



DEVELOPMENT SERVICES DEPARTMENT
 ENVIRONMENTAL COORDINATOR
 11511 MAIN ST., P.O. BOX 90012
 BELLEVUE, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPONENT: Daniel and Cari Wall

LOCATION OF PROPOSAL: 1839 Killarney Way SE

DESCRIPTION OF PROPOSAL: Wall Residence Critical Areas Land Use Permit. Approval of Critical Areas Land Use Permit to demolish and construct a new single family residence along the shoreline of Lake Washington. The proposal includes modification of the shoreline buffer, shoreline structure setback, steep slope areas, steep slope buffers, and steep slope structure setbacks to accommodate a new single family residence and appurtenant hardscape development. The proposal also includes and is supported by critical areas and geotechnical analysis and mitigation plan meeting the requirements of LUC 20.25H.

FILE NUMBERS: 13-114599-LO **PLANNER:** David Pyle

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

- There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on _____.
- This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on **8/22/2013**
- This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on _____. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5:00 p.m. on _____.

This DNS may be withdrawn at any time if the proposal is modified so as to have significant adverse environmental impacts; if there is significant new information indicating a proposals probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project); or if the DNS was procured by misrepresentation or lack of material disclosure.

[Handwritten Signature]

 Environmental Coordinator

8/8/2013

 Date

OTHERS TO RECEIVE THIS DOCUMENT:

- State Department of Fish and Wildlife / Stewart.Reinbold@dfw.gov; Christa.Heller@dfw.wa.gov;
- State Department of Ecology, Shoreline Planner N.W. Region / Jobu461@ecy.wa.gov; sepaunit@ecy.wa.gov
- Army Corps of Engineers Susan.M.Powell@nws02.usace.army.mil
- Attorney General ecyolyef@atg.wa.gov
- Muckleshoot Indian Tribe Karen.Walter@muckleshoot.nsn.us; Fisheries.fileroom@muckleshoot.nsn.us



**City of Bellevue
Development Services Department
Land Use Staff Report**

Proposal Name: Wall Residence Critical Areas Land Use Permit

Proposal Address: 1839 Killarney Way SE

Proposal Description: Approval of Critical Areas Land Use Permit to demolish and construct a new single family residence along the shoreline of Lake Washington. The proposal includes modification of the shoreline buffer, shoreline structure setback, steep slope areas, steep slope buffers, and steep slope structure setbacks to accommodate a new single family residence and appurtenant hardscape development. The proposal also includes and is supported by critical areas and geotechnical analysis and mitigation plan meeting the requirements of LUC 20.25H.

File Number: 13-114599-LO

Applicant: Daniel and Cari Wall

Decisions Included Critical Areas Land Use Permit
(Process II. 20.30P)

Planner: David Pyle, Land Use Planner

**State Environmental Policy Act
Threshold Determination:**

Determination of Non-Significance

Carol V. Helland, Environmental Coordinator
Development Services Department

Director's Decision:

Approval with Conditions

Michael A. Brennan, Director
Development Services Department

By:

Carol V. Helland, Land Use Director

Application Date: May 3, 2013
Notice of Application Date: May 30, 2013
Decision Publication Date: August 8, 2013
Project Appeal Deadline: August 22, 2013

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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Attachments

1. Site Plan
2. Critical Areas Report and Conceptual Restoration Planting Plan with Mitigation and Monitoring Plan
3. Geotechnical Report
4. SEPA Checklist

I. Proposal Description

This is a proposal to demolish and redevelop an existing single family residence at 1839 Killarney Way. The property is currently developed with an existing two story residence and two car garage. The applicant is proposing a complete redevelopment of property core. The site is regulated under the City of Bellevue Critical Areas Overlay District and Shoreline Overlay District and includes a 25 foot shoreline buffer (measured from Ordinary High Water Mark or 18.8' Elevation NAVD88), 25 foot shoreline structure setback (measured from the landward buffer edge), 2 protected steep slope areas, 25 foot top of slope buffers, and 75 foot toe of slope structure setbacks.

The condition of the shoreline, shoreline buffer, slope, and slope buffer is degraded by past clearing and landscaping activity. The property has been developed for decades and the site is vegetated with nonnative and/or invasive plant species and is generally void of shrubs, trees, and other significant vegetation aside from the protected slope area along the eastern edge of the site. The site has been maintained through routine mowing and pruning. The 25 foot shoreline buffer and steep slope along the eastern edge of the property will remain protected with only modest improvements. The new residence will be located in the place of the existing home with a slightly expanded footprint.

To accommodate the larger footprint and new garage, the toe of the slope immediately to the east of the current home will be excavated and supported by a new engineered foundation/retaining wall. To provide additional parking options in this constrained site, the driveway will be widened with a pervious hardscape surface at the top of the lower slope area. The remaining slope area between the new garage (toe of slope) and expanded pervious parking area (top of slope) will be restored with native vegetation. The driveway at the toe of the upper slope will also be modestly widened to allow for better turning motion at the terminus of the driveway where vehicles must make a sharp turn towards the garage and parking area. The shoreline setback will be modified to allow construction of a patio and pool. No encroachment into the shoreline buffer is proposed.

To mitigate impacts to the shoreline structure setback and toe of slope setback, the applicant is proposing slope vegetation enhancement (restoration), shoreline buffer vegetation enhancement (restoration), and a partial rockery bulkhead removal and replacement with a planted beach/cove. Mitigation efforts are anticipated to improve the site's conditions and should provide for a net improvement in ecological function over existing.

Shoreline buffer and slope conditions will be improved as part of the proposed and planned mitigation planting in exchange for a reduced shoreline structure setback and reduced toe of slope structure setback as allowed through a critical areas report process (LUC 20.25H.230). This proposal requires the approval of a Critical Areas Land Use Permit for the house and hardscape to be allowed. See Figure 1 below for a site plan showing the proposal. A full size site plan is included as **Attachment 1**. A complete project and site description is included in the project Critical Areas Report as **Attachment 2**.

Figure 1 – Project Site Plans

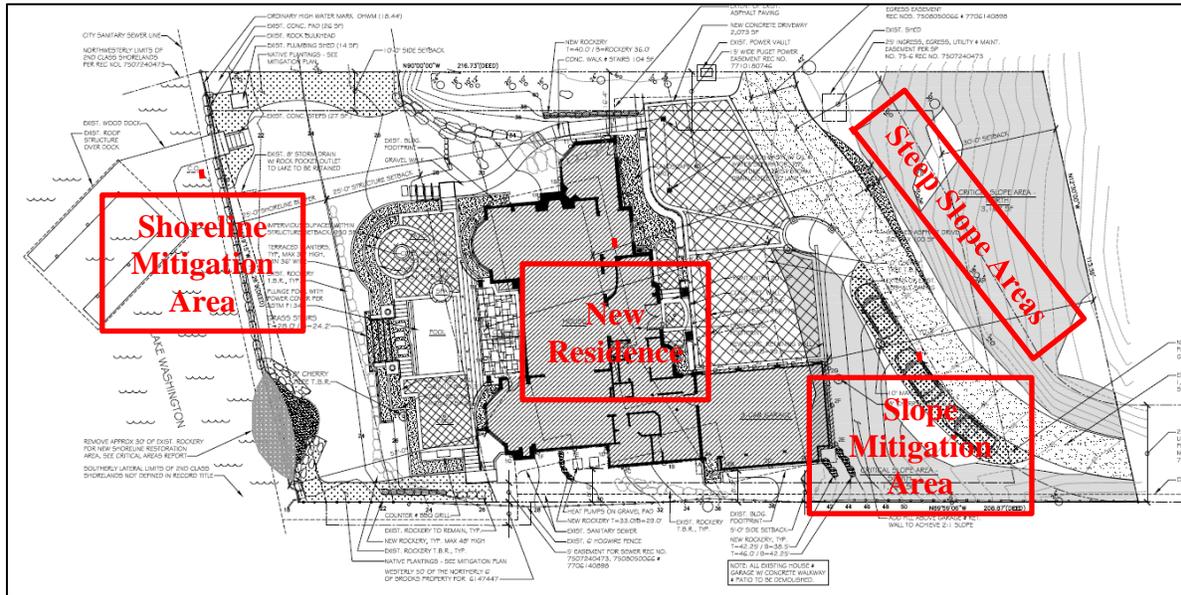


Figure 2 – Existing Site Conditions



II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

The project site is located at 1839 Killarney Way in the Southwest Bellevue subarea of the City along the shoreline of Lake Washington. The property is south of Chism Beach Park in an established residential neighborhood. The site is along the eastern shoreline of Lake Washington and the steep slope critical areas on the property are located along the eastern portion of the property, sloping down from the east to the west. The shoreline is currently considered developed and the water frontage is developed with a recreational dock. The shoreline edge is armored with an existing rockery/bulkhead. See Figure 2 above for an image of existing site conditions.

B. Zoning

The property is zoned R-1.8, low-density single-family residential.

C. Land Use Context

The property has a Comprehensive plan Land Use Designation of SF-L, Single Family Low Density. The site is regulated under the Critical Areas Overlay District (LUC 20.25H) and the Shoreline Overlay District (LUC 20.25E).

D. Critical Areas On-Site and Regulations

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

ii. Shorelines

Shorelines provide a wide variety of functions related to aquatic and riparian habitat, flood control, water quality, economic resources, and recreation. Each function is a product of physical, chemical, and biological processes at work within the overall landscape. In lakes, these processes take place within an integrated system of coupled aquatic and riparian habitats. Hence, it is important to have an ecosystem approach which incorporates an understanding of shoreline functions and values.

iii. Site Conditions

To the west of the existing home, the project site is characterized by a cleared and maintained sparsely vegetated shoreline buffer and setback. The existing home is located approximately 50 feet from the edge of Lake Washington. The area between the existing home and the lake edge is landscaped with ornamental landscape and the topographic transition between the lake level and the foundation grade of the home is provided through a rockery wall. The site's shoreline edge is developed with a recreational dock and is protected by a large rockery/bulkhead extending along the full water frontage.

Areas North and south of the existing home are developed with existing landscaping and the foundation of the home provides a partial daylight basement that ties into the site's sloping grade through an integrated rockery to the north and south.

East of the home, the site is characterized by a smaller vegetated and larger forested slope area. The two slope areas are transected by the home's existing driveway. A large driveway circulation area and an existing garage are located at the toe of the slope areas.

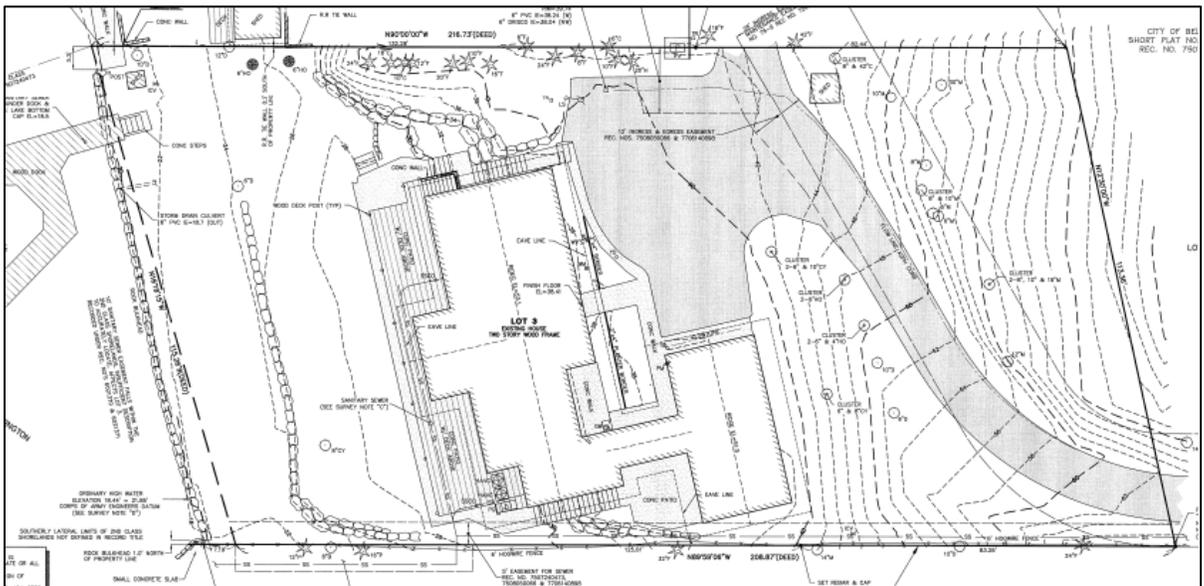
The slope, slope buffer, slope setback, shoreline, shoreline buffer, and shoreline setback are generally considered as degraded (LUC 20.25H.230) through historic residential development and maintenance activity. The site is eligible for a setback and buffer reduction through the Land Use Code Critical Areas Report process. A complete description of the site's critical areas is included in the project critical areas report as **Attachment 2**. A photo of existing shoreline and slope conditions is included as Figure 3 below. A recent site survey is included as Figure 4 below.

Figure 3 – Existing Shoreline and Slope Conditions





Figure 4 – Site Topographic Survey



III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The R-1.8 zoning dimensional requirements found in LUC 20.20.010 apply to the proposed house. The plans submitted generally demonstrate conformance with zoning dimensional standards, however conformance will be verified during building permit review.

B. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer or structure setback from a critical area or buffer. The proposed house and patio construction will modify the 25 foot shoreline structure setback and the 75 foot toe of slope structure setback. The project is subject to the compliance with shoreline and steep slope

performance standards found in LUC 20.25H. The applicant, through their approved critical areas report and associated development proposal, has incorporated the required performance standards as applicable.

i. Shoreline Performance Standards

- The portion of the property that is covered under this proposal extends into the Shoreline Overlay District. The proposed development is consistent with the Shoreline Master Program Policies to favor residential development and recreational water uses in the shoreline overlay district.
- The proposed development within the Shoreline Overlay District is accompanied by a plan to preserve desirable, native shoreline vegetation for control of erosion during and following construction and for habitat functions following construction.
- Care will be exercised to preserve desirable vegetation in the shoreline areas to prevent soil erosion. Removal of vegetation from or disturbance of shoreline critical areas and shoreline critical area buffers, and from other critical area and critical area buffer is in conformance with LUC 20.25H and 20.25E as demonstrated herein.
- The proposed development within the Shoreline Overlay District is required to also obtain applicable building permits to ensure compliance with other applicable Bellevue ordinances, including but not limited to the Bellevue Land Use Code, Building Code, Fire Code and clearing and grading regulations.
- One element of the proposed development is the allowance for required storm drainage and sewer facilities connections associated with the construction of the approved single-family residence on the upper portion of the property. This connection has been review and approved by the applicable City departments. Storm drainage facilities shall be separated from sewage disposal systems.
- The applicant has provided an approved critical areas report in order to modify the shoreline setback and has provided appropriate mitigation in the form of shoreline plantings and reconstruction of a portion of the rockery bulkhead in the form of a beach and cove.

ii. Steep Slope Performance Standards

- Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;
- Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;
- The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;
- The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;
- Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;
- Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic

modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

- Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;
- 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.

iii. Mitigation Plan

The proposal includes a conceptual mitigation plan (LUC 20.25H.220.A). Enhancement/restoration planting is proposed in the shoreline buffer and slope areas and a section of the site's protective rockery bulkhead will be removed and reconstructed in the form of a planted beach/cove. The proposed mitigation plan is included as **Attachment 4**. The planting is required to be maintained and monitored for a period of 5 years following installation. **See Conditions of Approval in Section IX of this report.**

iv. Consistency with LUC 20.25H.140 and LUC 20.25H.145

Modification of a top-of-slope buffer requires a critical areas report as part of the application for a Critical Area Land Use Permit. The applicant has obtained the services of a qualified geotechnical engineering company to study the site and document the observed conditions. Staff has reviewed the Geotech Report (**Attachment 3**) dated February 22, 2013 prepared by Perrone Consulting, Inc. This geotechnical analysis finds that the proposed site redevelopment does not present a stability concern on the site. Per LUC 20.30P.170, approval of projects to modify slope buffers or steep slope critical areas require the proponent to complete a Hold Harmless Agreement with the City. The agreement is required to be completed prior to building permit issuance on a form provided by the City. **See Conditions of Approval in Section IX of this report.**

v. Consistency with Critical Areas Report LUC 20.25.230

The applicant supplied a complete critical areas report prepared by Altman Oliver Associates, LLC., qualified professionals. The report meets the minimum requirements in LUC 20.25H.250. The report is included as **Attachment 2**.

IV. Public Notice and Comment

| | |
|---------------------------|---------------|
| Application Date: | May 02, 2013 |
| Public Notice (500 feet): | May 30, 2013 |
| Minimum Comment Period: | June 13, 2013 |

The Notice of Application for this project was published the City of Bellevue Weekly Permit Bulletin on May 30, 2013. It was mailed to property owners within 500 feet of the project

site. One comment was received from Karen Walter, Muckleshoot Indian Tribe Watersheds and Land Use Team Leader. Ms. Walter's communication was a request for more information about the critical areas report mitigation plan native planting details. A response was provided that as allowed under LUC 20.25H.220, only a concept plan is required. The final plan shall be submitted and approved with the application for construction. A copy of Ms. Walter's communication is available in the project file.

V. Summary of Technical Reviews

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development and has approved the application.

VI. State Environmental Policy Act (SEPA)

The environmental review indicates no probability of significant adverse environmental impacts occurring as a result of the proposal. The Environmental Checklist (**Attachment 4**) submitted with the application adequately discloses expected environmental impacts associated with the project. The City codes and requirements, including the Clear and Grade Code, Utility Code, Land Use Code, Noise Ordinance, Building Code and other construction codes are expected to mitigate potential environmental impacts. Therefore, issuance of a Determination of Non-Significance (DNS) is the appropriate threshold determination under the State Environmental Policy Act (SEPA) requirements.

A. Earth, Air, and Water

No large-scale earthmoving activity is proposed other than excavation for the house. Erosion and sedimentation control requirements and BMPs will be reviewed by the Clearing and Grading Department as part of a clearing and grading permit.

B. Plants and Animals

No significant or important species were identified on the site and the proposed project will not cause for removal of significant vegetation or impact potential habitat resources. The plan includes mitigation planting which will restore site vegetation including trees and shrubs within the slope and shoreline areas resulting in a net improvement to site conditions.

C. Noise

Any noise generated is regulated by Chapter 9.18 BCC. **See Section IX for a related condition of approval.**

VII. Decision Criteria

A. 20.25H.255.B Critical Areas Report Decision Criteria

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

- 1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;**

The mitigation of native plantings (slope and shoreline buffer enhancement/restoration) will improve the site's native vegetation cover. The removal and reconstruction of a portion of the site's rocky bulkhead with a planted beach cove will improve conditions along the shoreline edge. As part of the building permit for the house a final mitigation planting plan, including five years of maintenance and monitoring, shall be submitted. **See Section IX for a related condition of approval.**

- 2. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;**

The proposal includes a mitigation plan that identifies improvements to the site's shoreline edge (rocky bulkhead improvements), shoreline buffer (vegetation enhancement/restoration), and slope enhancement (vegetation enhancement/restoration). A net gain in the site's ecological functions is anticipated.

- 3. The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;**

Stormwater quality will be improved by increased capture of runoff onto the slope from the vegetation to be installed. Application of current stormwater regulations should also allow for a net site improvement over current conditions.

- 4. Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;**

A maintenance surety will be required in an amount equal to 20 percent of the cost of materials and labor needed for 5 years of maintenance and monitoring. **See Conditions of Approval in Section IX of this report.**

- 5. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site;**

The modifications and performance measures in this proposal are not detrimental to the functions and values of the shoreline setback, shoreline buffer, slope areas, slope setbacks, or slope buffers of the surrounding landscape.

- 6. The resulting development is compatible with other uses and development in the same land use district.**

Construction of a single-family house is compatible with residential land use districts. Noise generated by construction is limited to the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is

prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. **See Conditions of Approval in Section IX of this report.**

B. 20.30P.140 Critical Area Land Use Permit Decision Criteria – Decision Criteria

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

1. The proposal obtains all other permits required by the Land Use Code.

The applicant must obtain required development permits. **See Conditions of Approval in Section IX of this report.**

2. 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.

The applicant has used the best available design and development techniques to design the new residence. The design constitutes the minimum necessary impact on the critical area buffer while still fulfilling the project purpose. Steep slope impacts have been avoided and structural encroachment into the shoreline setback has been minimized. Innovative development techniques, coupled with the planting of native vegetation in the shoreline buffer and steep slope areas will result in the least possible impact on the critical area and critical area buffer.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable.

As discussed in Section III of this report, the applicable performance standards of LUC Section 20.25H are being met.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities.

The proposed activity will not impact public facilities.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210.

The proposal includes a conceptual mitigation plan that meets the requirements of LUC 20.25H.210. A final mitigation plan must be included with application for construction permit. An installation and maintenance surety is required and the proposed planting will be monitored for 5 years. **See Conditions of Approval in Section IX of this report.**

6. The proposal complies with other applicable requirements of this code.

As discussed in this report, the proposal complies with all other applicable requirements of the Land Use Code.

VIII. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including

Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the modification of the shoreline buffer, shoreline structure setback, steep slope areas, steep slope buffers, and steep slope structure setbacks to accommodate a new single family residence and appurtenant hardscape development as identified in the project site plans (**Attachment 1**). **Approval of this Critical Areas Land Use Permit does not constitute a permit for construction. A building permit, clear and grade permit, and/or utility permit is required and all plans are subject to review for compliance with applicable City of Bellevue codes and standards.**

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a building permit or other necessary development permits within one year of the effective date of the approval.

IX. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

| <u>Applicable Ordinances</u> | <u>Contact Person</u> |
|--------------------------------------|-----------------------------|
| Clearing and Grading Code- BCC 23.76 | Savina Uzunow, 425-452-7860 |
| Land Use Code- BCC Title 20 | David Pyle, 425-452-2973 |
| Noise Control- BCC 9.18 | David Pyle, 425-452-2973 |

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

- 1. Building Permit:** Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A building permit and any other associated development permits are required. Plans submitted as part of any permit application shall be consistent with the activity permitted under this approval.

Authority: Land Use Code 20.30P.140
Reviewer: David Pyle, Development Services Department

- 2. Approved Modification:** This decision approves the shoreline and slope modifications as identified in the project site plans (**Attachment 1**) to construct an expanded single family residence with mitigation. This approval does not allow future structures or improvements to be located without future review and approval of a Critical Areas Land Use Permit. Geotechnical evaluation may be required for any future development on the property.

Authority: Land Use Code 20.30P.140
Reviewer: David Pyle, Development Services Department

- 3. Geotechnical Recommendations:** The project shall be constructed per the recommended procedures and practices in the geotechnical report (**Attachment 3**) dated February 22, 2013 prepared by Perrone Consulting, Inc.

Authority: Land Use Code 20.30P.140
Reviewer: David Pyle, Development Services Department

- 4. Geotechnical Inspection:** Geotechnical inspection made by the Engineer of Record to verify implementation of the construction recommendations included in the project geotechnical geotechnical report (**Attachment 3**) dated February 22, 2013 prepared by Perrone Consulting, Inc. shall be performed during construction.

Authority: Land Use Code 20.30P.140
Reviewer: David Pyle, Development Services Department

- 5. Mitigation Planting Area:** The reduced slope buffer, slope modifications, and shoreline structure setback requires replanting to mitigate the approved buffer reduction in accordance with the project mitigation plan included as **Attachment 2**. **The applicant shall submit a final planting plan as part of the building permit which is consistent with the requirements in this report.**

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: David Pyle, Development Services Department

- 6. Maintenance and Monitoring:** The planting area shall be maintained and monitored for 5 years as required by LUC 20.25H.220. Annual monitoring reports are to be submitted to Land Use each of the five years. Photos from selected photo points will be included in the monitoring reports to document the planting. The schedule and performance standards included in the project mitigation plan included as **Attachment 2** apply and are evaluated in the report for each year. Annual monitoring reports are to be submitted to the Development Services Department Land Use Division at the end of the growing season by no later than November 30 for each year monitored. The reports, along with a copy of the planting plan, can be sent to David Pyle at dpyle@bellevuewa.gov or to the address below:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: David Pyle, Development Services Department

- 7. Installation Device:** To ensure the required mitigation and restoration of areas of temporary disturbance is completed, the applicant shall post an Installation Assurance Device prior to the building permit or clearing and grading permit issuance. The device shall be equal to 150% of the value of the approved mitigation. The device will be released when the applicant demonstrates required mitigation has successfully been installed.

Authority: Land Use Code 20.25H.125.J, 20.25H.220, and 20.40.490
Reviewer: David Pyle, Development Services Department

- 8. Maintenance Device:** Prior to the issuance of the building permit or clearing and

grading permit, the applicant shall submit a restoration / replanting maintenance plan cost estimate to be used in determining the amount of the assignment of the maintenance and monitoring financial security device that will be required prior to permit issuance. A complete assignment of savings financial security device in the amount determined by the project planner must be submitted prior to building permit or clearing and grading permit issuance. For the purpose of this permit, maintenance and monitoring shall be completed for a period of five growing seasons. Release of this assurance device is contingent upon receipt of documentation reporting successful establishment in compliance with the mitigation performance standards listed in the project mitigation plan included as **Attachment 2**. Land Use inspection of the planting after 5-years is required to release the surety.

Authority: Land Use Code 20.25H.125.J and 20.25H.220
Reviewer: David Pyle, Development Services Department

- 9. Hold Harmless Agreement:** The applicant shall submit a hold harmless agreement in a form approved by the City Attorney which releases the City from liability for any damage arising from the location of improvements within a critical area buffer in accordance with LUC 20.30P.170. The hold harmless agreement is required to be recorded with King County prior to building permit issuance. Staff will provide the applicant with the hold harmless form.

Authority: Land Use Code 20.30P.170
Reviewer: David Pyle, Development Services Department

- 10. Noise Control:** Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: David Pyle, Development Services Department

11. Tree Protection: As part of the Clearing and Grading submittal, the applicant shall provide a Tree Protection Plan that implements the City of Bellevue Drawing Number TP-1, Tree Protection Procedures during Construction; for every inch diameter of tree, fencing would be 1 foot from the tree trunk. This radius may be modified to accommodate site access. Additional measures will be employed to protect roots where the radius was modified, such as the temporary placement of hog fuel. Tree protection fencing must be installed prior to construction. The applicant shall provide a certified arborist to monitor the grading and construction activities to protect the rootzones of all the trees to be preserved, to ensure that the health of the retained trees is not endangered, and to identify trees which may constitute a hazard

Authority: Bellevue City Code 23.76
Reviewer: David Pyle, Development Services Department

12. Rainy Season Restrictions: Due to the proximity to Lake Washington and the site's steep slopes, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Savina Uzunow, Development Services Department

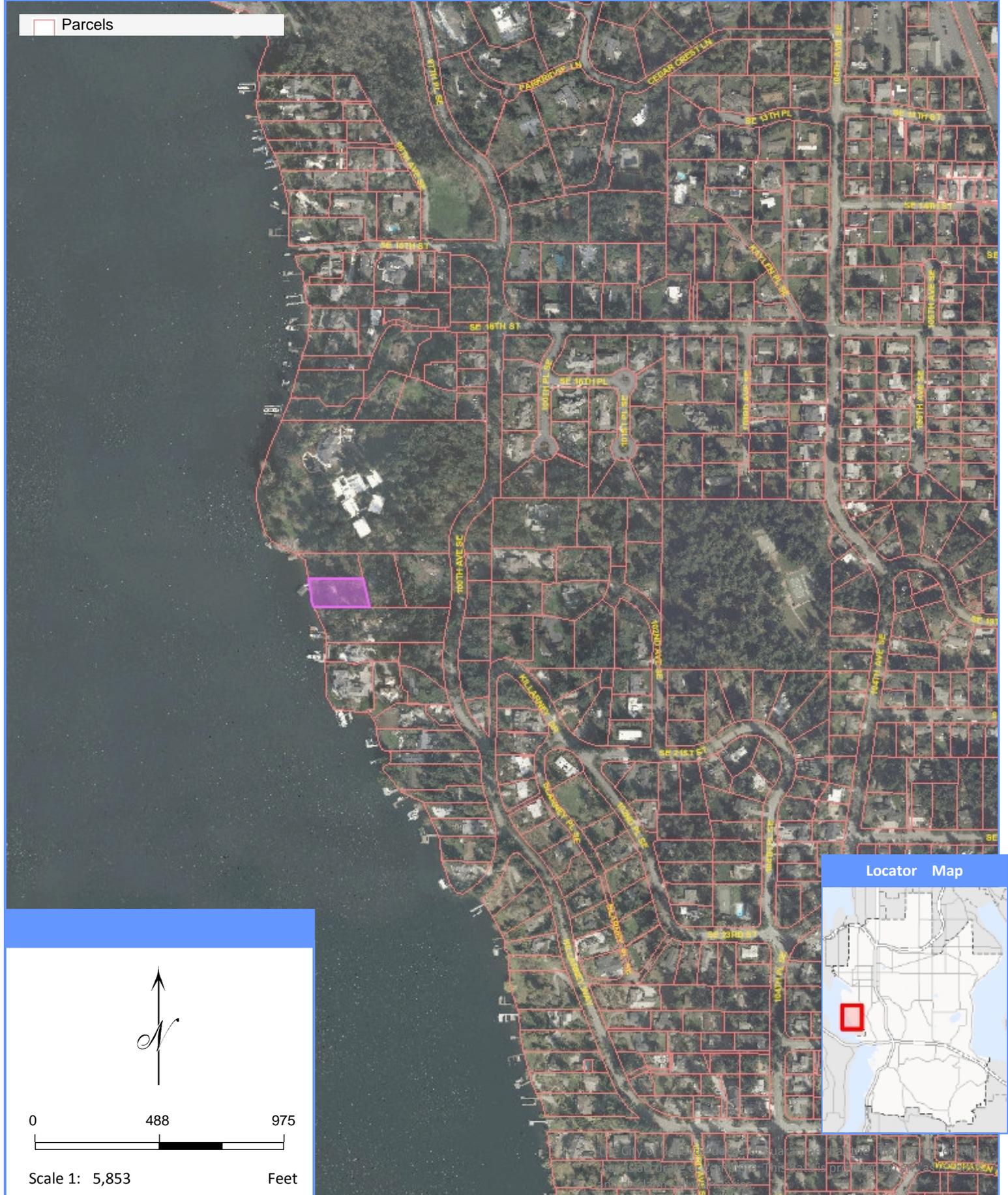
13. Storm Water Pollution Prevention Plan: To ensure contaminated stormwater or construction-related runoff does not pollute adjacent surface water, a construction stormwater pollution prevention plan (CSWPPP) is required. The CSWPPP outline should be generally consistent with the SWPPP requirements of the National Pollutant Discharge Elimination System (NPDES) General Storm water Permit for Construction Activities.

Authority: Clearing and Grading Code BCC 23.76
Reviewer: Savina Uzunow, Development Services Department

Wall Residence



Parcels



Scale 1: 5,853 Feet

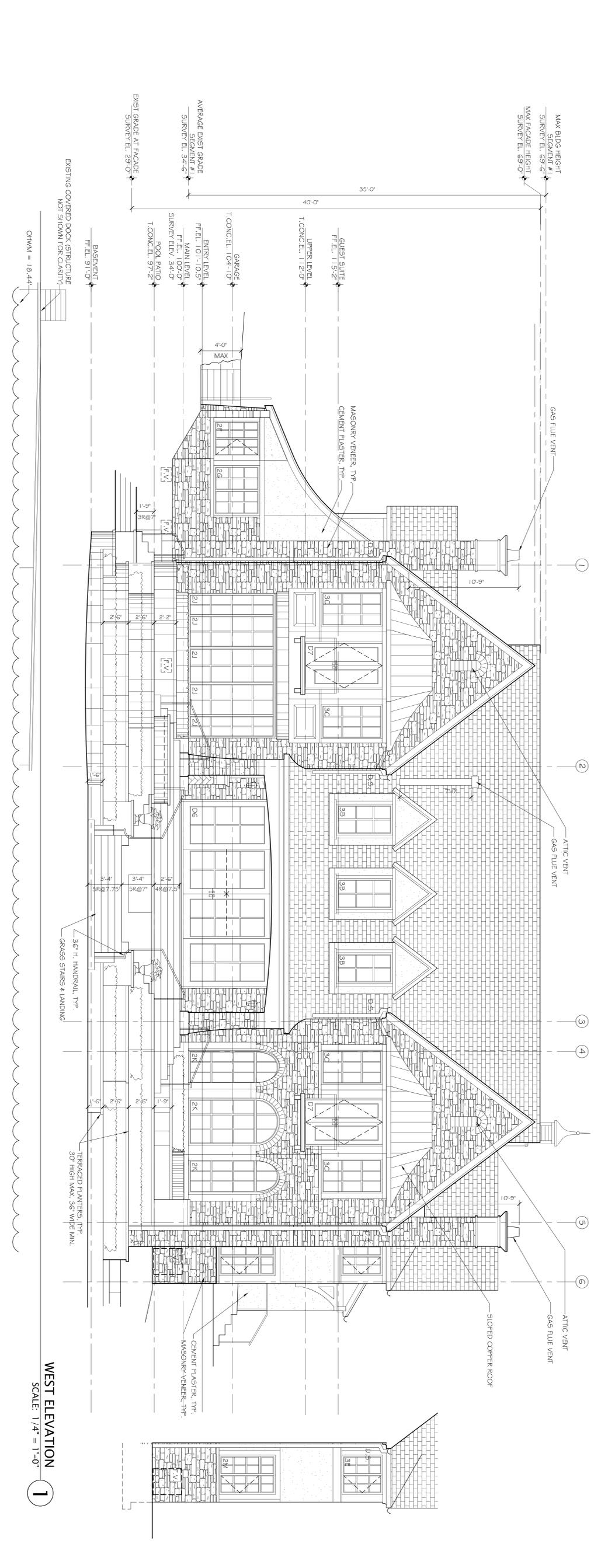
- GENERAL NOTES**
1. CODES: ALL WORK SHALL CONFORM TO THE 2009 EDITION OF THE UNIFORM BUILDING CODE WITH WASHINGTON STATE AMENDMENTS, 2006 REC, 2009 PLUMBING, 2009 MECHANICAL AND AS MODIFIED BY THE CITY OF BELLEVUE AND BY LOCAL ORDINATIONS AND ORDINANCES AND REGULATIONS.
 2. DO NOT SCALE DIMENSIONS FROM DRAWINGS. USE CALCULATED DIMENSIONS ONLY. NOTIFY THE ARCHITECT IMMEDIATELY IF ANY CONFLICTS EXIST.
 3. ALL DIMENSIONS ARE TO FACE OF FRAMING AND CONCRETE WALLS UNLESS NOTED OTHERWISE.
 4. VERIFY ALL DIMENSIONS FOR EQUIPMENT, PROVIDE ALL BLOCK-OUT, BLOCKING, BACING AND JACKS REQUIRED FOR INSTALLATION.
 5. VERIFY LOCATION OF ALL EXISTING UTILITIES AND TO COMPLETE THE WORK.
 7. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESURE TREATED.
 8. SERVICE WATER PIPES IN UNHEATED SPACES TO BE INSULATED.
 9. PROVIDE SEISMIC ANCHORAGE OF APPLIANCES, PER 10. THE GENERAL CONTRACTOR SHALL INSPECT EXISTING BAT INSULATION IN WALL CAVITIES, CRAWL SPACES, DAMAGE, CONDENSATION ISSUES AND HEAT LOSS IN ORDER TO UPGRADE THE INTEGRITY OF THE INSULATION AS MUCH AS POSSIBLE. ALL OPENED UP CAVITIES SHALL BE REINSULATED AND THE GENERAL CONTRACTOR SHALL VERIFY THE ADEQUACY OF EXISTING DRAFT STOPS AND PROVIDE CAULKING & SEALING AS NEEDED TO SEAL LEAKS AND MINIMIZE AIR INFILTRATION. ATTENTION SHALL BE PAID TO THE FOLLOWING AREAS:
PLUMBING VENT STACKS
DUCT VENT STACKS AND CONNECTIONS
DUCT VENT STACKS
RECESSED LIGHTING FIXTURES & LIGHTING OUTLETS
FLOOR PENETRATIONS IN GENERAL
REPLACEMENT WINDOWS

A RESIDENCE FOR CARI & DANIEL WALL

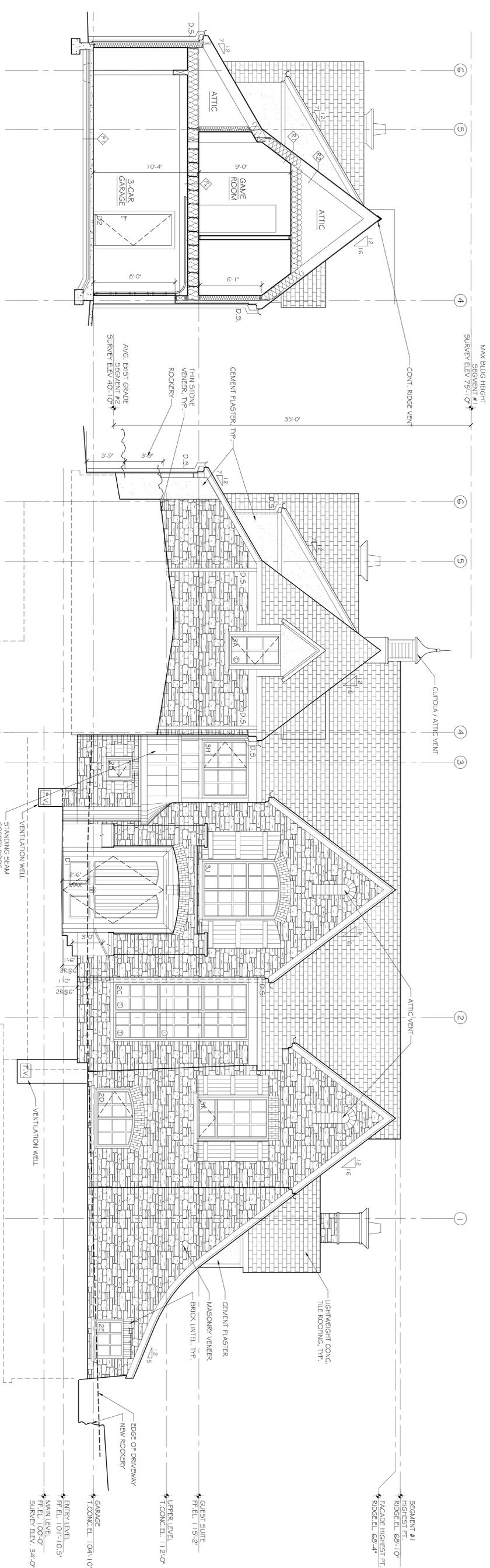
12. INSTALLATION OF TILE AND WATERPROOF MEMBRANES SHALL BE IN ACCORDANCE WITH PRACTICES ILLUSTRATED IN THE TILE COUNCIL OF NORTH AMERICA HANDBOOK (TCMA), TILE AND WATERPROOFING MEMBRANES FOR INTERIORS AND EXTERIORS, 13. FINISH INTERIOR OF HOUSE & GARAGE SHALL BE SERVED BY A NEW AUTOMATIC SPRINKLER SYSTEM.
14. FOR NEW CONSTRUCTION, AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS AND ON EACH LEVEL.
15. LOWER LEVEL: HEATING AND COOLING TO BE PROVIDED BY THE RADIANT FLOOR AND HEAT PUMP/FORCED AIR SYSTEM THROUGHOUT THE HOUSE.
16. HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ACCA MANUAL S BASED ON BUILDING LOADS AND ACCORDANCE WITH THE ACCA MANUAL.
17. FOR OTHER APPROVED HEATING AND COOLING CALCULATION METHODOLOGIES, WHOLE HOUSE VENTILATION IN THE GUEST SUITE WILL BE PROVIDED BY A BATH FAN WITH TIMER.

AVRAGE SPOT ELEVATIONS
SECTION 15.1 & 2

| WALL REGION | Avg Elevation | Summit 1 | Summit 2 |
|-------------|---------------|----------|----------|
| TA | 36 | 28 | 36 |
| 1A | 34.7 | 26 | 38.1 |
| 1B | 34.7 | 26 | 38.1 |
| 1C | 32.3 | 20 | 38.1 |
| 1D | 31.3 | 20 | 38.1 |
| 1E | 31.3 | 20 | 46.2 |
| 1F | 28 | 20 | 47.6 |
| 1G | 33.3 | 21 | 38.8 |
| 1H | 33.3 | 21 | 38.8 |
| 1I | 33.8 | 21 | 38.8 |
| 1J | 33.8 | 21 | 38.8 |
| 1K | 33.8 | 21 | 38.8 |
| 1L | 33.8 | 21 | 38.8 |
| 1M | 33.3 | 21 | 38.3 |
| 1N | 33.3 | 21 | 38.3 |
| 1O | 32.1 | 21 | 38.3 |
| 1P | 32.1 | 21 | 38.3 |
| 1Q | 32.1 | 21 | 38.3 |
| 1R | 32.1 | 21 | 38.3 |
| 1S | 33.5 | 21 | 38.3 |
| 1T | 36 | 21 | 38.3 |
| 1U | 38.3 | 21 | 38.3 |
| 1V | 38.3 | 21 | 38.3 |
| 1W | 38.3 | 21 | 38.3 |
| 1X | 37.4 | 21 | 38.3 |
| 1Y | 37.4 | 21 | 38.3 |
| 1Z | 35.6 | 21 | 38.3 |
| 1AA | 38.3 | 21 | 38.3 |
| 1AB | 38.3 | 21 | 38.3 |
| 1AC | 38.3 | 21 | 38.3 |
| 1AD | 38.3 | 21 | 38.3 |
| 1AE | 38.3 | 21 | 38.3 |
| 1AF | 38.3 | 21 | 38.3 |
| 1AG | 38.3 | 21 | 38.3 |
| 1AH | 38.3 | 21 | 38.3 |
| 1AI | 38.3 | 21 | 38.3 |
| 1AJ | 38.3 | 21 | 38.3 |
| 1AK | 38.3 | 21 | 38.3 |
| 1AL | 38.3 | 21 | 38.3 |
| 1AM | 38.3 | 21 | 38.3 |
| 1AN | 38.3 | 21 | 38.3 |
| 1AO | 38.3 | 21 | 38.3 |
| 1AP | 38.3 | 21 | 38.3 |
| 1AQ | 38.3 | 21 | 38.3 |
| 1AR | 38.3 | 21 | 38.3 |
| 1AS | 38.3 | 21 | 38.3 |
| 1AT | 38.3 | 21 | 38.3 |
| 1AU | 38.3 | 21 | 38.3 |
| 1AV | 38.3 | 21 | 38.3 |
| 1AW | 38.3 | 21 | 38.3 |
| 1AX | 38.3 | 21 | 38.3 |
| 1AY | 38.3 | 21 | 38.3 |
| 1AZ | 38.3 | 21 | 38.3 |
| 1BA | 38.3 | 21 | 38.3 |
| 1BB | 38.3 | 21 | 38.3 |
| 1BC | 38.3 | 21 | 38.3 |
| 1BD | 38.3 | 21 | 38.3 |
| 1BE | 38.3 | 21 | 38.3 |
| 1BF | 38.3 | 21 | 38.3 |
| 1BG | 38.3 | 21 | 38.3 |
| 1BH | 38.3 | 21 | 38.3 |
| 1BI | 38.3 | 21 | 38.3 |
| 1BJ | 38.3 | 21 | 38.3 |
| 1BK | 38.3 | 21 | 38.3 |
| 1BL | 38.3 | 21 | 38.3 |
| 1BM | 38.3 | 21 | 38.3 |
| 1BN | 38.3 | 21 | 38.3 |
| 1BO | 38.3 | 21 | 38.3 |
| 1BP | 38.3 | 21 | 38.3 |
| 1BQ | 38.3 | 21 | 38.3 |
| 1BR | 38.3 | 21 | 38.3 |
| 1BS | 38.3 | 21 | 38.3 |
| 1BT | 38.3 | 21 | 38.3 |
| 1BU | 38.3 | 21 | 38.3 |
| 1BV | 38.3 | 21 | 38.3 |
| 1BW | 38.3 | 21 | 38.3 |
| 1BX | 38.3 | 21 | 38.3 |
| 1BY | 38.3 | 21 | 38.3 |
| 1BZ | 38.3 | 21 | 38.3 |
| 1CA | 38.3 | 21 | 38.3 |
| 1CB | 38.3 | 21 | 38.3 |
| 1CC | 38.3 | 21 | 38.3 |
| 1CD | 38.3 | 21 | 38.3 |
| 1CE | 38.3 | 21 | 38.3 |
| 1CF | 38.3 | 21 | 38.3 |
| 1CG | 38.3 | 21 | 38.3 |
| 1CH | 38.3 | 21 | 38.3 |
| 1CI | 38.3 | 21 | 38.3 |
| 1CJ | 38.3 | 21 | 38.3 |
| 1CK | 38.3 | 21 | 38.3 |
| 1CL | 38.3 | 21 | 38.3 |
| 1CM | 38.3 | 21 | 38.3 |
| 1CN | 38.3 | 21 | 38.3 |
| 1CO | 38.3 | 21 | 38.3 |
| 1CP | 38.3 | 21 | 38.3 |
| 1CQ | 38.3 | 21 | 38.3 |
| 1CR | 38.3 | 21 | 38.3 |
| 1CS | 38.3 | 21 | 38.3 |
| 1CT | 38.3 | 21 | 38.3 |
| 1CU | 38.3 | 21 | 38.3 |
| 1CV | 38.3 | 21 | 38.3 |
| 1CW | 38.3 | 21 | 38.3 |
| 1CX | 38.3 | 21 | 38.3 |
| 1CY | 38.3 | 21 | 38.3 |
| 1CZ | 38.3 | 21 | 38.3 |
| 1DA | 38.3 | 21 | 38.3 |
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| 1EK | 38.3 | 21 | 38.3 |
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| 1EM | 38.3 | 21 | 38.3 |
| 1EN | 38.3 | 21 | 38.3 |
| 1EO | 38.3 | 21 | 38.3 |
| 1EP | 38.3 | 21 | 38.3 |
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| 1EU | 38.3 | 21 | 38.3 |
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| 1EW | 38.3 | 21 | 38.3 |
| 1EX | 38.3 | 21 | 38.3 |
| 1EY | 38.3 | 21 | 38.3 |
| 1EZ | 38.3 | 21 | 38.3 |
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| 1FB | 38.3 | 21 | 38.3 |
| 1FC | 38.3 | 21 | 38.3 |
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| 1FN | 38.3 | 21 | 38.3 |
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| 1FQ | 38.3 | 21 | 38.3 |
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| 1FS | 38.3 | 21 | 38.3 |
| 1FT | 38.3 | 21 | 38.3 |
| 1FU | 38.3 | 21 | 38.3 |
| 1FV | 38.3 | 21 | 38.3 |
| 1FW | 38.3 | 21 | 38.3 |
| 1FX | 38.3 | 21 | 38.3 |
| 1FY | 38.3 | 21 | 38.3 |
| 1FZ | 38.3 | 21 | 38.3 |
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| 1GB | 38.3 | 21 | 38.3 |
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| 1GF | 38.3 | 21 | 38.3 |
| 1GG | 38.3 | 21 | 38.3 |
| 1GH | 38.3 | 21 | 38.3 |
| 1GI | 38.3 | 21 | 38.3 |
| 1GJ | 38.3 | 21 | 38.3 |
| 1GK | 38.3 | 21 | 38.3 |
| 1GL | 38.3 | 21 | 38.3 |
| 1GM | 38.3 | 21 | 38.3 |
| 1GN | 38.3 | 21 | 38.3 |
| 1GO | 38.3 | 21 | 38.3 |
| 1GP | 38.3 | 21 | 38.3 |
| 1GQ | 38.3 | 21 | 38.3 |
| 1GR | 38.3 | 21 | 38.3 |
| 1GS | 38.3 | 21 | 38.3 |
| 1GT | 38.3 | 21 | 38.3 |
| 1GU | 38.3 | 21 | 38.3 |
| 1GV | 38.3 | 21 | 38.3 |
| 1GW | 38.3 | 21 | 38.3 |
| 1GX | 38.3 | 21 | 38.3 |
| 1GY | 38.3 | 21 | 38.3 |
| 1GZ | 38.3 | 21 | 38.3 |
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| 1HB | 38.3 | 21 | 38.3 |
| 1HC | 38.3 | 21 | 38.3 |
| 1HD | 38.3 | 21 | 38.3 |
| 1HE | 38.3 | 21 | 38.3 |
| 1HF | 38.3 | 21 | 38.3 |
| 1HG | 38.3 | 21 | 38.3 |
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| 1HI | 38.3 | 21 | 38.3 |
| 1HJ | 38.3 | 21 | 38.3 |
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| 1HM | 38.3 | 21 | 38.3 |
| 1HN | 38.3 | 21 | 38.3 |
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| 1HP | 38.3 | 21 | 38.3 |
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| 1HU | 38.3 | 21 | 38.3 |
| 1HV | 38.3 | 21 | 38.3 |
| 1HW | 38.3 | 21 | 38.3 |
| 1HX | 38.3 | 21 | 38.3 |
| 1HY | 38.3 | 21 | 38.3 |
| 1HZ | 38.3 | 21 | 38.3 |
| 1IA | 38.3 | 21 | 38.3 |
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| 1ID | 38.3 | 21 | 38.3 |
| 1IE | 38.3 | 21 | 38.3 |
| 1IF | 38.3 | 21 | 38.3 |
| 1IG | 38.3 | 21 | 38.3 |
| 1IH | 38.3 | 21 | 38.3 |
| 1II | 38.3 | 21 | 38.3 |
| 1IJ | 38.3 | 21 | 38.3 |
| 1IK | 38.3 | 21 | 38.3 |
| 1IL | 38.3 | 21 | 38.3 |
| 1IM | 38.3 | 21 | 38.3 |
| 1IN | 38.3 | 21 | 38.3 |
| 1IO | 38.3 | 21 | 38.3 |
| 1IP | 38.3 | 21 | 38.3 |
| 1IQ | 38.3 | 21 | 38.3 |
| 1IR | 38.3 | 21 | 38.3 |
| 1IS | 38.3 | 21 | 38.3 |
| 1IT | 38.3 | 21 | 38.3 |
| 1IU | 38.3 | 21 | 38.3 |
| 1IV | 38.3 | 21 | 38.3 |
| 1IW | 38.3 | 21 | 38.3 |
| 1IX | 38.3 | 21 | 38.3 |
| 1IY | 38.3 | 21 | 38.3 |
| 1IZ | 38.3 | 21 | 38.3 |
| 1JA | 38.3 | 21 | 38.3 |
| 1JB | 38.3 | 21 | 38.3 |
| 1JC | 38.3</ | | |



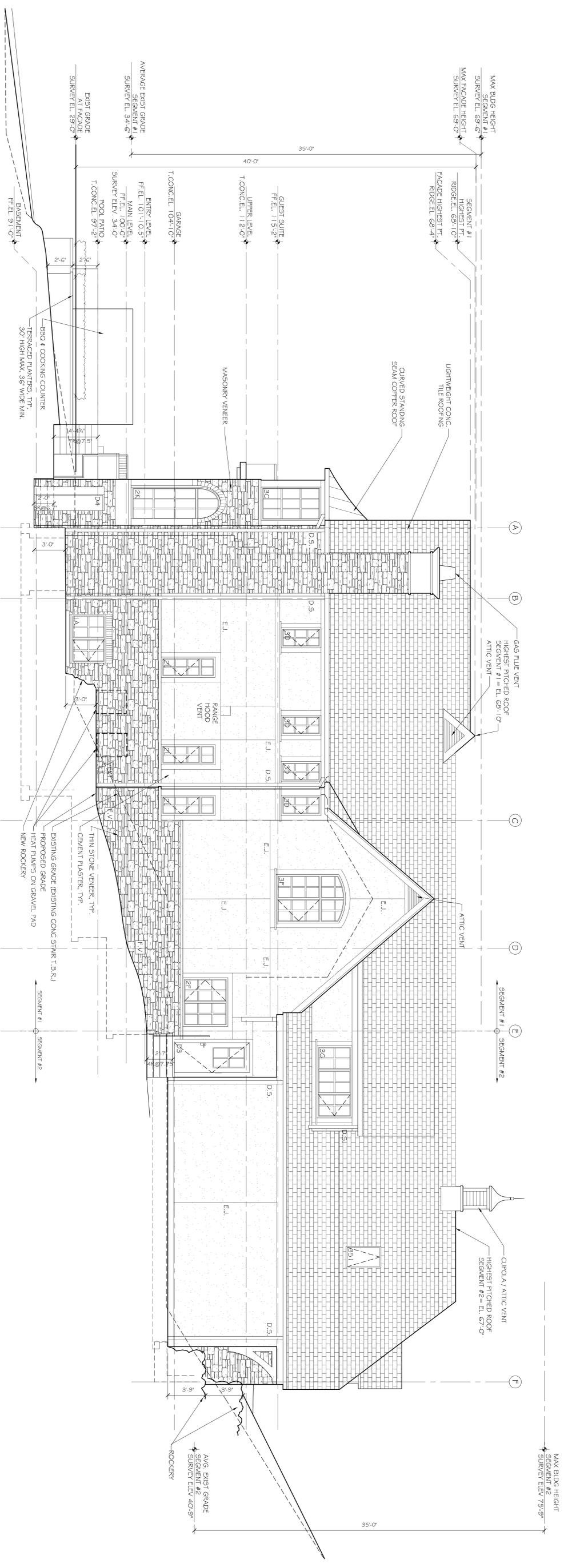
WEST ELEVATION
SCALE: 1/4" = 1'-0"
1



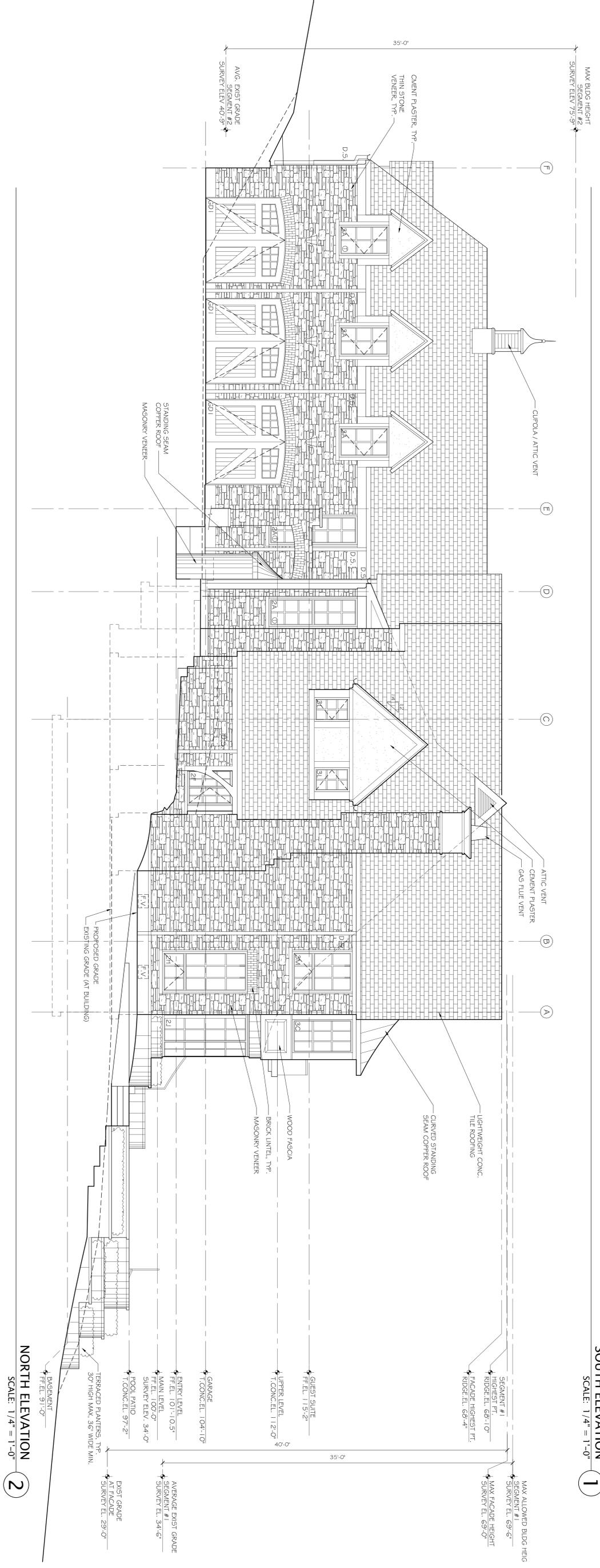
EAST ELEVATION
SCALE: 1/4" = 1'-0"
2

SECTION C - GARAGE
SCALE: 1/4" = 1'-0"
3

| | | | |
|------------------|---|--|------------------------------------|
| | Tom Kunholm Architects 600 1st Ave Suite 205 Seattle, Washington 98104 p. 206.525.9910 tom@kumholmdesign.com | <h2 style="margin: 0;">A RESIDENCE FOR CARI & DANIEL WALL</h2> <p style="margin: 0;">1839 KILLARNEY WAY SE BELLEVUE, WA 98004</p> | DATE: 5/2/13 ELEVATIONS A3.1 |
| REVISION DATE | | | |



SOUTH ELEVATION
SCALE: 1/4" = 1'-0"
1



NORTH ELEVATION
SCALE: 1/4" = 1'-0"
2

| | | | | |
|--|---|---|---|---|
| | <p>A RESIDENCE FOR CARI & DANIEL WALL</p> <p>1839 KILLARNEY WAY SE BELLEVUE, WA 98004</p> | <p>Tom Kunihim Architects 600 1st Ave Suite 205 Seattle, Washington 98104 p. 206.525.9910 tom@kruhola.com</p> | <p>REGISTERED ARCHITECT STATE OF WASHINGTON</p> | <p>ELEVATIONS</p> <p>DATE: 5/2/13</p> <p style="font-size: 2em; font-weight: bold;">A3.2</p> |
|--|---|---|---|---|



April 30, 2013

AOA-4324

Tom Kuniholm
Tom Kuniholm Architects
600 - 1st Ave., Suite 205
Seattle, WA 98104

**SUBJECT: Critical Areas Report - Wall Residence - 1839 Killarney Way SE
Shoreline Buffer & Structure Setback Modification,
Steep Slope Modification**

Dear Tom:

On February 27, 2013 I conducted a reconnaissance on the subject property located along the shoreline of the east side of Lake Washington. The site is currently developed with an existing single-family residence and maintained yard areas to the lake edge. A large rock bulkhead is located along the entire shoreline and the property contains an existing roofed wooden dock structure.

The purpose of the site visit was to assess proposed modifications to the required 25-foot shoreline buffer and 25-foot structure setback of Lake Washington as part of a proposed re-development of the property to replace the existing residence. This report is intended to meet the requirements for Critical Area Reports per LUC 20.25H.

1.0 CRITICAL AREA IMPACTS

1.1 Shoreline Buffer

The only work that would be conducted within the 25-foot shoreline buffer is: 1) the removal of a portion of the rock bulkhead, 2) the creation of a small beach, and 3) the planting of a variety of native species to increase the habitat value of the shoreline environment. This work is intended to mitigate for increased impervious surface associated with construction within the 25-foot shoreline structure setback.

1.2 Shoreline Structure Setback

Although no portion of the re-developed residence would be constructed within the structure setback, 1,076 s.f. of existing yard would be converted to a terraced patio and associated built in pool and wall system.

All of the structure setback modification areas currently consist of maintained yard and no native vegetation will be removed as part of the project (**Photo 1**). The proposed impact areas currently have a very low functional value and do not provide any of the significant functions such as shade, temperature control, water purification, woody debris recruitment, erosion control, or habitat typically associated with functioning shoreline buffers.



Photo 1: View of existing shoreline.

1.3 Steep Slope

The proposed project requires the encroachment into 478 s.f. of steep slope located at the toe of the slope to the east of the existing residence. The slope area that would be impacted consists primarily of a mat of English ivy (*Hedera helix*) with scattered ornamental plantings (**Photo 2**).

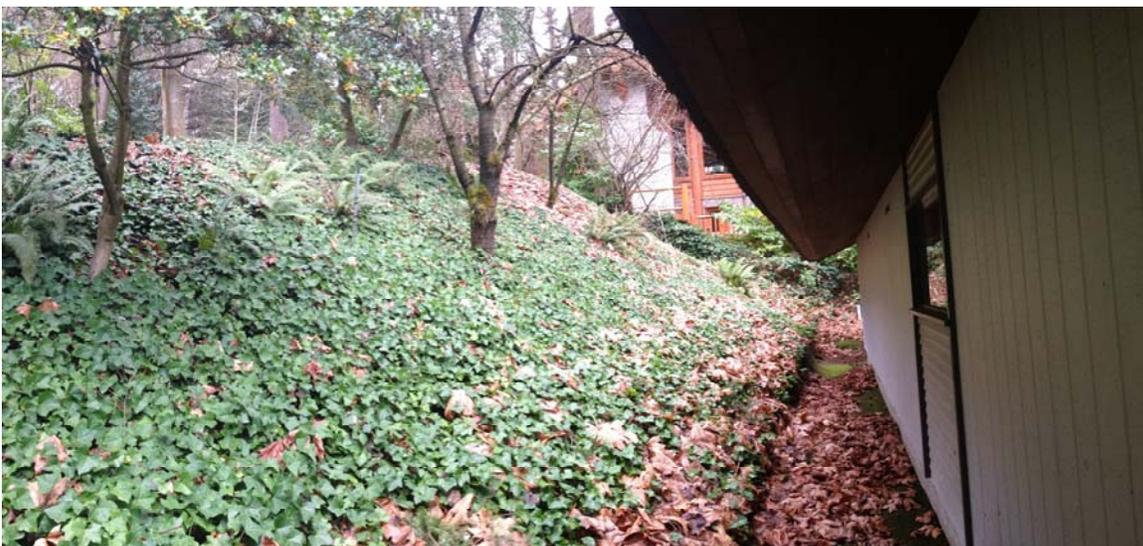


Photo 2: View of proposed slope impact area.

2.0 CRITICAL AREA MITIGATION

Although there should be no significant impact to the shoreline buffer from the proposed project, mitigation to increase the habitat value of a portion of the shoreline buffer is proposed. As part of the project, a portion of the rock bulkhead would be removed and converted to a more natural beach. In addition, 1,076 s.f. of yard area within the shoreline buffer and structure setback would be planted with a variety of native plantings.

Mitigation for the 478 s.f. of impact to the slope would occur through the enhancement of 1,492 s.f. of degraded slope habitat with a variety of native plantings.

2.1 Buffer Functions Provided By Shoreline Enhancement Area

The enhancement plan has been designed to increase the overall wildlife habitat value of the shoreline by creating a beach that better mimics natural conditions. Planting the area with native species would increase the plant species and structural diversity over existing conditions and will increase food chain support by increasing the biological production of both vegetation and insects. This in turn should provide food and cover for a variety of song birds and other wildlife and increase the habitat function of the shoreline.

As part of the plan, native plants would be planted directly adjacent selected portions of the bulkhead. This would provide some limited natural shade to the lake that is currently lacking. The planting of shrubs that could extend over the bulkhead would also create some overhead cover while contributing detritus and other desirable allochthonous inputs into the aquatic environment. The contribution of insects and leaf litter into the lake is a primary buffer function that is currently lacking and would increase following planting of the area with native species.

Since the current shoreline buffer does not contain any significant native vegetation, natural shade, cover, or detritus input into the aquatic area, implementation of the enhancement plan should replace the minor habitat functions currently provided by the existing shoreline structure setback.

2.2 Buffer Functions Provided By Slope Area

The area of proposed slope impact is currently dominated by English ivy and a variety of ornamental plantings with limited value as wildlife habitat. As part of the proposed project, a much larger area of slope would be enhanced by removing the invasive species and planting with a variety of native species to increase the plant species and structural diversity of the slope. Increasing the plant species and structural diversity should significantly increase the habitat value of the slope over current conditions.

2.3 Goal, Objectives, and Performance Standards for Mitigation Areas

The primary goal of the mitigation plan is to increase the habitat and biological input functions of the selected shoreline and slope areas. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the mitigation area.

Performance Standard: There will be 100% survival of all woody planted species throughout the mitigation area at the end of the first year of planting. For Years 2-5, success will be based on an 80% survival rate or similar number of recolonized native woody plants.

Objective B: Limit the amount of invasive and exotic species within the mitigation area.

Performance Standard: After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels below 10% total cover in the designated mitigation areas. Invasive species include, but are not limited to, Himalayan and evergreen blackberry, Japanese knotweed, and English ivy.

2.4 Construction Management

Prior to commencement of any work in the mitigation areas, the clearing limits will be staked and any existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor and the owner.

A consultant will supervise plan implementation during construction to ensure that objectives and specifications of the mitigation plan are met. Any necessary significant modifications to the design that occur as a result of unforeseen site conditions will be jointly approved by the City of Bellevue and the consultant prior to their implementation.

2.5 Monitoring Methodology

The monitoring program will be conducted for a period of five years, with annual reports submitted to the City. Vegetation monitoring will include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weeds.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the mitigation area. Review of the photos over time will provide a visual representation of success of the mitigation plan.

2.6 Maintenance Plan

Maintenance will be conducted on a routine, year round basis. Additional maintenance needs will be identified and addressed following periodic maintenance reviews. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the consultant or the owner.

2.7 Weed Control

Routine removal and control of non-native and other invasive plants within the designated mitigation areas shall be performed by manual means. Undesirable and weedy exotic plant species shall be maintained at levels below 10% total cover within all mitigation areas during the monitoring period.

2.8 General Maintenance Items

Routine maintenance of planted trees and shrubs shall be performed. Measures include resetting plants to proper grades and upright positions. Tall grasses and other competitive weeds shall be weeded at the base of plants to prevent engulfment. Weed control should be performed by hand removal.

2.9 Contingency Plan

All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the mitigation plan. Plant material shall meet the same specifications as originally-installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the consultant, City of Bellevue, or the owner.

2.10 As-Built Plan

Following completion of construction activities, an as-built plan for the mitigation area will be provided to the City of Bellevue. The plan will identify and describe any changes in relation to the original approved plan.

Conclusion

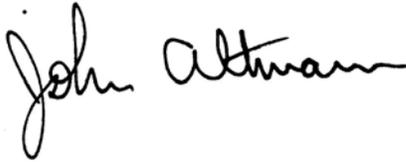
Implementation of the proposed mitigation plan will result in an overall improvement in the habitat and functional value of the shoreline buffer and slope over current conditions.

Tom Kuniholm
April 30, 2013
Page 6

If you have any questions regarding the mitigation plan, please give me a call.

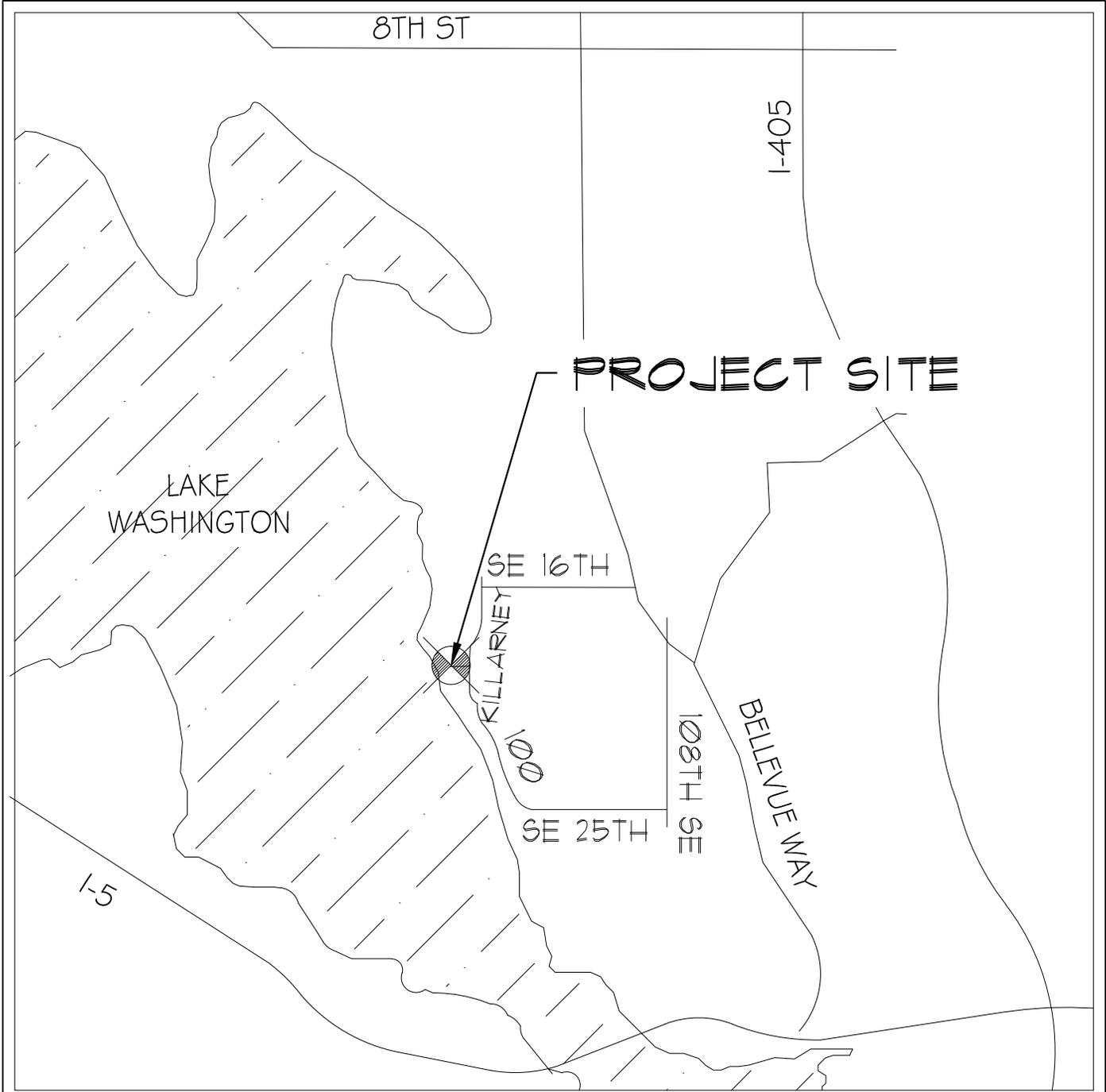
Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

A handwritten signature in black ink that reads "John Altmann". The signature is written in a cursive, flowing style.

John Altmann
Ecologist

Attachment: Figures 1-3 dated 4-30-13 by AOA



VICINITY MAP - NTS

Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509



FIGURE 1: VICINITY MAP
WALL PROPERTY
1839 KILLARNEY WAY SE
BELLEVUE, WA 98004
PARCEL #062405-9094

| | |
|---------|----------|
| DRAWN | PROJECT |
| SO | 4324 |
| SCALE | AS NOTED |
| DATE | 4-30-13 |
| REVISED | 1/3 |

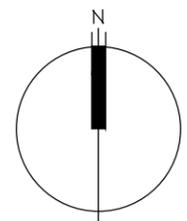
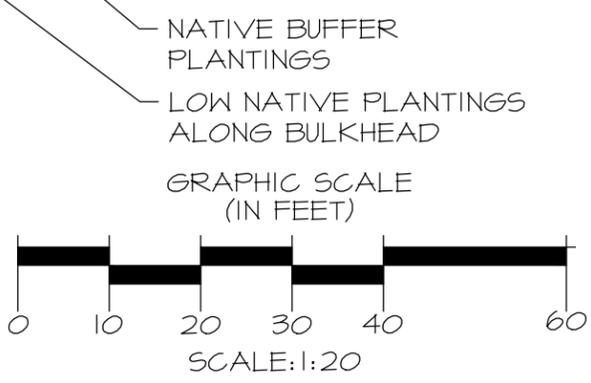


IMPACT LEGEND

| | | |
|--|---------------------|----------|
| | NEW IMPERVIOUS | 1,076 SF |
| | STEEP SLOPE IMPACTS | 436 SF |

MITIGATION LEGEND

| | | |
|--|-------------------------|----------|
| | LOW NATIVE PLANTINGS | 300 SF |
| | NATIVE BUFFER PLANTINGS | 776 SF |
| | BEACH GRAVELS | 435 SF |
| | STEEP SLOPE ENHANCEMENT | 1,492 SF |



NOTES

- BASE INFORMATION PROVIDED BY KUNIHOLM ARCHITECTS, 600 1ST AVE., SUITE 205, SEATTLE, WA 98104, (206) 625-9010.

FIGURE 2: IMPACTS AND MITIGATION PLAN
 WALL PROPERTY
 1839 KILLARNEY WAY SE
 BELLEVUE, WA 98004
 PARCEL #062405-9094

CANDIDATE PLANT LIST

LOW NATIVE PLANTINGS

| SCIENTIFIC NAME | COMMON NAME |
|-------------------------|-----------------------|
| ARCTOSTAPHYLOS UVA-URSI | KINNIKINNICK |
| GAULTHERIA SHALLON | SALAL |
| MAHONIA NERVOSA | LOW OREGON GRAPE |
| VACCINIUM OVATUM | EVERGREEN HUCKLEBERRY |
| NATIVE SEDGES | |
| NATIVE PERENNIALS | |

NATIVE BUFFER PLANTINGS

| SCIENTIFIC NAME | COMMON NAME |
|-------------------------|-----------------------|
| ACER CIRCINATUM | VINE MAPLE |
| ARCTOSTAPHYLOS UVA-URSI | KINNIKINNICK |
| GAULTHERIA SHALLON | SALAL |
| MAHONIA AQUIFOLIUM | TALL OREGON GRAPE |
| RIBES SANGUINEUM | RED CURRANT |
| THUJA PLICATA | WESTERN RED CEDAR |
| VACCINIUM OVATUM | EVERGREEN HUCKLEBERRY |
| NATIVE SEDGES | |
| NATIVE PERENNIALS | |

STEEP SLOPE MITIGATION PLANTINGS

| SCIENTIFIC NAME | COMMON NAME |
|-------------------------|-----------------------|
| ACER CIRCINATUM | VINE MAPLE |
| ARCTOSTAPHYLOS UVA-URSI | KINNIKINNICK |
| GAULTHERIA SHALLON | SALAL |
| MAHONIA AQUIFOLIUM | TALL OREGON GRAPE |
| POLYSTICHUM MUNITUM | SWORD FERN |
| RIBES SANGUINEUM | RED CURRANT |
| THUJA PLICATA | WESTERN RED CEDAR |
| VACCINIUM OVATUM | EVERGREEN HUCKLEBERRY |
| NATIVE SEDGES | |
| NATIVE PERENNIALS | |

Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509



FIGURE 3: CANDIDATE PLANTS
 WALL PROPERTY
 1839 KILLARNEY WAY SE
 BELLEVUE, WA 98004
 PARCEL #062405-9094

| | |
|---------|----------|
| DRAWN | PROJECT |
| SO | 4324 |
| SCALE | AS NOTED |
| DATE | 4-30-13 |
| REVISED | 3/3 |



PERRONE CONSULTING, INC., P.S.

Geotechnical & Underground Engineering

Geotechnical Investigation

Daniel & Cari Wall Residence

Bellevue, Washington

Prepared for:

Daniel and Cari Wall

February 22, 2013

Project No. 13102

www.perroneconsulting.com



February 22, 2013

Daniel & Cari Wall
c/o Kuniholm Architects
Tom Kuniholm Architects
600 First Avenue, Suite 205
Seattle, WA 98104

Subject: Geotechnical Investigation
Wall Residence
Bellevue, Washington
Perrone Consulting Project #13102

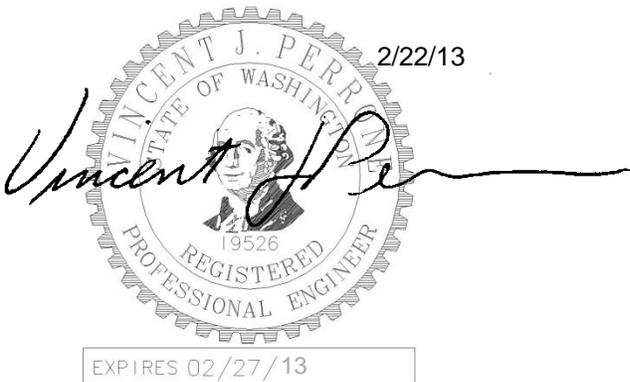
Dear Mr. & Mrs. Wall:

This letter transmits 3 copies of our February 22, 2013 report titled, "Geotechnical Investigation, Wall Residence, Bellevue, Washington." The scope of our services was outlined in our proposal dated January 23, 2013.

This report presents the results of our field explorations and engineering analyses. Geotechnical recommendations are provided for design of the project. In summary, the new house could be founded on shallow spread footings. The existing fill in the southwest corner of the building area should be removed and replaced with compacted structural fill. The native soils could be used for structural backfill in the area west of the house if the site grading is performed during the drier summer months.

We appreciate the opportunity to be of service to you on this project. If you have any questions about the content of this report, or if we can be of further assistance, please contact us.

Sincerely,
PERRONE CONSULTING, INC., P.S.



Vincent J. Perrone, Ph.D., P.E.
Principal Engineer

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- Figure 1 – Site and Exploration Plan
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1 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed house at 1839 Killarney Way SE in Bellevue, Washington. The purpose of our investigation was to examine subsurface conditions, evaluate the stability of the existing site slope, and to provide geotechnical recommendations for design of building foundations. Our scope of services included subsurface explorations, engineering analyses and preparation of this report.

2 PROJECT AND SITE DESCRIPTION

The rectangular shaped property is located in a residential neighborhood on a 23,545 sq ft lot on the east shore of Lake Washington. The property extends about 215 ft east from the shore of Lake Washington and is about 110 ft wide. The property generally slopes down to the west from elevation 74 at the east property line to about elevation 20 at the existing shoreline rock bulkhead. The slopes along the easterly 75 ft of the property are steepest and vary from about 1H:1V (horizontal to vertical) to 2H:1V. These steeper slopes generally appear to be the result of a side hill cut and fill placement for construction of the driveway. The remainder of the property slopes down gently at about 5H:1V. As such, the City of Bellevue has classified the site as geologically hazardous due to the steeper slopes on the east side of the property.

We understand that the proposed development will consist of removing the existing house and constructing a new house and garage with a total square footage of about 5000 sq ft. The new house will be located in the gently sloping portion of the site, where the existing house is currently situated. The lowest floor level of the new house will be about 5 ft lower than the lowest floor level of the existing house. Approximately 3 ft of new fill will be placed to the west of the existing house for a new patio and in-ground swimming pool.

3 FIELD PROCEDURES

Subsurface conditions for this project were explored by drilling 3 borings on February 6, 2013 at the locations shown on Figure 1. The borings were approximately located in the field by taping from the existing buildings. The approximate ground surface elevations shown on the boring logs were taken from the site topographic map (Triad, 2012) The locations and elevations should be considered accurate only to the degree implied by the methods of measurement.

A description of the drilling and sampling methods and the boring logs are presented in Appendix A – Field Explorations. Soils were classified in general accordance with the Unified Soil Classification System (ASTM D-2488 and ASTM D-2487)

4 SUBSURFACE CONDITIONS

4.1 Soils

Published geologic maps (Yount et al, 1993) indicate that the site area is underlain by Vashon glacial till and/or Vashon glacial advance outwash soils. Subsurface conditions encountered in the borings generally confirm the presence of Vashon glacial advance outwash soils. Some fill due to previous site grading operations was encountered overlying the glacial deposits in all of the borings. The principal soil units encountered in the explorations consisted of the following soil types:

Fill. Loose to medium dense, moist, silty sand with gravel (SM) and poorly graded, moist, fine to medium sand (SP). Fill thickness was 6 ft in B-1, 1½ ft in B-2, and 4½ ft in B-3.

Glacial Advance Outwash. Medium dense to very dense, reddish brown, moist fine to medium sand with silt (SP-SM), grayish brown, moist, fine to medium silty sand (SM) with trace to few



gravel and sandy silt (ML) interbeds, and grayish brown, moist, non-plastic, fine sandy silt (ML).

4.2 Groundwater

Groundwater was not encountered in the borings at the time of drilling. No surface groundwater seeps or springs were observed on the property during our site reconnaissance on January 23, 2013. Rust colored oxidation stains were observed beneath the fill and within the upper portion of the glacial advance outwash soils in boring B-1 indicating previous and/or intermittent groundwater infiltration and seepage. Groundwater levels will fluctuate due to seasonal precipitation, infiltration and percolation of surface water.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 General

The existing fill should be removed from beneath the location of the proposed building foundations and slab on grade areas and, if required to achieve final site grades, replaced with compacted structural fill. Shallow spread footings for the house, retaining walls and the pool should be founded on undisturbed glacial advance outwash deposits.

The drainage and/or waterproofing recommendations presented in this report (see Section 5.7 – Slab on Grade) are intended only to prevent active seepage from flowing through concrete walls or slabs. Even in the absence of active seepage into and beneath structures, water vapor can migrate through walls, slabs, and floors from concrete curing process and from moisture in the soil. Although a moisture barrier may be placed under slabs on grade, it is our experience that the barrier may not fully protect against intrusion of moisture below the slab. Water vapor also results from occupant uses. Excessive water vapor trapped within structures can result in a variety of undesirable conditions, including, but not limited to, moisture problems with flooring systems, excessively moist air within occupied areas, and the growth of molds, fungi, and other biological organisms that may be harmful to the health of the occupants. Moisture intrusion may also cause deterioration of concrete. The designer or architect must consider the potential vapor sources and likely occupant uses, and provide sufficient ventilation, either passive or mechanical, to prevent a build-up of excessive water vapor within the planned structure. The architect should also consider the use of exterior waterproofing consisting of barriers and coatings in the design.

5.2 Slope Stability

Available City of Bellevue critical area maps (eCityGov Alliance, 2012) indicate that there have been no documented landslides on this site and the slopes are classified as a “steep slope area” due to the presence of slopes with inclinations greater than 40%. Our site reconnaissance and review of LIDAR (Light Distance and Ranging) images did not reveal any evidence of large scale or deep seated slope instability issues at the site. The native dense to very dense glacial advance deposits and the absence of visible springs or seeps on the slopes generally indicate relatively stable slope conditions.

While we don't anticipate that the proposed construction will adversely impact the stability of the project site it is probable that the existing 1H:1V hillside cut along the upslope side of the driveway could slough and erode during extended wet weather periods or in combination with freezing weather conditions. In its current condition, these slopes will pose an on-going maintenance issue which could be mitigated by flattening the steeper slopes (see Section 5.4.4 - Permanent Slopes) or constructing retaining walls (see Section 5.6 – Basement Walls and Retaining Walls).

The wedge of fill along the outboard (downslope) side of the driveway above the existing garage is marginally stable in its current 1.5H:1V configuration. Therefore we recommend flattening this slope to 2H:1V. This could be accomplished by constructing the new garage foundation wall to retain sufficient fill placement to achieve a 2H:1V slope. Retaining wall recommendations are presented in Section 5.6.



5.3 Seismic Design

Earthquake events occur regularly in the Puget Sound region although many events are too small to be felt. The most recent damaging earthquakes were the 2001 Nisqually earthquake (moment magnitude, M6.8), the 1965 Seattle earthquake (M6.5) and the 1949 Olympia earthquake (M7.1). Larger earthquakes associated with subduction of the continental plates along the West Coast can also occur. Geologic hazards associated with earthquakes can include: 1. fault rupture of the ground surface; 2. liquefaction or soil strength loss of saturated soils; 3. ground settlement and; 4. slope instability by ground shaking.

There are no documented faults through this site. The nearest documented fault is the Seattle fault located about 1 mile south of the site (USGS, 2008). Therefore, the potential for ground fault rupturing during an earthquake is low.

Due to the dense nature of the native soils, the potential for liquefaction or seismically induced ground settlement at this site is considered low. Shallow slope instability could occur in the existing steep driveway cuts as discussed in Section 5.2 - Slope Stability.

Based on the 2012 International Building Code (IBC) the seismic site classification is Class C.

5.4 Site Grading

Site grading, as described in this section, includes all major excavations and fills necessary to bring the site to the proposed finished elevations shown on the site plan, including fill to support building foundations and slabs, and backfill of foundation elements and retaining walls.

5.4.1 Site Preparation

All buried foundations, utilities, organic and inorganic debris, existing fill soils and any topsoil should be removed from the new building area and to 8 ft beyond the edge of the all building foundations to expose native glacial advance outwash soil. Topsoil is not considered suitable for reuse as structural fill and should be removed from the site or stockpiled for reuse in landscaping areas.

The exposed subgrade surfaces after stripping and fill removal should be compacted in place to at least 90 percent of the maximum dry density as determined by ASTM D1557. Care should be taken to avoid disturbing exposed subgrade soils. Loose or soft soil identified at subgrade level should be over excavated and replaced with properly compacted structural fill as discussed in Section 5.4.2 – Excavations and Fills.

5.4.2 Excavation and Fills

The term “structural fill” used in this report is defined as all fill which will be placed beneath foundations, slabs, the pool, and pavements. Structural fill should extend at least 5 ft beyond the edge of the slabs and footings and should consist of sand and gravel meeting the requirement of WSDOT specification 9-03.14(1) for “Gravel Borrow” except that the maximum particle size not exceed 3 inches.

The on-site fill and native soils vary from slightly silty to silty sands (SP-SM, SM) to sandy non-plastic silt (ML) and as such they are not suitable for use as structural fill beneath the house or beneath the outdoor pool. These soils may be used as structural fill in the patio and landscaped areas west of the proposed house provided they are placed at moisture contents near optimum to permit proper compaction. These soils should be free of organic debris and roots, and soil particles larger than 3 inches should be removed. Reuse of the on-site materials fill will require full time inspection and testing during construction to insure proper placement and compaction. The soils will be difficult to impossible to properly place and compact as structural fill during wet weather conditions. Therefore, if these soils will be used as structural fill, then the work should be done during drier weather periods.

All fill should be placed in uniform, horizontal layers not exceeding eight inches in loose thickness and compacted to meet the criteria in Table 1.



Table 1 – Recommended Compaction Standards

| Location | Minimum Compaction ⁽¹⁾ |
|---|-----------------------------------|
| Structural fill beneath foundations, floor slabs, and to a depth of 2 feet beneath pavements and exterior concrete slabs. | 95% |
| Structural fill placed more than 2 feet below pavement and exterior concrete slab subgrades. | 90% |
| Subgrade prior to filling | 90% |
| Utility trench backfill from finished grade to one foot above pipe crown ⁽²⁾ | Same as adjacent fill |

- 1) Percentage of maximum dry density as determined by ASTM D1557
- 2) Pipe bedding and initial backfill around the pipe should satisfy manufacturer's specifications.

If subgrade or fill soils become loosened or disturbed, the Contractor should over excavate to expose dense, undisturbed soils and place properly compacted fill.

5.4.3 Temporary Excavation Slopes

Sloped temporary construction excavations may be used where planned excavation limits will not undermine existing structures, interfere with other construction, or extend beyond construction limits. Where there is not enough area for sloped excavations, temporary shoring should be provided.

Based on the subsurface conditions encountered in the explorations, it is our opinion that sloped temporary excavations, in the absence of water, may be made at 1H:1V (horizontal to vertical) for short periods of time.

Safe slope configurations will depend on actual site conditions encountered during construction. If cohesionless soils are allowed to dry, surface sloughing may occur. If groundwater is flowing or seeping into the excavation, it should be expected to cause an unstable condition in the side slopes. If wetted by surface water, whether from precipitation or construction activities, slopes may be subject to relatively rapid erosion. The contractor is responsible for maintaining safe slopes. A competent person meeting regulatory safety requirements should be on site at all times the work is being performed. All applicable local, state, and federal safety codes should be followed.

5.4.4 Permanent Slopes

Permanent cut slopes in native undisturbed glacial soils should be no steeper than 1-1/2H:1V. Permanent fill slopes should be constructed by over-building the slope with compacted soil and then trimming the slope back to no steeper than 2H:1V.

We recommend planting permanent slopes with relatively fast-growing vegetation to reduce surficial sloughing and erosion. In non-growing and wet weather seasons, vegetative mats, jute matting, or plastic sheeting should be used until permanent vegetation can be established.

5.5 Spread Footing Foundations

The proposed building and retaining walls may be supported by shallow spread footings founded on undisturbed, glacial deposits. All footings should have a minimum embedment depth of at least 18 inches and the minimum footing widths should be 1.5 ft for continuous strip footings and 2.0 ft for isolated column footings. Footings may be designed for allowable soil bearing pressures presented in Table 2. The recommended soil bearing pressures may be increased by one-third to include short-term loads such as from wind or earthquakes.



Table 2 – Allowable Soil Bearing Pressures

| Footing Width (ft) ^(a) | 1.5 | 2.0 | 3.0 | 5.0 |
|-----------------------------------|------|------|------|------|
| Allowable Bearing Capacity (psf) | 3000 | 4000 | 6000 | 6000 |

(a) Minimum footing width = 1.5 ft for continuous strip footings and 2.0 ft for isolated footings.

If loose, wet, or disturbed soils are encountered at the foundation subgrade, these soils should be removed to expose undisturbed bearing soils, and the resulting over excavation should be backfilled with lean concrete or compacted granular structural fill. The base of all excavations should be dry and free of loose soil at the time of concrete placement.

The estimated total and differential settlements of foundations designed and constructed as recommended above should not exceed one inch and ½ inch respectively. Foundation settlement should occur as the loads are applied.

Lateral loads may be resisted by friction along the base of foundations and by passive soil resistance against buried foundations and walls. Footings cast directly on the undisturbed bearing soils or on properly compacted structural fill may be designed using an allowable coefficient of base friction of 0.35. An ultimate passive resistance may be computed using an equivalent fluid density of 350 pounds per cubic foot (pcf). This value is based on the assumption of a horizontal surface beyond the footing or wall of at least three times the depth of embedment in the direction of wall movement. One inch of movement may occur prior to development of the full passive pressure allowance. Passive resistance should be ignored in the upper 12 inches if not covered by floor slabs or pavements or ignored entirely if future development will result in removal of the soils providing resistance.

5.6 Basement Walls and Retaining Walls

Foundation walls and retaining walls (including the in-ground pool walls) should be backfilled with free-draining sand and gravel meeting the requirements of WSDOT specification 9-03.12(2) for “Gravel Backfill for Walls”, as shown in Figure 2. A perforated rigid collection pipe (such as PVC or an approved equivalent) should be placed at the base of all foundation walls in a blanket of drain gravel meeting the gradational requirements specified in Table 3. The widths of the openings (slots or round holes) in the pipe should not exceed ¼ inch. The pipe should be placed with the perforations downward and surrounded by at least 6 inches of drain gravel wrapped in non-woven filter fabric (see Table 4). The Contractor should take care to protect drainage pipe from damage by equipment and from clogging during construction. Collected water from the drains should be tight lined to the storm drain system.

Table 3 – Drain Gravel

| U.S. Standard Sieve Size | Percent Passing by Dry Weight |
|--------------------------|-------------------------------|
| 3/8 inch | 100 |
| ¼ inch | 30 – 50 |
| No. 8 | 0 – 5 |

Care should be exercised when compacting backfill against retaining and foundation walls. To reduce temporary construction loads on the walls, heavy equipment should not be used for placing and compacting fill within a region as determined by a 0.5H:1V line drawn upward from the bottom of the wall, or within 3 feet of the wall, whichever is greater. We recommend using hand-operated compaction equipment within 5 feet of the wall.

Table 4 - Non-Woven Drainage Geotextile

| Property | Recommended Value |
|----------------------|-------------------|
| Minimum permeability | 0.01 cm/sec |
| Percent open area | Greater than 4% |
| Porosity | Greater than 30% |

Foundation and retaining walls that are constructed as recommended above, may be designed for earth pressures summarized in Table 5. Active pressures apply to walls which are free to yield at least 0.1 percent of the wall height otherwise, we recommend using at rest pressures. Surcharge loads, including construction and traffic loads, and loads from stockpiled material, should be added to these values. For horizontal backfills, the lateral surcharge load may be computed using a lateral earth pressure coefficient of 0.3 for yielding walls and 0.4 for non-yielding walls.

Table 5 – Lateral Earth Pressure Parameters

| Backslope | Equivalent Fluid Density (pcf) | | Seismic Increment ^(a) |
|------------|--------------------------------|---------|----------------------------------|
| | Active | At-rest | |
| Horizontal | 35 | 50 | 4H |
| 2H:1V | 50 | 70 | 8H |

(a) H = wall height

Basement and retaining walls taller than 6 ft should be designed for seismic earth pressures. The dynamic lateral earth pressure increments are given in Table 5 and should be applied as a uniform pressure in addition to the active earth pressures.

The allowable coefficient of base friction, passive resistance, and bearing pressure for basement wall footings may be taken as the values given in Section 5.5 - "Spread Footing Foundations" provided that the recommended foundation preparation is performed. Retaining wall

5.7 Slab on Grade Floors

The building floors can be constructed as slabs-on-grade placed on undisturbed glacial soils or compacted structural fill. The subgrade soil must be in a firm, non-yielding condition at the time of slab construction. Any soft areas encountered should be excavated and replaced with select, imported structural fill. We recommend designing the concrete slabs using a subgrade coefficient of 40 pounds per cubic inch for properly compacted structural fill or native undisturbed glacial soil. We also recommend installing under-slab drains at 15 ft centers.

The drain should consist of 4-inch diameter perforated pipes. The widths of the openings (slots or round holes) in the pipe should not exceed ¼ inch. The pipe should be placed with the perforations downward and surrounded by at least 6 inches of drain gravel wrapped in non-woven filter fabric (see Table 4). Collected water from the drains should be tight lined to the storm drain system.

Water vapor from the subgrade soils below the slab will naturally migrate upward through the soil to the new constructed space above it. Therefore all interior slabs-on-grade should be underlain by a capillary break or drainage layer consisting of a minimum 4-inch thickness of gravel or crushed rock with the gradation specified in Table 6.



Table 6 – Under-Slab Drain Gravel

| U.S. Standard Sieve Size | Percent Passing by Dry Weight |
|--------------------------|-------------------------------|
| 3 – inch | 100 |
| No. 4 | 0 - 10 |
| No 200 | 0 – 3 |

A vapor retarder, such as 10-mil plastic sheeting with 24 inches of overlap at the seams, is desirable for moisture protection immediately below any on-grade slab that will be covered by tile, wood, carpet, impermeable floor coverings, or any moisture-sensitive equipment or products. A vapor retarder is defined as a material with a permeance of less than 0.3 U.S. perms per square foot (psf) per hour, as determined by ASTM E 96. Where plastic sheeting is used under slabs, joints should overlap by at least 12 inches and be sealed with adhesive tape. The sheeting should extend to the foundation walls for maximum vapor protection. If nearly no vapor passage through the slab is desired, then a vapor barrier with a water transmission rate of 0.00 perms per square foot per hour (ASTM E 96) should be used but recognizing that some vapor may still pass through the slab. Reinforced membranes having tightly sealed overlaps may meet this requirement.

The placement of a granular layer (slab curing layer) above the vapor retarder or barrier for protection and to aid in concrete curing is recommended if the material does not become wet prior to placement of the concrete slab. The granular layer should consist of minus 5/8-inch crushed rock as specified in Table 7.

Table 7 –Slab Curing Layer

| U.S. Standard Sieve Size | Percent Passing by Dry Weight |
|--------------------------|-------------------------------|
| 5/8 – inch | 95 - 100 |
| 1/4 - inch | 30 – 50 |
| No. 200 | 0 – 7.5 |
| Sand equivalent, min. | 32 |

If the slab curing layer becomes wet, water vapor will migrate upward through the slab and eliminate the effectiveness of the vapor barrier/retarder. If there is the potential that the curing layer will become wet before slab placement, then do not use the curing layer above the vapor barrier/retarder. To compensate for the loss of curing moisture, the slab joint spacing should be reduced and a low shrinkage concrete mixture should be used along with reinforcing.

We recommend that the contractor, the project materials engineer, and the owner discuss these issues and review recent ACI literature and ASTM E-1643 for installation guidelines and guidance on the use of the granular layer. Our opinion is that with impervious surfaces that all means should be undertaken to reduce water vapor transmission.

5.8 Site Drainage

We recommend that you capture all surface stormwater runoff from paved surfaces, roofs and downspouts and transport it by tight pipeline to the area west of the pool. The paved driveway should be sloped back towards the hill and into a drainage ditch and catch basin to prevent surface water flowing over the slope. The under-slab and foundation drains should not be connected to any other stormwater drains.



6 ADDITIONAL GEOTECHNICAL SERVICES

We recommend that you retain Perrone Consulting, Inc. to review those portions of the plans and specifications that pertain to foundations and earthwork to determine whether they are consistent with the recommendations in this report.

We recommend that monitoring, and consultation be provided by our firm during construction to confirm that the conditions encountered are consistent with those indicated by our explorations, to provide expedient recommendations should conditions be revealed during construction which differ from those anticipated, and to evaluate whether earthwork activities comply with contract plans and specifications. Such activities would include subgrade preparation for foundations, floor slabs, and pavements; fill placement and compaction; basement and retaining wall construction; and other geotechnical related earthwork activities.

7 LIMITATIONS

This report was prepared for the exclusive use of the Owner, Architect, and Engineer for specific application to the design of the project at this site as it relates to the geotechnical aspects discussed herein. The data and report should be provided to prospective contractors for their information, but our report, conclusions and interpretations should not be construed as a warranty of subsurface conditions included in this report.

Within the limitations of scope, schedule and budget, the analyses, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice in this area at the time this report was prepared. We make no other warranty, either express or implied. These conclusions and recommendations were based on our understanding of the project as described in this report and the site conditions as observed at the time of our explorations.

If there is a substantial lapse of time between the submission of this report and the start of construction at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, or appear to be different from those described in our report, we recommend that we review our report to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

Additional guidance about this geotechnical report can be found in Appendix B to this report, "Important Information about Your Geotechnical Engineering Report."

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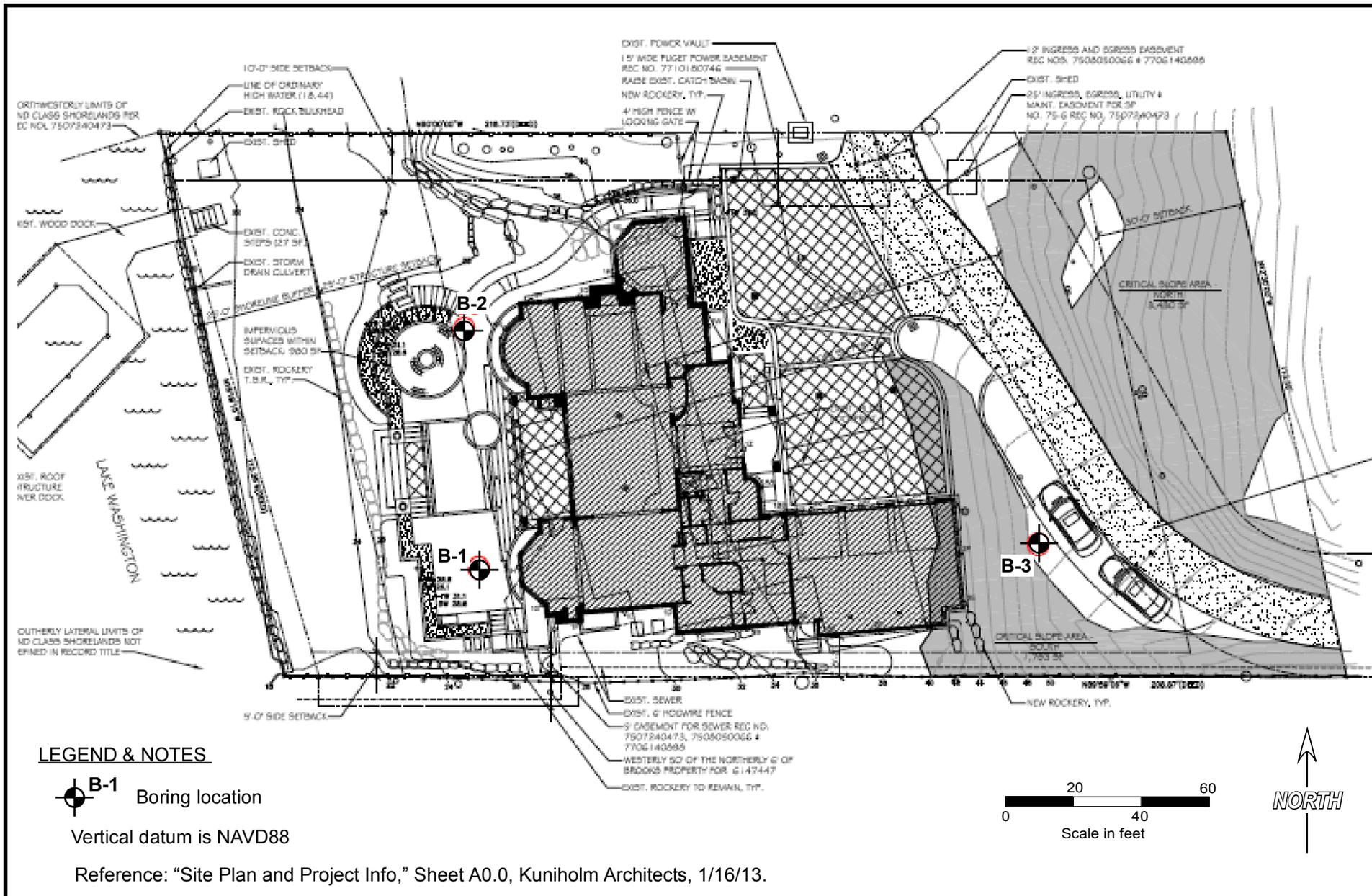
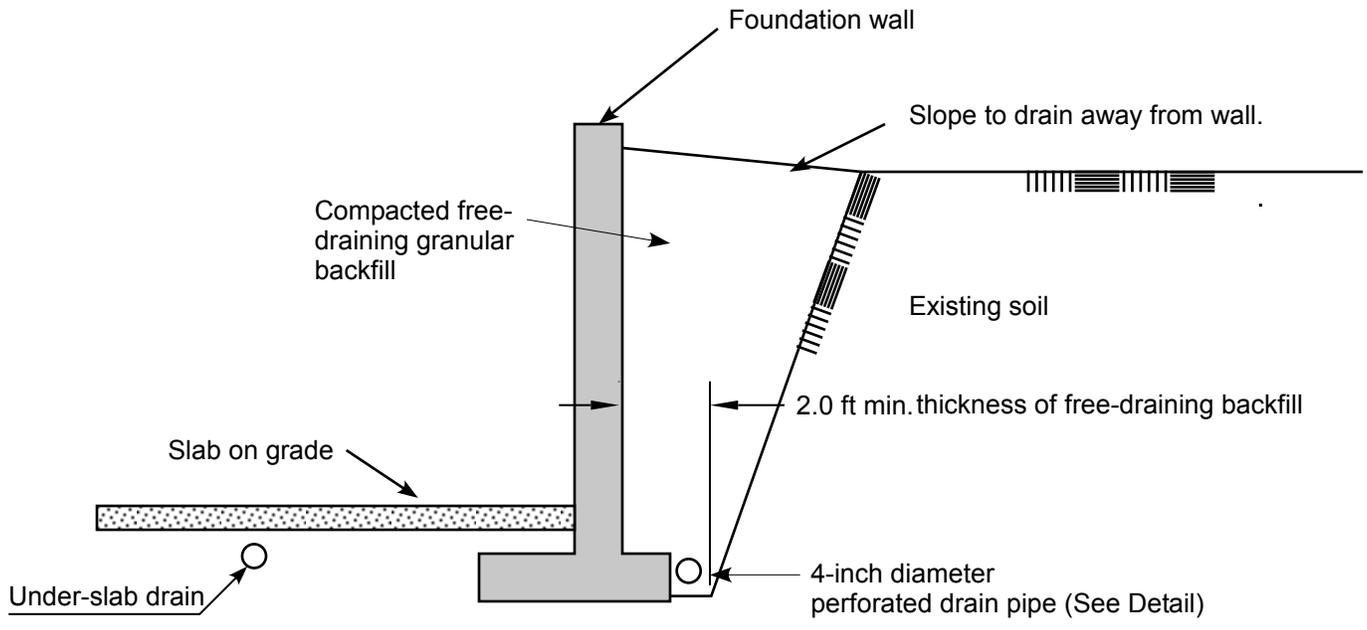
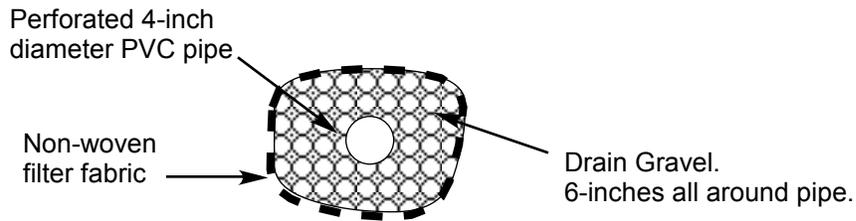


FIGURE 1
Site and Exploration Plan

February 2013



WALL BACKFILL & DRAIN



DRAIN DETAIL

Notes:

1. Schematic only - not to scale
2. Drain pipe should be placed with perforations facing down
3. See text for geotextile specifications
4. See text for backfill and drain gravel gradation specifications



APPENDIX A

GEO TECHNICAL EXPLORATIONS



APPENDIX A – GEOTECHNICAL EXPLORATIONS

Borings B-1 through B-3 were drilled to depths ranging from 6-1/2 ft to 16 ft using an Acker Mechanic portable drill rig equipped with 2-1/2-inch I.D. augers. Disturbed samples were obtained using Standard Penetration Test (SPT) procedures at approximately 2½ to 5-foot intervals. A standard split spoon sampler was driven into the soil a distance of 18-inches with a 140-pound safety hammer free-falling from a height of 30 inches using a cathead and winch system. Recorded blows for each six inches of penetration are shown on the boring logs. The number of blows required to drive the sampler the last 12 inches is the Standard Penetration Test Resistance (N-value). This resistance, or blow count, provides a qualitative measure of the relative density of cohesionless soils and consistency of cohesive soils. Representative portions of the samples were placed in plastic bags and transported to the laboratory for classification and testing. Upon completion of each boring the borehole was backfilled. Borings B-1 and B-3 were backfilled with bentonite chips.

The Key to Log of Boring is shown in Figure A-1 and the boring logs are shown in Figures A-2 through A-4.



PERRONE CONSULTING, INC.

11220 Fieldstone Lane NE
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 Telephone: (206) 778-8074

Key to Log of Boring

Sheet 1 of 1

**Project: 1839 Killarney Way SE
 Bellevue, WA**

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL CHART

| MAJOR DIVISIONS | | SYMBOLS | DESCRIPTIONS |
|----------------------|---------------------------|---|---|
| COARSE GRAINED SOILS | GRAVEL AND GRAVELLY SOILS | CLEAN GRAVELS LITTLE OR NO FINES | GW Well-graded gravels, gravel-sand mixtures, little or no fines |
| | | GRAVELS WITH FINES APPRECIABLE AMOUNT OF FINES | GP Poorly graded gravels, gravel-sand mixtures, little or no fines |
| | | | GM Silty gravels, gravel-sand-silt mixtures |
| | SAND AND SANDY SOILS | CLEAN SANDS LITTLE OR NO FINES | SW Well-graded sands, gravelly sands, little or no fines |
| | | SANDS WITH FINES APPRECIABLE AMOUNT OF FINES | SP Poorly graded sands, gravelly sands, little or no fines |
| | | | SM Silty sands, sand-silt mixtures |
| FINE GRAINED SOILS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | ML Inorganic silts, very fine sands, rock flour, silty/clayey fine sands or clayey silts of 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 |
| | SILTS AND CLAYS | LIQUID LIMIT GREATER THAN 50 | MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silt |
| | | | CH Inorganic clays of high plasticity, fat clays |
| | | | OH Organic clays of medium to high plasticity, organic silts |
| HIGHLY ORGANIC SOILS | | PT Peat, humus, swamp soils with high organic content | |

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

Abbreviations

| | |
|------------|--|
| AL | Atterberg Limits |
| C | Consolidation |
| DS | Direct Shear |
| HA | Hydrometer Analysis |
| LL | Liquid Limit |
| LV | Laboratory Vane Shear |
| N | Number of hammer blows for last 12 inches driven |
| OVA | Organic Vapor Analyzer |
| Pc | Constant Head Permeability |
| Pf | Falling Head Permeability |
| PI | Plasticity Index |
| PP | Pocket Penetrometer |
| SA | Sieve Analysis |
| SG | Specific Gravity |
| TV | Torvane Shear |
| TX | Triaxial Shear |

Sampler Symbols

| | |
|--|---|
| | 2-inch-O.D. Split Spoon Sampler Driven with 140-lb Hammer and 30-inch Drop (SPT) |
| | 3-inch-O.D. Split Spoon Sampler with Brass Rings Driven with 140-lb Hammer and 30-inch Drop |
| | 2-inch-O.D. Split Spoon Sampler Driven with 140-lb Hammer and 18-inch Drop |
| | Grab Sample |
| | 3-inch-O.D. Shelby Tube Sampler |

Piezometer Symbols

| | | | |
|--|--------------------------|--|-----------------------------|
| | Pipe in cement grout | | Pipe in filter pack |
| | Pipe in bentonite-cement | | Slotted pipe in filter pack |
| | Pipe in bentonite seal | | Vibrating wire piezometer |

Groundwater Level Symbols

| | |
|--|---------------------------------------|
| | Water level at time of drilling (ATD) |
| | Water level measured in piezometer |

General Notes

- Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.
- Soil descriptions are recorded in the following order: SOIL CLASSIFICATION (USCS Symbol), relative density or consistency, color, moisture, plasticity or gradation, angularity, minor constituents, additional comments (organics, odor, etc.) [GEOLOGIC UNIT].

Blow Count / Density and Consistency Relationship

| Coarse-Grained Soils | | Fine-Grained Soils | |
|----------------------|------------------------|----------------------|------------------------|
| Relative Density | N, SPT Blows / Foot | Relative Consistency | N, SPT Blows / Foot |
| Very loose | 0 - 4 | Very soft | <2 |
| Loose | 5 - 10 | Soft | 2 - 4 |
| Medium dense | 11 - 30 | Medium stiff | 5 - 8 |
| Dense | 31 - 50 | Stiff | 9 - 15 |
| Very dense | >50 | Very Stiff | 16 - 30 |
| | | Hard | >30 |

Minor Descriptors

| | |
|---------------------------------|----------|
| Trace clay, silt, sand, gravel | <5% |
| Few clay, silt, sand, gravel | 5 - 10% |
| Little clay, silt, sand, gravel | 15 - 25% |
| Some clay, silt, sand, gravel | 30 - 45% |

Moisture Content

| | |
|-------|--|
| Dry | Absence of moisture, dusty |
| Moist | Damp but no visible water |
| Wet | Visible free water, from below the water table |

Report: VP SOIL LOG KEY; File: WALLHOME.GPJ; PCI #13180; 2/13/13



PERRONE CONSULTING, INC.

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Log of Boring B-1

Sheet 1 of 1

**Project: 1839 Killarney Way SE
 Bellevue, WA**

Borehole Location: **East of garage**
 Drilling Contractor: **Geologic Drilling, Inc.**
 Drilling Method: **Hollow-Stem Auger**
 Drill Rig Type: **MT-5B rig equipped with 3-inch-ID auger**

Date(s) Drilled: **2/6/13**
 Logged By: **D. Yonemitsu**
 Total Depth of Borehole: **16.0 feet**
 Surface Elevation / Datum: **54 feet / NAVD88**

| Elevation, feet | Depth, feet | SAMPLES | | | Graphic Log | MATERIAL DESCRIPTION | Lab Tests | Moisture Content, % | Dry Unit Weight, pcf | REMARKS |
|-----------------|-------------|-------------|------------------------|-------------|-------------|--|-----------|---------------------|----------------------|---------|
| | | Type Number | Blows per 6 inches (N) | Recovery, % | | | | | | |
| 0 | | | | | | SILTY SAND WITH GRAVEL (SM), very loose, brown, moist, fine to medium sand, trace charcoal [FILL] | | | | |
| | 50 | 1 | 2-2-2 (4) | 33 | | SILTY SAND (SM), loose, brown, moist, fine sand [FILL] | | | | |
| | 5 | 2 | 3-3-7 (10) | 33 | | POORLY GRADED SAND WITH SILT (SP-SM), dense, reddish brown, moist, fine to medium sand [GLACIAL ADVANCE OUTWASH] | | | | |
| | 45 | 3 | 11-16-17 (33) | 100 | | | | | | |
| | 10 | 4 | 17-29-33 (62) | 100 | | SANDY SILT (ML), very dense, yellowish brown, moist, nonplastic, no to slow dilatancy, laminated [GLACIAL ADVANCE OUTWASH] | | | | |
| | 40 | 5 | 21-31-50 (81) | 100 | | | | | | |
| | 15 | 6 | 23-50/6" | 100 | | Scattered layers of fine to coarse sand | | | | |
| | | | | | | Bottom of Boring = 16.0 feet below ground surface No groundwater encountered during drilling. Borehole backfilled with bentonite chips. | | | | |
| | 35 | | | | | | | | | |
| | 20 | | | | | | | | | |
| | 30 | | | | | | | | | |
| | 25 | | | | | | | | | |

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

FIGURE A-2



PERRONE CONSULTING, INC.

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Log of Boring B-2

Sheet 1 of 1

**Project: 1839 Killarney Way SE
 Bellevue, WA**

Borehole Location: **West of deck just beyond hedges (north end)**
 Drilling Contractor: **Geologic Drilling, Inc.**
 Drilling Method: **Hollow-Stem Auger**
 Drill Rig Type: **Acker rig equipped with 2.5-inch-ID auger**

Date(s) Drilled: **2/6/13**
 Logged By: **D. Yonemitsu**
 Total Depth of Borehole: **6.5 feet**
 Surface Elevation / Datum: **28 feet / NAVD88**

| Elevation, feet | Depth, feet | SAMPLES | | | Graphic Log | MATERIAL DESCRIPTION | Lab Tests | Moisture Content, % | Dry Unit Weight, pcf | REMARKS |
|-----------------|-------------|-------------|------------------------|-------------|-------------|---|-----------|---------------------|----------------------|---------|
| | | Type Number | Blows per 6 inches (N) | Recovery, % | | | | | | |
| 0 | | | | | | SILTY SAND (SM), dark brown, moist, medium sand [FILL] | | | | |
| 25 | | 1 | 9-13-16 (29) | 100 | | SILTY SAND (SM), medium dense, grayish brown, moist, fine to medium sand, few gravel, with interbeds of SANDY SILT (ML) [GLACIAL ADVANCE OUTWASH] | | | | |
| 5 | | 2 | 27-40-46 (86) | 100 | | SANDY SILT (ML), very dense, brown, moist, nonplastic [GLACIAL ADVANCE OUTWASH] | | | | |
| 20 | | | | | | Bottom of Boring = 6.5 feet below ground surface No groundwater encountered during drilling. Borehole backfilled with bentonite chips. | | | | |
| 10 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 25 | | | | | | | | | | |

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

FIGURE A-3



PERRONE CONSULTING, INC.

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Log of Boring B-3

Sheet 1 of 1

**Project: 1839 Killarney Way SE
 Bellevue, WA**

Borehole Location: **West of deck just beyond hedges (south end)**
 Drilling Contractor: **Geologic Drilling, Inc.**
 Drilling Method: **Hollow-Stem Auger**
 Drill Rig Type: **Acker rig equipped with 2.5-inch-ID auger**

Date(s) Drilled: **2/6/13**
 Logged By: **D. Yonemitsu**
 Total Depth of Borehole: **14.0 feet**
 Surface Elevation / Datum: **28 feet / NAVD88**

| Elevation, feet | Depth, feet | SAMPLES | | | Graphic Log | MATERIAL DESCRIPTION | Lab Tests | Moisture Content, % | Dry Unit Weight, pcf | REMARKS |
|-----------------|-------------|-------------|------------------------|-------------|---|--|-----------|---------------------|----------------------|---------|
| | | Type Number | Blows per 6 inches (N) | Recovery, % | | | | | | |
| 0 | | | | | Sod | | | | | |
| | | | | | SILTY SAND (SM), brown, moist, fine to medium sand [FILL] | | | | | |
| | | | | | POORLY GRADED SAND WITH GRAVEL (SP), loose, reddish brown, moist, fine to medium sand, fine gravel [FILL] | | | | | |
| 25 | | 1 | 6-3-3 (6) | 33 | | | | | | |
| | 5 | 2 | 4-7-12 (19) | 100 | | SILTY SAND (SM), medium dense, grayish brown, moist, fine to medium sand, few fine gravel [GLACIAL ADVANCE OUTWASH] | | | | |
| | 10 | 3 | 17-22-24 (46) | 100 | | POORLY GRADED SAND WITH SILT (SP-SM), dense, grayish brown, very moist, fine to medium sand, trace fine gravel [GLACIAL ADVANCE OUTWASH] | | | | |
| 20 | | 4 | 16-17-34 (51) | 100 | | SILTY SAND (SM), dense to very dense, grayish brown, wet, fine sand, few fine gravel [GLACIAL ADVANCE OUTWASH] | | | | |
| | 15 | 5 | 16-22-34 (56) | 100 | | POORLY GRADED SAND WITH SILT (SP-SM), very dense, brown, wet, fine sand, trace fine gravel, laminated with SANDY SILT (ML) [GLACIAL ADVANCE OUTWASH] | | | | |
| | 15 | | | | | Bottom of Boring = 14.0 feet below ground surface | | | | |
| | 15 | | | | | First groundwater at 9 feet during drilling. Borehole backfilled with bentonite chips. | | | | |
| | 10 | | | | | | | | | |
| | 20 | | | | | | | | | |
| | 5 | | | | | | | | | |
| 25 | | | | | | | | | | |

Report: VP SOIL LOG; File: WALLHOME.GPJ; PCI #13180; 2/13/13

FIGURE A-4

APPENDIX B

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT



Important Information about Your Geotechnical Engineering Report

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

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

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 Geotechnical 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 your ASFE-member geotechnical engineer for more information.



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WAC 197-11-960 Environmental checklist.

ENVIRONMENT

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Daniel and Cari Wall Residence

2. Name of applicant:

Thomas Kuniholm Architect AIA

3. Address and phone number of applicant and contact person:

Tom Kuniholm Architects AIA

600 First Avenue Suite 205

Seattle, WA 98104

4. Date checklist prepared: 4/26/13

5. Agency requesting checklist: Bellevue Development Services

6. Proposed timing or schedule (including phasing, if applicable):

Construction planned for Fall 2013-Spring 2015

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. NO

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

See Environmental Report with Proposed Mitigation Submitted with this application prepared by Altmann/Oliver Consultants

See Geotech Report prepared by Perrone Geotechnical Consultants.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. NO

10. List any government approvals or permits that will be needed for your proposal, if known.

Bellevue Critical Areas Land Use Permit

Shoreline Permit

Bellevue Building Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Wall residence site is a sloped west facing waterfront property on Lake Washington accessed off Killarney Way in Bellevue. The property is reached via a drive serving other houses leading down to the property. The property itself is mostly sloped, with steep slopes on the upper portion. It levels off to a mid-low bank waterfront lawn with a rockery bulkhead and dock at the water's edge. The new house is primarily two stories, with an attached three car garage with space above. It has a smaller lower level with an exercise room, basement, wine storage room, and bath. The house is designed to step down with the grade to the terrace that faces the water. We will be building on the site of an existing 1965 house that is a daylight basement structure.

The house is to be wood framed with extensive stone veneer proposed.

It has four bedrooms and about 6,000 sq. ft. of heated space with a covered porch, plunge pool, and terraces facing the water. The roofs are pitched, tile or composition. Geothermal buried coils will be explored. We have completed a geotech report that allows us to compact and use some of the existing soil and build on conventional footings without piles.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

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B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, **HILLY**, steep slopes, mountainous,
other

b. What is the steepest slope on the site (approximate percent slope)?
Slopes slightly over 40% are present.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat,
muck)? If you know the classification of agricultural soils, specify them and note any prime
farmland.

Loose to medium silty Sand with gravel over subsurface Vashon glacial till and/or Vashon glacial advance
outwash soils. See Geotech Report attached.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so,
describe.

No. See Geotech Report

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed.
Indicate source of fill.

Fill will be required as structural bearing beneath terraces and site steps. Some fill on-site can be utilized with
compaction, some will be imported. Grading will be required for new footings and foundations and driveway.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Some erosion could occur at toe of slope behind garage after heavy rains.

g. About what percent of the site will be covered with impervious surfaces after project
construction (for example, asphalt or buildings)?

42.5%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
Silt fences wattles straw will be applied during construction.

a. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile,
odors, industrial wood smoke) during construction and when the project is completed? If
any, generally describe and give approximate quantities if known.

Exhaust from trucks, machinery, barge with crane if req'd.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Best practices by contractor.

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3. **Water**

a. Surface:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Lake Washington

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

YES, see attached.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Approx. 10-20 yds. Of gravel and sand in lake for shoreline restoration.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

All surface water from buildings and drives is to be collected and tight-lined to the shore.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground:

- 1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. **None.**

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c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Storm water collected from roofs, terraces and driveways will be tight-lined to an outlet in Lake Washington.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

No. Contractor to utilize best practices.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Extensive new Native vegetation.

4. Plants

a. Check or circle types of vegetation found on the site:

- deciduous tree: alder, maple, aspen, other
 evergreen tree: fir, cedar, pine, other
 shrubs
 grass
pasture
crop or grain
wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
water plants: water lily, eelgrass, milfoil, other
other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Existing grass and shrubs and a few small trees will be removed and replaced.

b. List threatened or endangered species known to be on or near the site.

Sockeye and Kokanee Salmon in Lake Washington

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

See Environmental Report by Altmann/Oliver attached.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- birds: hawk, heron, eagle, songbirds**, other:
mammals: **deer**, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

Not known, Sockeye and Kokanee Salmon in Lake Washington.

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c. Is the site part of a migration route? If so, explain.

Not known.

d. Proposed measures to preserve or enhance wildlife, if any:

Addition of new native plantings, demolition of portion of bulkhead and shoreline restoration.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric Power, heat pump

Natural gas for appliances and for boiler for radiant heat.

b. Would your project affect the potential use of solar energy by adjacent properties?

If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal?

List other proposed measures to reduce or control energy impacts, if any:

Replace outdated inefficient 1965 house with new house meeting current energy code.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?

If so, describe.

No.

1) Describe special emergency services that might be required.

None beyond expectations for a typical residence.

2) Proposed measures to reduce or control environmental health hazards, if any:

Utilization of Best practices.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Compliance w/ Bellevue Noise Ordinance.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Trucks, machinery, traffic, during construction and during allowable hours of the day.

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3) Proposed measures to reduce or control noise impacts, if any:
Compliance with Bellevue Noise Ordinance.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

Single family residence.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

Existing 1965 era house, garage and dock.

d. Will any structures be demolished? If so, what?

Yes, house and garage.

e. What is the current zoning classification of the site?

R-8

f. What is the current comprehensive plan designation of the site?

Single family residential, Shoreline Overlay

g. If applicable, what is the current shoreline master program designation of the site?

Shoreline Residential

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Yes, Steep slope areas, shoreline buffer and building setback.

i. Approximately how many people would reside or work in the completed project?

Two-three.

j. Approximately how many people would the completed project displace?

Three.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

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1. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Proposal is compatible with existing use.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

1, High.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

1, High

- c. Proposed measures to reduce or control housing impacts, if any:

None.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest gable roof is about 36' from grade. Materials proposed are natural stone walls and paving, wood and stucco.

- b. What views in the immediate vicinity would be altered or obstructed?

None.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

New shoreline restoration replaces unsightly and tall rockery along the lake. Natural materials and high degree of craftsmanship.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Western glazing could cause some glare in the afternoon.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

- c. What existing off-site sources of light or glare may affect your proposal?

N.A.

- d. Proposed measures to reduce or control light and glare impacts, if any:

Sun screens, overhangs.

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12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Swimming, boating, waterskiing.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

New beach at waters edge proposed to allow better recreation.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

c. Old Nunnery about four properties north of the site

c. Proposed measures to reduce or control impacts, if any:

None.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Killarney Way SE

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No. Approximately a half mile to transit.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Eight new. Four existing.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

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e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

3-4 trips per day average.

g. Proposed measures to reduce or control transportation impacts, if any:

None.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

New house will require sprinkler system, reducing risk of fire.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None.

16. Utilities

a. Circle utilities currently available at the site: **electricity, natural gas, water, refuse service, telephone, sanitary sewer**, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

PSE

Washington Natural Gas

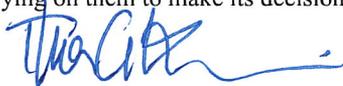
Bellevue City Water.

Cable Data

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:



Date Submitted:

4.30.13

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D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Not significant.

Proposed measures to avoid or reduce such increases are:

Oil/water separator in driveway catch basins.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Likely to create better feeding and spawning habitat for fish.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

New native plantings proposed and shoreline restoration.

3. How would the proposal be likely to deplete energy or natural resources?

N.A.

Proposed measures to protect or conserve energy and natural resources are:

Heat pump with possible geothermal ground source proposed.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed shoreline restoration makes clear improvements for both humans, and native ecosystem flora and fauna.

Proposed measures to protect such resources or to avoid or reduce impacts are:

New native plantings proposed and shoreline restoration.

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5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed shoreline restoration makes clear improvements for both humans, and native ecosystem flora and fauna.

Proposed measures to avoid or reduce shoreline and land use impacts are:
See shoreline restoration plan.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Slight increase in electrical power usage expected due to size of project.

Proposed measures to reduce or respond to such demand(s) are:
More energy efficient construction.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

None.