction to ascertain the subsurface conditions within the building footprint, and provide supplemental recommendations as necessary.

Provided foundations are supported as described above, the following parameters can be used for design of new foundations:

- Allowable soil bearing capacity — 2,500 psf
- Passive earth pressure — 300 pcf (equivalent fluid)
- Coefficient of friction — 0.40

A one-third increase in the allowable soil bearing capacity can be assumed for short-term wind and seismic loading conditions. The above passive pressure and friction values include a factor-of-safety of 1.5. With structural loading as expected, total settlement in the range of one and one half inch and differential settlement of about one quarter inch is anticipated. The majority of the settlements should occur during construction, as dead loads are applied.

Pin Piles

If pin piles are utilized for this project, they should be advanced through the compressible and loose soils to bear on the dense silt soils encountered at depths below approximately eight to ten feet below existing grades. Based on the soil conditions encountered during our fieldwork, we estimate total pile lengths will be on the order of 15 feet. However, the ultimate pile length will be determined by achieving adequate refusal. Therefore, if soil variability is encountered during installation, longer pile lengths may be required to achieve acceptable refusal criteria. Minimum pile lengths should be on the order of 11 feet, which would correspond to about three feet of embedment into firm soils.

Three and four-inch diameter pin piles are typically Schedule 40 galvanized steel driven by an 850 pound hammer operating at 900 blows per minute.

Axial Load Capacity

Assuming the pin piles are driven to refusal, the allowable axial load capacities listed below can be used for design:

Pile Diameter	Load Capacity*	Refusal Criteria (seconds/inch)
3 inches	6 tons	10
4 inches	10 tons	10

* assumes a factor-of-safety of at least 2.0

Refusal is generally defined as less than six inches of penetration within the above refusal criteria.

With structural loading as expected, total settlement in the range of one inch is anticipated, with differential settlement of approximately 0.75 inches. The majority of the settlements should occur during construction, as dead loads are applied.

An ESNW representative should observe the pin pile installation to verify the refusal criteria during the pile driving operation.

Lateral Load Capacity

In general, lateral load capacity of pin piles is very limited and should be neglected in design. Limited lateral load capacity can be provided by passive resistance developed by grade beams, if utilized. In our opinion, lateral load capacity of the pin piles is negligible and should be assumed to be zero for design. If additional lateral load capacity is required, ESNW can review the pile design and provide batter pile recommendations, as appropriate.

Seismic Design Considerations

The 2012 IBC recognized the American Society of Civil Engineers (ASCE) for seismic site class definitions. In accordance with Table 20.1-1 of the ASCE Minimum Design Loads for Buildings and Other Structures manual, Site Class D should be used for design.

The referenced liquefaction susceptibility map of King County indicates the site and surrounding areas maintain a moderate to high liquefaction susceptibility. Liquefaction is a phenomenon where saturated or loose soils suddenly lose internal strength in response to increased pore water pressures resulting from an earthquake or other intense ground shaking.

In our opinion, site susceptibility to liquefaction and soil spreading can be characterized as moderate to high. The relative density of the native soils, as well as the shallow groundwater table, were the primary bases for this characterization.

Slab-On-Grade Floors

Slab-on-grade floors for the proposed residential building at this site should be supported on a firm and unyielding subgrade. Where feasible, the existing native soils exposed at the slab-on-grade subgrade level can be compacted in place to the specifications of structural fill. Unstable or yielding areas of the subgrade should be recompacted or overexcavated and replaced with suitable structural fill prior to construction of the slab. A capillary break consisting of a minimum of four inches of free draining crushed rock or gravel should be placed below the slab. The free draining material should have a fines content of 5 percent or less (percent passing the #200 sieve, based on the minus three-quarter inch fraction). In areas where slab moisture is undesirable, installation of a vapor barrier below the slab should be considered. If a vapor barrier is to be utilized it should be a material specifically designed for use as a vapor barrier and should be installed in accordance with the manufacturer's specifications.

Retaining Walls

Retaining walls must be designed to resist earth pressures and applicable surcharge loads. The following parameters can be used for retaining wall design:

- Active earth pressure (yielding condition) — 35 pcf (equivalent fluid)
- At-rest earth pressure (restrained condition) — 55 pcf
- Traffic surcharge for passenger vehicles (where applicable) — 70 psf (rectangular distribution)
- Passive earth pressure — 300 pcf (equivalent fluid)
- Coefficient of friction — 0.40
- Seismic surcharge (active condition) — 6H*
- Seismic surcharge (restrained condition) — 11H*

*where H equals retained height

Additional surcharge loading from adjacent foundations, sloped backfill, or other loads should be included in the retaining wall design. Drainage should be provided behind retaining walls such that hydrostatic pressures do not develop. If drainage is not provided, hydrostatic pressures should be included in the wall design.

Retaining walls should be backfilled with free draining material that extends along the height of the wall, and a distance of at least 18 inches behind the wall. The upper one foot of the wall backfill can consist of a less permeable soil, if desired. A perforated drain pipe should be placed along the base of the wall, and connected to an approved discharge location.

Drainage

Groundwater should be anticipated in site excavations due to the site being underlain by glacial outwash soil. Temporary measures to control surface water runoff and groundwater during construction would likely involve interceptor trenches and sumps. ESNW should be consulted during preliminary grading to identify areas of seepage and to provide recommendations to reduce the potential for instability related to seepage effects.

In our opinion, foundation drains should be installed along building perimeter footings.

Surface grades should slope away from the structure at a gradient of at least 2 percent for a horizontal distance of ten feet.

Infiltration Feasibility

Two borings were excavated within accessible areas of the site to determine the subsurface conditions. The soil conditions observed at the boring locations consisted of silty sand with gravel (Unified Soil Classification, SM), poorly graded sand with gravel (SP-SM), and silt (ML). The soil was observed in a medium dense condition at the boring locations at depths of approximately five feet. The relative soil density increased with depth. A confining layer of silty material was observed at approximately eight to twelve feet in depth at the locations explored during the fieldwork for this infiltration evaluation. Groundwater was observed at five feet in depth on the east side of the site.

The geologic maps for the region describe the site as being located in an area comprised of glacial outwash deposits. We interpret the soil conditions on the subject site as being consistent with the geologic map description of the area under concern, overlaying lacustrine deposits. Typical glacial outwash deposits are typically observed to consist of a matrix of sand and gravel in a dense condition. Lacustrine deposits are typically silty in nature and somewhat cemented.

Based on the results of this infiltration evaluation, infiltration on the subject site is not feasible due to the relatively shallow groundwater table, and presence of lacustrine deposits.

It is our opinion, that permeable soils do not exist on the subject site which would allow for an adequately functioning infiltration system. It is our opinion that alternative means for management of stormwater runoff be pursued in lieu of infiltration.

Excavations and Slopes

The Federal Occupation Safety and Health Administration (OSHA) and the Washington Industrial Safety and Health Act (WISHA) provide soil classification in terms of temporary slope inclinations. Based on the soil conditions encountered at the boring locations, the soils encountered within the majority of the development envelope that are firm glacial outwash soil are classified as Type B by OSHA/WISHA. Temporary slopes over four feet in height in Type B soils must be sloped no steeper than 1H:1V (Horizontal:Vertical). Soil encountered in the building envelope and in utility trenches that is fill soil, and where groundwater seepage is exposed, are classified as Type C by OSHA/WISHA. Temporary slopes over four feet in height in Type C soils must be sloped no steeper than 1.5H:1V.

The presence of perched groundwater may cause caving of the temporary slopes due to hydrostatic pressure. ESNW should observe site excavations to confirm the soil type and allowable slope inclination. If the recommended temporary slope inclination cannot be achieved, temporary shoring may be necessary to support excavations.

Permanent slopes should maintain a gradient of 2H:1V, or flatter, and should be planted with vegetation to enhance stability and to minimize erosion. A representative of ESNW should observe temporary and permanent slopes to confirm the slope inclinations, and to provide additional excavation and slope recommendations, as necessary.

Slope Reconnaissance

As part of our scope of services, a cursory visual slope reconnaissance was performed. During our reconnaissance no signs of slope instability in the form of surface seeps, head scarps, pistol butted tree trunks, or hummocky terrain were observed.

Utility Support and Trench Backfill

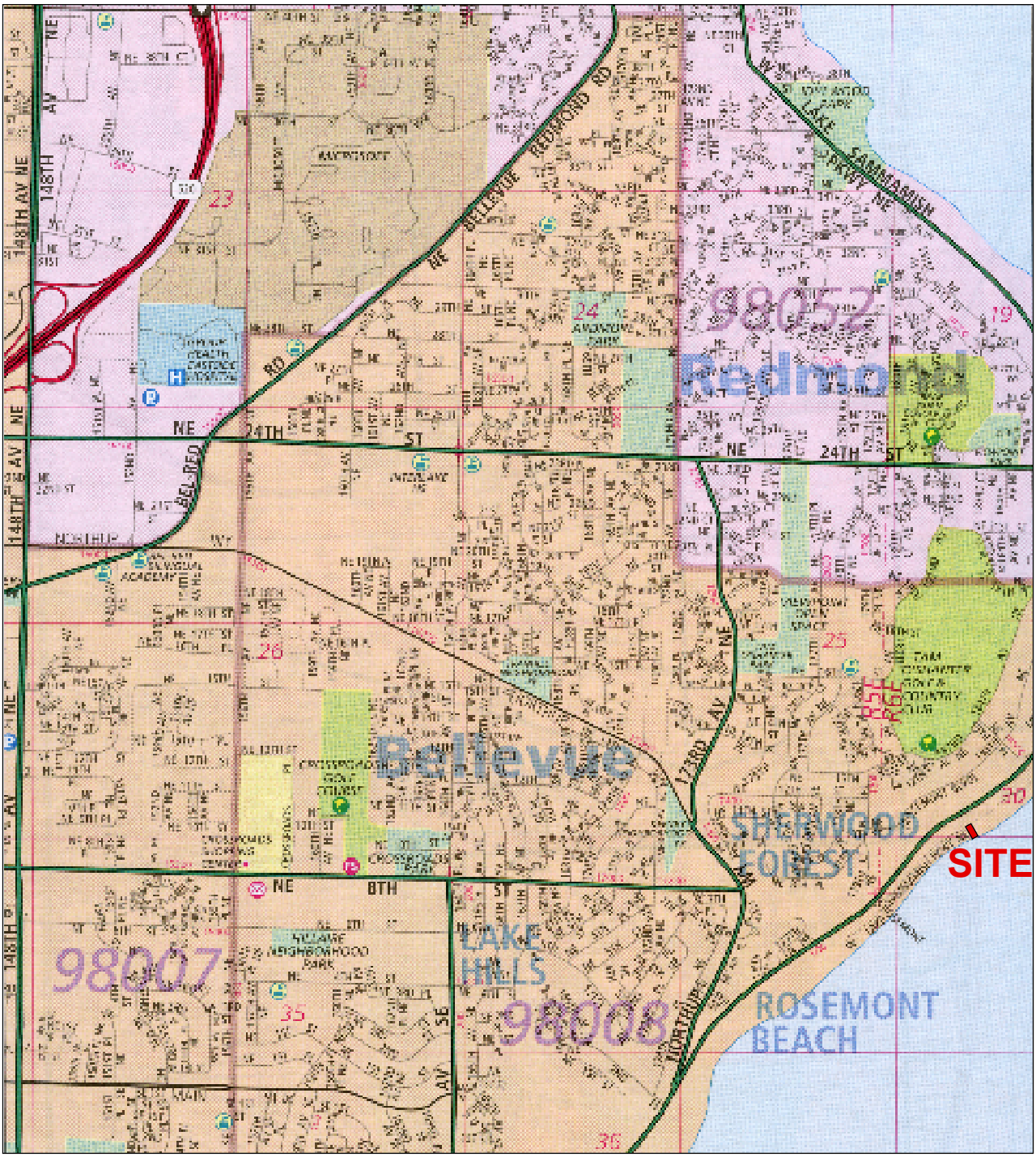
In our opinion, the soils anticipated to be exposed in utility excavations should generally be suitable for support of utilities. Organic or highly compressible soils encountered in the trench excavations should not be used for supporting utilities. The native soils are moisture sensitive and will therefore be difficult to use as structural trench backfill if the moisture content of the soil is high. Moisture conditioning of the soils will likely be necessary prior to use as structural backfill. Utility trench backfill should be placed and compacted to the specifications of structural fill provided in this report, or to the specifications of the applicable jurisdiction. Seepage may be encountered within utility trench excavations. Minor caving of the trench sidewalls should be anticipated by the contractor if groundwater seepage is encountered.

LIMITATIONS

The recommendations and conclusions provided in this geotechnical engineering study are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. A warranty is not expressed or implied. Variations in the soil and groundwater conditions observed at the test locations may exist, and may not become evident until construction. ESNW should reevaluate the conclusions in this geotechnical engineering study if variations are encountered.

Additional Services

ESNW should have an opportunity to review the final design with respect to the geotechnical recommendations provided in this report. ESNW should also be retained to provide testing and consultation services during construction.



Reference:
King County, Washington
Map 567
By The Thomas Guide
Rand McNally

NORTH

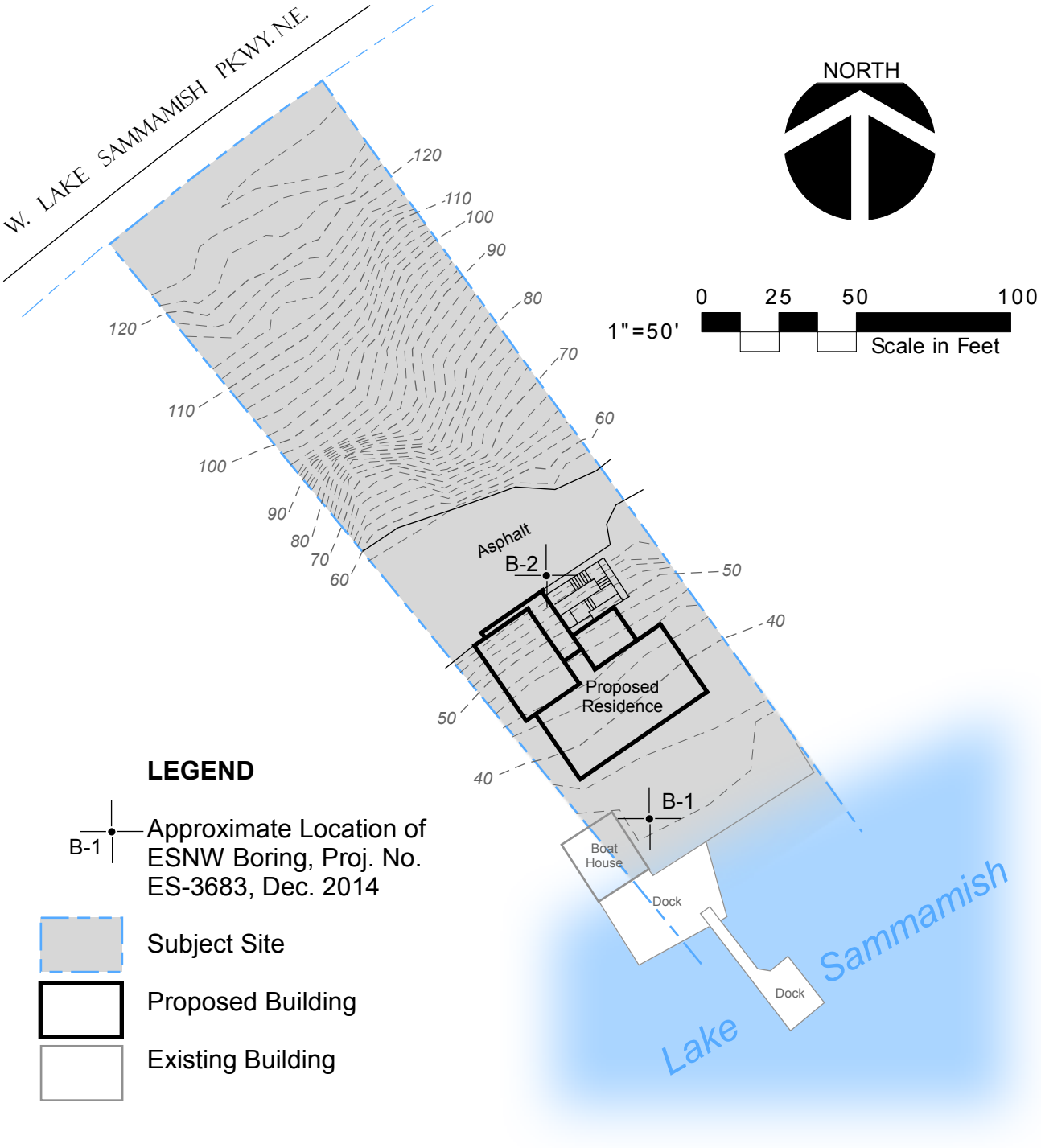
NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring and Environmental Sciences

Vicinity Map
Anderegg - Evans Residence
Bellevue, Washington

Drwn. GLS	Date 01/15/2015	Proj. No. 3683
Checked SHA	Date Jan. 2015	Plate 1



NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

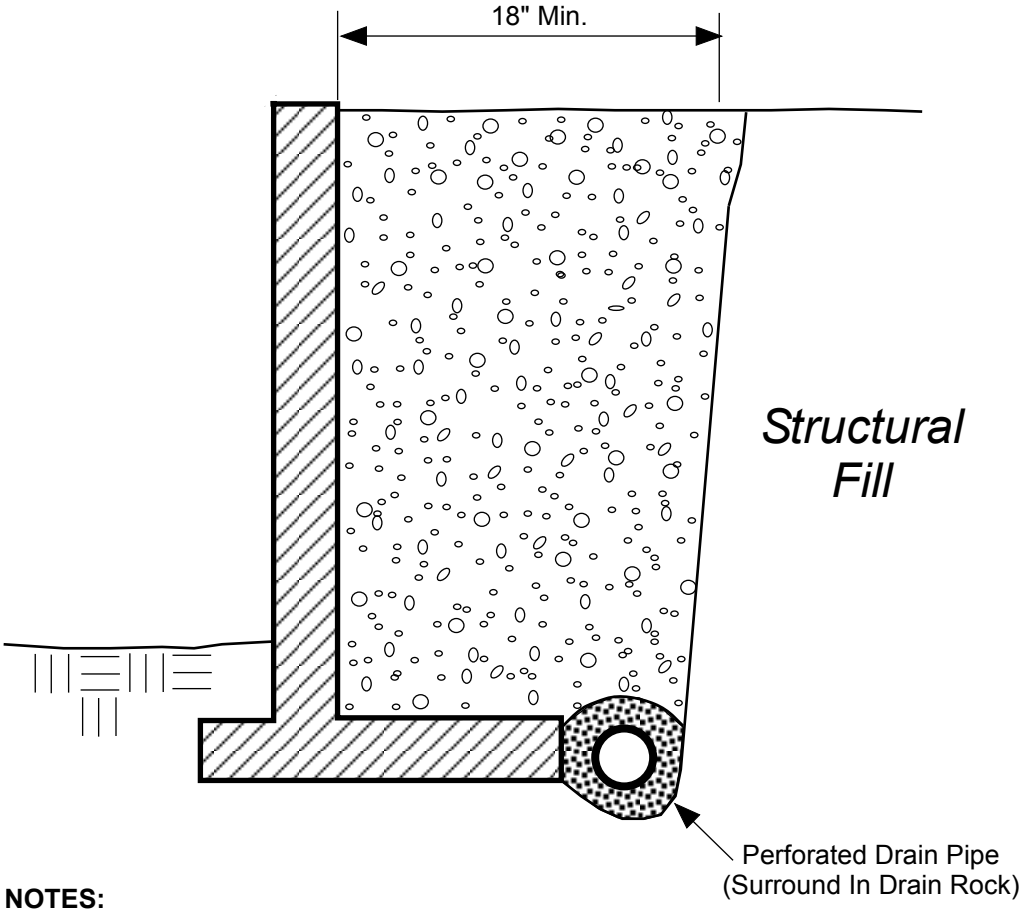
NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring and Environmental Sciences

Boring Location Plan
Anderegg - Evans Residence
Bellevue, Washington

Drwn.	GLS	Date	01/15/2015	Proj. No.	3683
Checked	SHA	Date	Jan. 2015	Plate	2



NOTES:

- Free Draining Backfill should consist of soil having less than 5 percent fines. Percent passing #4 should be 25 to 75 percent.
- Sheet Drain may be feasible in lieu of Free Draining Backfill, per ESNW recommendations.
- Drain Pipe should consist of perforated, rigid PVC Pipe surrounded with 1" Drain Rock.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:

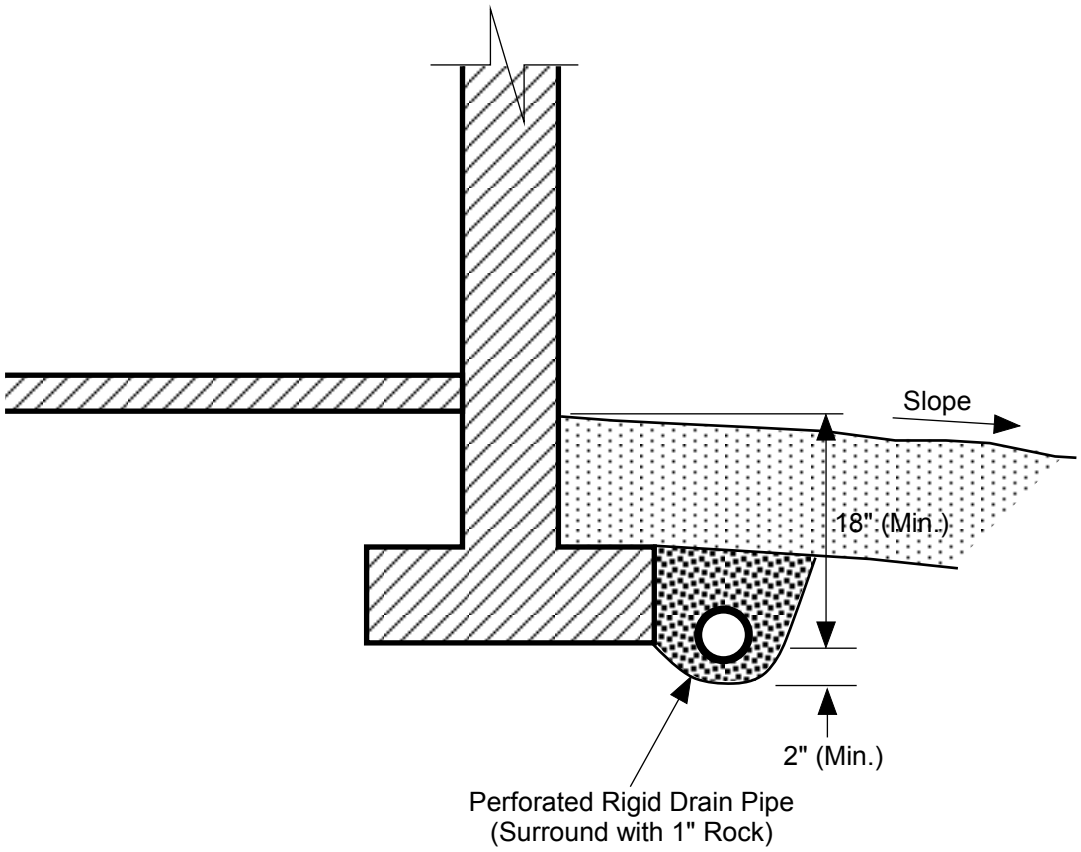
Free Draining Structural Backfill

1 inch Drain Rock

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

RETAINING WALL DRAINAGE DETAIL
Anderegg - Evans Residence
Bellevue, Washington

Drwn. GLS	Date 01/15/2015	Proj. No. 3683
Checked SHA	Date Jan. 2015	Plate 3



NOTES:

- Do NOT tie roof downspouts to Footing Drain.
- Surface Seal to consist of 12" of less permeable, suitable soil. Slope away from building.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:

Surface Seal; native soil or other low permeability material.

1" Drain Rock

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

FOOTING DRAIN DETAIL
Anderegg - Evans Residence
Bellevue, Washington

Drwn. GLS	Date 01/15/2015	Proj. No. 3683
Checked SHA	Date Jan. 2015	Plate 4

Appendix A

Subsurface Exploration

ES-3683

The subsurface conditions at the site were explored by excavating a total of two geologic borings. The borings were excavated utilizing a hollow-stem auger across accessible portions of the property. The subsurface explorations were completed in December of 2014. The approximate boring locations are illustrated on the Site Plan provided in this report. Logs of the borings are provided as an attachment. The borings were excavated to a maximum depth of 26.5 feet below existing grades.

Earth Solutions NW LLC

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

DUAL SYMBOLS are used to indicate borderline soil classifications.

The discussion in the text of this report is necessary for a proper understanding of the nature of the material presented in the attached logs.

Earth Solutions NW
1805 - 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-449-4704
Fax: 425-449-4711

BORING NUMBER B-1

CLIENT Ms. Kendall Anderegg
PROJECT NAME Anderegg - Evans Residence
PROJECT NUMBER 3683
PROJECT LOCATION Bellevue, Washington
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Geologic Drill
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY SHA **CHECKED BY** SHA
AT END OF DRILLING ---
NOTES Lawn
AFTER DRILLING —

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SM		Brown silty SAND with gravel, loose, moist (Fill)
	SS	100	2-2-3 (5)	MC = 15.30%			
5							5.0
	SS	100	5-7-7 (14)	MC = 18.20% Fines = 5.10%	SP-SM		Brown poorly graded SAND with gravel, medium dense, moist (Native) [USDA Classification: gray very gravelly SAND]
	SS	100	5-7-14 (21)	MC = 12.30%			
10	SS	100	12-8-9 (17)	MC = 37.90%			11.5
	SS	100	10-18-30 (48)	MC = 11.20%	ML		Gray SILT, stiff, moist -gravel interbedding -refusal at 14'
							14.0
							Boring terminated at 14.0 feet below existing grade. Groundwater seepage encountered at 5.0 feet during drilling. Boring backfilled with bentonite. Bottom of hole at 14.0 feet.

Earth Solutions NW
1805 - 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-449-4704
Fax: 425-449-4711

BORING NUMBER B-2

CLIENT Ms. Kendall Anderegg
PROJECT NAME Anderegg - Evans Residence
PROJECT NUMBER 3683
PROJECT LOCATION Bellevue, Washington
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Geologic Drill
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING ---
LOGGED BY SHA **CHECKED BY** SHA
AT END OF DRILLING —
NOTES Asphalt
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							
					SM		Brown silty SAND with gravel, medium dense, moist (Fill)
	SS	100	3-5-5 (10)	MC = 16.60%			
5							5.0
	SS	100	2-4-9 (13)	MC = 7.00% Fines = 36.90%	SM		Brown silty SAND with gravel, medium dense, moist (Native) [USDA Classification: tan gravelly LOAM]
	SS	100	14-8-5 (13)	MC = 6.00%			8.0
10					ML		Gray SILT, stiff, moist
	SS	100	4-4-5 (9)	MC = 16.70% Fines = 9.60%			10.5
					GW-GM		Brown well graded GRAVEL with sand, loose, moist [USDA Classification: gray extremely gravelly loamy coarse SAND]
							11.5
					ML		Gray SILT, stiff, moist
15							
	SS	100	5-8-12 (20)	MC = 26.00%			
20							

(Continued Next Page)

Earth Solutions NW
1805 - 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-449-4704
Fax: 425-449-4711

BORING NUMBER B-2

CLIENT Ms. Kendall Anderegg **PROJECT NAME** Anderegg - Evans Residence

PROJECT NUMBER 3683 **PROJECT LOCATION** Bellevue, Washington

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20	SS	100	24-23-17 (40)	MC = 17.50%	ML		Gray SILT, stiff, moist *(continued)*
						20.5	-very stiff
					SP-SM		Brown poorly graded SAND with silt and gravel, dense, moist
25	SS	100	7-16-23 (39)	MC = 12.00%		26.5	
							Boring terminated at 26.5 feet below existing grade. Groundwater seepage encountered at 11.0 and 20.0 feet during drilling. Boring backfilled with bentonite.
							Bottom of hole at 26.5 feet.

Appendix B

Laboratory Test Results

ES-3683

Earth Solutions NW
1805 - 136th Place N.E., Suite 201
Bellevue, WA 98005
Telephone: 425-284-3300

GRAIN SIZE DISTRIBUTION

CLIENT Kendal Anderegg **PROJECT NAME** Anderegg SFR

PROJECT NUMBER ES-3683 **PROJECT LOCATION** Bellevue

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	Cc	Cu
○	B-1	5.0ft.	USDA: Gray Very Gravelly Sand. USCS: SP-SM with Gravel.	0.70	8.35
☒	B-2	5.0ft.	USDA: Tan Gravelly Loam. USCS: SM with Gravel.		
△	B-2	10.0ft.	USDA: Gray Extremely Gravelly Loamy Coarse Sand. USCS: GW-GM with Sand.	2.61	83.49

	Specimen Identification		D100	D60	D30	D10			%Silt	%Clay
○	B-1	5.0ft.	37.5	1.155	0.335	0.138			5.1	
☒	B-2	5.0ft.	19	0.815					36.9	
△	B-2	10.0ft.	19	6.767	1.197	0.081			9.6	

GRAIN SIZE ES-3683.GPJ GINT US LAB.GDT 12/26/14

Report Distribution

ES-3683

EMAIL ONLY

Ms. Kendall Anderegg
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington 98008

Attention: Ms. Kendall Anderegg

EMAIL ONLY

Belotti McHugh Design and Construction Services
1900 North Northlake Way, Suite 249
Seattle, Washington 98103

Attention: Mr. Todd McHugh

EMAIL ONLY

CK Engineering
c/o Mr. Pasko Kesovija
19229 – 38th Place Northeast
Lake Forest Park, Washington 98155

Attention: Mr. Pasko Kesovija

EMAIL ONLY

Coastes Design
900 Winslow Way E, Suite 210
Bainbridge Island, Washington 98110

Attention: Ms. Amy Shuster

April 1, 2015
ES-3683.01

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Ms. Kendall Anderegg
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington 98008

Attention: Ms. Kendall Anderegg

Subject: Geotechnical Consultation
Steep Slope Variance
Anderegg Residence
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington

Reference: Earth Solutions NW, LLC
Geotechnical Engineering Study
Anderegg Residence
1002 West Lake Sammamish Parkway Northeast
Bellevue, Washington
dated January 23, 2015

Coates Design Architects
Anderegg-Evans Residence
Proposed Steep Slope Setback
Sheet A1.00, dated December 8, 2014

Dear Ms. Anderegg:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter providing recommendations regarding the stability of the slopes on the subject site.

Re-development following the demolition of the existing single-family residence is being proposed for the subject site. The planned re-development will include construction of a new single-family residence in the eastern portion of the subject site.

A representative of ESNW performed a visual slope reconnaissance (December 2014 and March 2015) to ascertain the current conditions of the slopes on the west side of the proposed building envelope. ESNW was on-site two separate occasions to observe, log, and sample borings within the sloped areas of the site for the purposes of characterizing the subsurface conditions on-site. The borings were located on the steep slope and at the west, and east sides of the existing residence on-site.

The initial site visit was to perform a cursory visual slope reconnaissance, in order to identify and visual signs of instability on the steep slope. Signs of instability are surface seeps, slumps or scarps, evidence of historic landslides, excessively pistol butted tree trunks, and/or hummocky terrain. No signs of instability on the surface were observed at that time (December 2014) on the subject property.

A steep slope meeting the criteria for a critical area pursuant with the City of Bellevue LUC 20.25 is present within the western portion of the subject site. The toe-of-slope begins at the retaining wall along the western edge of the access road for the above mentioned address, and ascends approximately 68 feet towards the west where it terminates on the east side of West Lake Sammamish Parkway Northeast. An engineered retaining wall is the demarcation of the toe-of-slope.

The proposed building area is located to the east of the access road on-site. The proposed building envelope with roughly mimic the current footprint for the existing single-family residence, and will be built into a shallow slope that descends from the access road elevation towards Lake Sammamish to the east of the home site.

No modifications to the steep slope are a part of the proposed site re-development, as the development envelope is sited below the steep slope area. Therefore, stormwater runoff volumes on the slope will not be increased; nor will structural loading on the slope be increased.

The proposed building footprint will encroach within the 75 foot steep slope buffer from the toe-of-slope. The proposed shortest distance between the proposed new residence and toe-of-slope will be 40 feet at the northwest corner of the structure. The western portion of the structure that will encroach on the steep slope buffer is comprised of the proposed garage. No living areas will be within the 75 foot buffer.

Geologic Map Review

The referenced geologic map resource identifies glacial outwash (Qgo) deposits across the site and surrounding areas. The referenced SCS soil survey identifies Alderwood and Kitsap (AkF) series soils across the entirety of the site. Alderwood and Kitsap soils are typified by glacial till planes, lacustrine (lake) deposits, and moraines. This type of soil typically present a low to moderate erosion hazard.

The soil conditions observed at the boring locations are generally consistent with glacial outwash and lacustrine deposits.

Slope Assessment

We reviewed the City of Bellevue municipal code in regards to critical areas reports (LUC 20.25) as a part of this report production. Based on review of of the municipal code a buffer of 75 horizontal feet must be maintained from any steep slope. However, a variance may be granted given the Reasonable Use Exception (LUC 20.25H.205), where "The structure shall be located on the site in order to minimize the impact on the critical areas or critical area buffer, including modifying the non-critical areas setbacks to the maximum extent allowed."; and "Areas of permanent disturbance shall be mitigated to the maximum extent feasible on-site pursuant to a mitigation plan meeting the requirements of LUC 20.25H.210.". It is our opinion, in keeping with the Reasonable Use Exception, the proposed re-development plans do not include any modifications to the critical area under concern due to the building envelope being sited below the toe-of-slope, and a 40 foot wide roadway is present at the toe-of-slope providing an area for landslide run-out should a slide occur in the future.

We have evaluated the design and inherent engineering involved in construction of the proposed single-family residential structure with respect to slope stability for the site. This entailed a site visit to perform a slope reconnaissance, in search of evidence of instability in the form of surface seeps, hummocky terrain, pistol-butted tree trunks, or scarps which may be indicative of instability past or present.

No signs of a past landslide, atypical soil movement indicating instability, or active landslides were observed during our site visits (December 2014, and March 2015).

Summary and Opinion

In our opinion, the buffer from the toe-of-slope can be reduced to 40 feet. No indication of past or current instability was observed on the slope during our reconnaissance. However, the potential for landslides, particularly surficial debris flow type failures, exists on the slope. Given the fact that no modifications are planned to the steep slope, the risk of landslide activity will not be increased by proceeding with the planned development.

Limitations

The recommendations and conclusions provided in this letter are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. Our recommendations are based on the information available at the time of this letter preparation. A warranty is not expressed or implied.

We trust this letter meets your current needs. If you have any questions, or if additional information is required, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

Stephen H. Avril
Project Geologist

Kyle R. Campbell, P.E.
Principal

cc: Mr. Dan Evans (Email only)

Coates Design
Attention: Ms. Amy Shustar (Email only)