102.84'

REMOVE ALDER

2-4"ϕ AT 268.5'

POND W RAIN GARDEN

CHECK DAM TYP

REMOVE TREE

11BIO SWALE 11

REMOVE TREES

ROCK TRENCH

CURB

MAIN FL 298'FF

BASEMENT 287'FF±

PAVING

GRAVEL/ROCK

DRAIN & DRYWELL

SS CUTFALL EXSTG

UTILITY TRENCH

WATER METER

SEWER TRENCH

MH 287'EL.

DRIVE WAY

DRIVE WAY

SEWER EASEMENT 16'

119.18'

SITE PLAN 1"=10'-0" N LOT 16 18021± 11TH AVE POULSBO

LAUREN SMITH RA SMITH RESIDENCE AUG 15 2017 REV

SMITH RESIDENCE PROPOSED PROJECT NARRATIVE

24 July 2017 prepared by Larry Smith owner

The Smith's single family residence is located on a lot zoned RL and the site is in a critical area. The main structure of house starts 30' west of the East property line and clears most of the filled area. The lot size is 102' x 119' with 12,256 sf. The new home's foot print will be 53' x30' at 1,590 sf with a partial 2nd floor and an unfinished basement that has a garage. The asphalt drives and a walkway have 2,116sf of surface area. The entry deck and porch extend 6- 8' to the east and a deck extends around the south and part of the west side of the house.

The attached amended Geotechnical Report describes the update to the original geotechnical report and indicated the soil conditions and how to build on the site. This site plan and the house plans follow the recommendations. Most of the foundations will easily reach stable original soil. This is the best location to improve the sloped area by filling the area between the existing slope and the new concrete wall. Driveways and walks will have some of the soil removed and the soil amended with rock and gravel for a stable base for the driveways and walks. Engineered fill will be compacted at the fill area for the basement slab and some of the driveways if needed. It appears engineering fill may be limited at the foundation walls since the footings may be close or going to the original soil capable of supporting the foundation walls.

The proposed site water drainage improvements will control water runoff, minimize erosion and improve the site conditions. Downspouts will have rain barrels and be connected to the foundation drains and the small bio swell system. Drainage from the driveway, any 11th Ave storm drainage overflow, and other surface water will be directed to the south property line rocked drain area. The rocked drain will connect to the small bio swell system that ends up at the pond/rain garden.

The outfall for the existing catch basin on 11th avenue adjacent to this property is located on our property as shown on the site plan. I tested the catch basin with water on 23 July 2017 and it drained on the outfall shown the site plan. Also, the existing outfall was noted as having water flow during the rainy season as well. The storm water running through the property is not desired and creates a wet soil condition that will be detrimental to our site development. The soil may gain unneeded moisture that could make our back fill and excavation more difficult and expensive. It appears the City would be responsible to correct this condition. It is requested that the storm water outfall be redirected to not impact the soil on this site ASAP and be coordinated with our site excavation and development. A temporary solution may be to run a flexible drain

RECEIVED

JUL 25 2017

PLANNING

line on Lot 4-025 flowing to the west continuing until it reaches Lot 014-01 until a final permanent solution is completed.

Construction excavation is proposed to start in late August/first September 2017. Excavation will be done during the dry weather with some back fill happening after 1 October. The original Geotechnical report describes various options to control erosion depending on the situation.

The site improvements will improve the stability of the site and the surrounding property. The steep bank will be eliminated with the back fill to the new house concrete wall. The south property line gravel/rock drainage will control storm water from the driveway, 11th Ave excess, and adjacent landscape area. The rain barrels, small bio swell system, and the pond/rain garden will distribute all impermeable and landscape surface water. The pond /rain garden created at the lower elevation will contain storm water runoff on site during construction and is planned to remain as a rain garden or detention pond. Roof runoff will have rain barrels with distribution to other landscaping and small bio swells along the walks.

The trees on the south side of the property are planned to be removed since they are a future hazard to the house and a more open feeling is desired. The excavator will be removing them and will be moving earth in the tree root area. Also the fir trees on the adjoining property to the West are planned to be thinned for wind sailing and view thru the trees. The limbs are intended to be left on the ground unless chipping is required. The adjoining property owners have agreed to the plan as shown on the attached signed site plan. An arborist has written the attached letter that supports this request. We would like to limb the trees in the next few weeks, therefore we request the limb thinning approval with this submittal. The tree related information is provided in any case for the Critical Area Review for the removal of the other trees.

ERROSION CONTROL PLAN/CONSTRUCTION STORM WATER POLUTION PREVENTION PLAN FOR

SMITH RESIDENCE, 18021~ 11TH AVE, POULSBO WA

Since the excavation work may not be done by 1 October 2017, an erosion control/storm water plan to prevent sediment generation and transport with some options that depend on the weather conditions is needed. This plan has been reviewed with the excavation contractor.

1. The first excavation work will form the driveway on the south, the daylight basement grade, the sloped path system and the small pond/rain garden area. The driveway will have a rock/gravel amended into the soil for a stable vehicle surface with limited exposure for soil transport issues. Vehicle washing would occur in this area if needed. The bottom edge of the driveway will have an earth or other berm/trench to disperse to the bio swells. The drive way will sheet flow water to the rock gravel trench at the south edge of the property.
2. The daylight basement will be cut to grade and footings dug. The sloped path will have gravel added. The pond/rain garden at the bottom of the site will be functional to contain water runoff from the site. Little or no runoff is expected to leave the site as uncontrolled sediment. Straw will be added to exposed earth areas depending on the weather conditions.
3. The utility trenches will be dug for the sewer connection and another trench for the water, power, electrical, etc. When lines are installed and the trenches refilled some straw may require straw or water bars depending on the conditions.
4. Little to no off-site water will enter the site. The street storm water catch basin outfall has been temporarily redirected to discharge near the bottom of the site as on 27 July 2017. During excavation, this temporary drain line will be kept operational by burying and protecting the line from crushing by vehicles. It appears the final solution will be to incorporate this street storm water into the site drainage system and may include a gravel trench connecting to the south gravel surface drainage area.
5. The gravel/rock surface storm drainage areas and the small bio swells shown on the site plan will be set up as soon as possible to control water runoff. Water bars and sediment traps will be used along the drainage area as necessary.
6. The upper part of the site near 11th will be last area to be worked. The edge of the top flat area will have an earth or other barrier to contain water. Any soil piles will be covered with plastic sheeting, jute mating or straw as necessary. This area will be the laydown area accessed from the street for the contractor.
7. A slit fence near the west edge of the property may be installed if the pond is not effective enough. The land to the west is a natural area with vegetation and will continue to filter any potential sediment. Additional water bars if necessary may be added on Lot 14-01 with the owner's approval.
8. After the footings and foundation walls are ready with drain lines etc. and backfill is authorized, the soil piles will backfilled to the elevations shown on the drawings and straw used if necessary. The footing drains will disperse into the small bio swells. Roof downspouts are planned to have rain barrels with overflow going into the bio swells.
9. Little work is planned for the North bank of the property.
10. All erosion control items will remain in place until the final landscaping is installed.

This plan is prepared by Lauren A. Smith, Registered Architect in the State of Washington.

Technical Memorandum

TO: Nikole Coleman, AICP
City of Poulsbo Planning and Economic Development Department

FROM: Sean Gertz, EIT, and Steven Wright, PE

DATE: August 18, 2017

RE: **Geotechnical Peer Review**
Proposed Smith Residence
11th Avenue NE
Poulsbo, Washington
Tax Parcel No. 4232 000 016-0004
Project No. 1511006.010.011

In accordance with a City of Poulsbo (City) Task Order issued July 27, 2017, Landau Associates, Inc. (LAI) conducted a peer review of geotechnical documents prepared for the proposed Smith residence in Poulsbo, Washington. The purpose of LAI's peer review was to determine if the recommendations made in the reviewed documents comply with the requirements of the Poulsbo Municipal Code (PMC), specifically Chapter 16.20 (Critical Areas), Sections 16.20.400 (Geologically Hazardous Areas) and 16.20.760 (Geotechnical Report and Geological Report). LAI did not perform an independent site investigation as part of its review.

LAI reviewed the following documents provided by the City that were prepared by others for the proposed Smith residence:

- Field's Tree Care, LLC. 2017. Arborist Report. July 12.
- Terracon Consultants, Inc. 2017. Geotechnical Update Letter: Proposed Smith Residence. From Paul D. Davis and David A. Baska, Terracon Consultants, to Larry and Margi Smith. July 21.
- Zipper Zeman Associates, Inc. 2007. Geotechnical Report, Proposed Smith Residence, 11th Avenue NE, Tax Parcel 4232 000 016-0004, Poulsbo, Washington, Project Number 81075833. August 21.

Based on information provided in the above-referenced documents, we understand that the Smith residence will be constructed on approximately 0.28 acres of undeveloped land (Tax Parcel No. 4232 000 016-0004), located at the southern terminus of 11th Avenue NE and north of State Route 305 (site). The proposed single-family residence is expected to include a conventional wood-framed structure with an attached garage and daylight basement supported on shallow foundations. The proposed development will require cuts as deep as 26 feet (ft) and fills as tall as 17 ft. Because portions of the project site satisfy the definition of a Geologically Hazardous Area, the proposed development must be designed and constructed in compliance with applicable PMC requirements for projects located in such an area.

Based on our review of the documents provided, further discussion of the items noted below is needed before the documents meet the geotechnical requirements outlined in the PMC for development in Geologically Hazardous Areas.

Tree Removal and Minor Pruning: Per Section 16.20.420 of the PMC, within the required buffer of geologically hazardous areas and areas of geologic concern, existing vegetation shall be retained, or the buffer shall be replanted with appropriate native vegetation. Furthermore, the same section of the PMC states that:

> *Removal of danger trees is allowed only if such activity is approved by the director, and requires a written determination by a certified arborist in the state of Washington that the trees proposed for elimination represent a legitimate safety hazard. The director may require that stumps and root systems be retained for soil retention and erosion control. Minor pruning of vegetation may be allowed only if such activity is approved by the director and is conducted according to a plan prepared by a certified arborist in the state of Washington and peer reviewed and approved by the city arborist.*

The arborist report prepared by Field's Tree Care does not identify the trees designated for removal as danger trees; as a result, we recommend that the report be modified to indicate whether or not these trees are considered danger trees. We also recommend that Field's Tree Care develop and submit a pruning/thinning plan for review and approval by the City arborist. Finally, we recommend that Terracon Consultants, Inc.'s geotechnical update letter be modified to address whether the stumps and root systems of removed trees should be retained for soil retention and erosion control.

Steep Slope Buffer Assessment: Per PMC Section 16.20.420C, a standard buffer of 25 ft shall be established from the top, toe, and all edges of Geologically Hazardous Areas and areas of geologic concern, unless otherwise specified by a geological report or site-specific determination. The geotechnical documents we reviewed for this project do not address the adequacy of the standard buffer width for this project. We therefore recommend that Terracon Consultants, Inc. modify their geotechnical update letter accordingly.

Wet Weather Earthwork Limitations: Section 16.20.420E of the PMC states: *For new or redevelopment, clearing and grading may be limited by the city engineer to the period between May 1st and October 1st, unless the applicant provides an erosion and sedimentation control plan prepared by a professional engineer licensed in the state of Washington.* We recommend that Terracon Consultants, Inc. modify their geotechnical update letter to advise their client of the need for an erosion and sedimentation control plan in the event that earthwork is conducted outside of the May 1st to October 1st timeframe.

Groundwater Interception, Infiltration, Seepage, and Springs: Section 16.20.760A of the PMC states that the geotechnical report shall include a description of the effects of groundwater interception and infiltration, and seepage. The same section of the PMC also states that the geotechnical report needs to include a description of the location and characteristics of springs within 1,000 ft of the site. We recommend that Terracon Consultants, Inc. modify their report to specifically address these missing items.

Landau Associates, Inc. prepared this technical memorandum for the exclusive use of the City of Poulsbo for specific application to the review of the information provided for the proposed Smith residence, located in Poulsbo, Washington. Use of this technical memorandum by others or for another project is at the user's sole risk. Within the limitations of scope, schedule, and budget, our services have been conducted in accordance with generally accepted practices of the geotechnical engineering profession; no other warranty, express or implied, is made as to the professional advice included in this technical memorandum.

We appreciate the opportunity to provide engineering services on this project and look forward to assisting you in the future. If you have questions regarding the information contained in this technical memorandum or if we may be of further service, please call the undersigned at (425) 778-0907.

LANDAU ASSOCIATES, INC.

Sean M. Gertz, EIT
Senior Staff EIT

8/18/17

Steven Wright, PE
Principal

SMG/SZW/mcs
[P:\1511\006.010\R\GEOTECHNICAL PEER REVIEW PROPOSED SMITH RESIDENCE.DOCX]

July 21, 2017

Larry and Margi Smith
15930 Lindsey Lane NE
Poulsbo, WA 98370

Attn: Mr. Larry Smith

Re: Geotechnical Update Letter
Proposed Smith Residence
11th Avenue NE
Poulsbo, Washington
Terracon Project No: M8175008

Dear Mr. Smith:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with the Terracon Agreement for Services PM8175008, dated July 12, 2017. This letter presents the findings of a recent site reconnaissance and provides updated geotechnical recommendations. Terracon has previously prepared a Geotechnical Report for the subject property (Project No. 81075883, dated August 21, 2007). The purpose of this letter is to update the geotechnical report to current International Building Code (2015) and Poulsbo Critical Area Ordinance (updated June 2017) standards. The recommendations presented in the previous documents remain applicable unless further supplemented in this document.

SITE LOCATION

ITEM	DESCRIPTION
Location	11th Avenue NE, Tax Parcel 4332-00-016-0004, Poulsbo, Washington.
Existing Improvements	Based on a recent site visit, the site is vacant and contains heavy vegetation. As discussed in the previous report, fill has been placed on the upper portion of the site and the site contains a steep slope on the west of the site. Site conditions appear to be similar to those observed during preparation of the 2007 geotechnical report.

Project Description

ITEM	DESCRIPTION
Structures	One- to two-story residential structure with a walk-out basement constructed along the existing slope.
Grading	At existing grade, plus or minus about 5 feet (assumed). Structure will be constructed along the slope.

Should any of the above information or assumptions be inconsistent with the planned construction, please let us know so that we may make any necessary modifications to the recommendations.

SUPPLEMENTAL RECOMMENDATIONS

The following sections present supplemental recommendations to the previously prepared Geotechnical report. Recommendations presented below should be implemented in conjunction with those previously provided.

Floor Slabs

Floor slabs for the building should be supported on properly prepared structural fill placed on the dense native soils as previously described.

Floor Slab Design Recommendations

ITEM	DESCRIPTION
Floor slab support [1]	Compacted structural fill over dense native soils prepared in accordance with the previously prepared geotechnical report.
Capillary break [2]	Minimum of 6 inches of free draining granular material

1. Floor slabs should be structurally independent of any building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation. We recommend subgrades be maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become desiccated prior to construction of floor slabs, the affected material should be removed or the materials scarified, moistened, and recompacted. Upon completion of grading operations in the building areas, care should be taken to maintain the recommended subgrade moisture content and density prior to construction of the building floor slabs.
2. The floor slab design should include a capillary break comprised of a compacted clean, free-draining, well graded mixture of course sand and gravel. The capillary break material should contain less than 5 percent fines, based on that soil fraction passing the U.S. No. 4 sieve. Alternatively, a clean angular gravel such as No. 7 aggregate per WSDOT: 9-03.1(4) C could be

used for this purpose. Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

Interior trench backfill placed beneath slabs should be compacted in accordance with recommendations outlined in the Structural Fill Section of the geotechnical report. Other design and construction considerations, as outlined in the ACI Design Manual, Section 302.1R are recommended.

The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Seismic Considerations

DESCRIPTION	VALUE
ASCE 7[1]	C
Site Latitude	N 47.727°
Site Longitude	W 122.634°
S_s Spectral Acceleration for a Short Period	1.317g
S_1 Spectral Acceleration for a 1-Second Period	0.526g
F_a Site Coefficient for a Short Period	1.000
F_v Site Coefficient for a 1-Second Period	1.300

[1]ASCE 7 requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current, or previous, scope does not include the required 100 foot soil profile determination. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of the previous explorations.

Geological Hazard Areas

We have reviewed the Poulsbo Critical Area Ordinance Updated June 2017 and provide the following comments:

- We understand the new plans for the Larry and Margaret Smith residence will start 30 feet in from the property line near the top of the fill area adjacent to 11th Ave NE. The foot print area is planned to be 53 feet x 30 feet and located in a similar area as the 2007 originally proposed house.
- The original report did not reference tree removal. The 4+ trees along the south property line and the two trees in the middle of the property likely present no geotechnical impact if removed.
- Conclusions and recommendations concerning geological hazards from the 2007 geotechnical report remain applicable.

GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

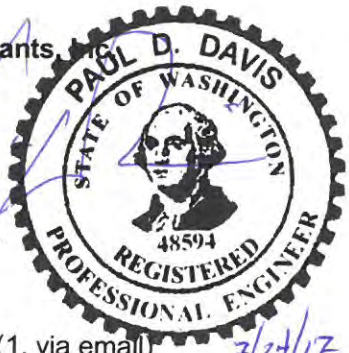
The analysis and recommendations presented in this report are based upon the data obtained from the explorations performed at the indicated locations and from other information discussed in this letter and the geotechnical report. These documents do not reflect variations that may occur between explorations, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This letter has been prepared for the exclusive use of Larry and Margi Smith for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this letter and the geotechnical report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this letter and the geotechnical report in writing.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this document, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.



7/24/17

Paul D. Davis, P.E.
Office Manager

David A. Baska, Ph.D., P.E.
Principal

cc: Addressee (1, via email)

att: Geotechnical Report (81075833, dated August 21, 2007)

GEOTECHNICAL REPORT
PROPOSED SMITH RESIDENCE
11TH AVENUE NE
TAX PARCEL 4232-000-016-0004
POULSBO, WASHINGTON

PROJECT NO. 81075833
AUGUST 21, 2007

Prepared for:

GREG SMITH
PO BOX 666
POULSBO, WA 98370

Prepared by:

Zipper Zeman Associates, Inc., a division of
Terracon
Tacoma, Washington

ZZA Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting
A Terracon Company

81075833
August 30, 2007

Greg Smith
PO Box 666
Poulsbo, WA 98370

Attention: Mr. Greg Smith

Subject: Geotechnical Engineering Report
Proposed Smith Residence
11th Avenue NE
Tax Parcel 4232-000-016-0004
Poulsbo, Washington

Dear Mr. Smith,

The enclosed report contains our findings from field exploration, laboratory testing and engineering analyses at the referenced project site regarding Geologically Hazardous Areas per the Poulsbo Municipal Code. These services were completed in general accordance with the scope of work in our proposal (P-3807) dated May 15, 2007 as authorized by you on May 17, 2007. The information in this report is based on our understanding of the proposed construction and soil and groundwater conditions encountered in borings completed on June 19, 2007 and June 20, 2007 at the site.

We recommend that the project plans and specifications be submitted to Zipper Zeman Associates, Inc. for general review and to confirm that the recommendations in this report are interpreted and implemented properly in the construction documents. Our scope of services did not include sampling or testing of soil or water for regulated environmental contaminants.

We appreciate the opportunity to provide these services. Please call if you have any questions.

Respectfully Submitted,
ZIPPER ZEMAN ASSOCIATES, Inc., a Division of Terracon Consultants, Inc.

T H Roberts

Timothy H. Roberts, P.E., P.G.
Senior Associate

TIMOTHY H. ROBERTS
STATE OF WASHINGTON
43126
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 1/04

John E. Zipper, P.E.
President

8/31/07

2115 South 56th Street, Suite 405, Tacoma, Washington 98409 253.573.9939 Fax: 253.573.9959

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Figure 1 – Site and Exploration Plan
Appendix A – Boring Logs
Appendix B – Laboratory Results

INTRODUCTION

This report summarizes the results of our geotechnical evaluation for the proposed Smith residence on 11th Avenue NE in Poulsbo, Washington. These services were completed in general accordance with the scope of work in our proposal dated May 15, 2007, as authorized by you on May 17, 2007. Our scope of services included field explorations, laboratory testing, engineering analyses, and preparation of this report.

PROJECT DESCRIPTION

We understand that the project will include a single-family residence with attached garage. We anticipate that a daylight basement-type structure is planned. At the time of this report, it is our understanding that final construction plans have not been completed. We recommend that final or revised drawings be provided for our review, and that the conclusions of this report be revised or confirmed based on the final plans.

Based on our site visits, it appears that the eastern portion of the site has had fill placed on it to raise grades to adjacent street elevations. This fill has created very steep inclinations near the top of the slope. The lower portion of the site appears to be a natural slope with shallower inclinations.

A grading plan was not available at this time; however, we anticipate that planned grade modifications to the site may be substantial.

The lot is on sloped ground and therefore subject to compliance with Geologically Hazardous Areas per Title 16 of the City of Poulsbo Municipal Code (PMC). Specifically, Section 16.20.400 (Geologically Hazardous Areas of the 2007 Draft Critical Areas Ordinance) identifies characteristics of hazard areas and development standards. Due to slope inclinations on the property, a geotechnical report per Section 16.20.410 is required.

SITE CONDITIONS

The project site consists of approximately 0.28 acres of undeveloped land located at the south end of the housing development. The property is bordered to the east by 11th Avenue NE, existing residential development to the north and west, and undeveloped land to the south.

Along the eastern property boundary, adjacent to 11th Avenue NE, the site is level and appears to consist of a fill pad likely placed at the time of construction of the street. Within approximately 25 feet of the street, the fill pad drops off steeply to the west. Slopes on this fill embankment have inclinations on the order of 140%. Estimated thickness of the fill is on the order of 15 feet.

Below the fill, the natural slope is less steep with inclinations between 30 to 40 percent. The natural slope had previously been logged as evidenced by old stumps and is currently vegetated with several holly trees, brush and weeds.

We observed no indications of recent or historic slope instability on fill or native slopes at the time of our field evaluation. Additionally, no hillside springs or seeps were observed on site slopes.

SITE EXPLORATION PROCEDURES

Field Exploration & Laboratory Testing

One boring (B-1) was completed on the native slope below the fill bench with a hand-portable Acker drill rig on June 19, 2007. A second boring (B-2) was completed on the top of the fill bench with a truck-mounted auger drill rig on June 20, 2007. The approximate locations of the borings are shown on Figure 1 – Site and Exploration Plan. Soil samples were collected at the time of excavation and placed in sealed containers for further examination and laboratory testing. Boring logs are included in Appendix A of this report with soil descriptions, samples numbers, and depth of sample occurrence.

Selected samples retrieved from the borings were tested for grain size analysis and moisture content. The results of the laboratory tests are included in Appendix B.

SUBSURFACE CONDITIONS

Soil Conditions

Boring B-1 was located below the large fill embankment, with loose to medium dense fill and/or disturbed native soils in the upper 2.5 feet. Below this material was native silty gravelly sand, interpreted to represent glacial till. This till was weathered and loose in the upper portions and graded to very dense with depth. A thin layer of interbedded silty sand (on the order of 1 foot thick) was observed at a depth of approximately 9 feet. This boring was terminated at a depth of 10.5 feet in very dense glacial till due to practical refusal to the Acker drill rig.

Boring B-2, located on the top of the fill bench indicated that the fill extended from the surface to a depth on the order of 12.5 feet at the boring location. This fill consisted of silty sand with variable gravel and was in a loose condition. A probable old topsoil layer was observed at a depth between approximately 12.5 to 14 feet. Below the topsoil layer, native soils consisting of medium dense to very dense glacial deposits were observed and extended to the bottom of the boring. These soils consisted principally of silty gravelly sand with a thinner interbedded layer of silty sand.

Water Level Observations

Groundwater seepage was observed at a depth of approximately 9 feet in B-1 at the time of drilling. This depth appears to correspond to the bottom of a natural drainage swale area to the south of the property. No groundwater was observed in boring B-2 at the time of drilling. No groundwater seeps or springs were observed on fill or native site slopes.

CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the planned residential development of this site is feasible based on the observed condition of native soils in the exploratory borings. However, the existing fill wedge located on the eastern portion of the site is not considered suitable for direct support of structures or pavements, and it is recommended that this fill be removed and replaced, or modified such that the risk of future instability and settlement potential of these fill soils is reduced. Without documentation as to method of placement and compaction testing, this fill is considered non-engineered. In particular to this site, the inclination of the fill slope is much steeper than typically used in design and construction, and is not considered to be in an overall stable configuration. Additionally, special techniques need to be used when placing fill on existing sloped ground. We cannot assess the methods used to place the fill on the native slope at this site.

Native firm soils on the property are considered suitable for support of planned residential improvements. In addition, native slopes appear to be in a stable condition as no evidence of slope movement was observed on native slopes at the site, as well as considering observed subgrade soils in the borings completed. It is our opinion that the development of the site can be accomplished without adversely affecting native slopes.

Geologically Hazardous Areas

Section 16.20 of the Poulsbo Municipal Code (PMC) provides indicators used to describe sloped ground as a Geologically Hazardous, Landslide Hazard, or Steep Slope Areas based on slope inclinations, soil conditions, groundwater conditions, and surface expressions of past or ongoing slope movement. The property has both native and fill slopes. Native slopes on the site are not considered to be hazardous or steep per the PMC definitions. However, the fill slope is considered a Steep Slope and potentially a Landslide Hazard due to slope inclination and unknown construction techniques, if left in its' current configuration.

No evidence of active or historic landslides was observed on the site or adjacent properties. No groundwater seepage areas were observed on native sloped areas during our reconnaissance. Due to the lack of evidence of previous earth movement on or near the site, and the type and condition of native soils observed in the explorations, native slopes on

and below the property are considered stable, in our opinion. Development of the site is considered feasible and can be completed without adversely affecting the stability of existing native slopes providing the recommendations of this report are incorporated into the design of the planned residence. We understand that current plans will have the new residence located principally below the existing fill wedge adjacent 11th Avenue NW, and basically in line with the residence to the north.

Site Preparation

All preparation for site grading and construction should include procedures intended to drain ponded water, control surface water runoff, and to collect shallow subsurface seepage zones in excavations. It will not be possible to successfully utilize on-site soils as "structural fill" if accumulated water is not drained prior to grading, or if drainage is not controlled during construction. Attempting to grade the site without adequate drainage control measures will reduce the amount of on-site soil effectively available for use, increase the amount of select import fill materials required, and ultimately increase the cost of the earthwork phases of the project. Free water should not be allowed to pond on the subgrade soils or flow onto site or neighboring slopes.

Site disturbance beyond the work area should be limited to reduce the potential for erosion and off-site sediment transport. Well-marked clearing limits should be field staked prior to start of construction.

The existing fill wedge on the east side of the property is not considered suitable for support of structures or driveways due to its' overall loose condition as observed in boring B-2. This fill, should be removed and either recompacted or replaced with structural fill as described in the Structural Fill section of this report. It may be possible to leave portions of the existing fill in non-structural (e.g. landscaped) areas, however, re-grading of the fill slope and possible buttress (or other) construction to improve stability of the fill slope would be required. We can provide additional information once planned location of the residence is finalized and can assess fill slope conditions relative to planned final site improvements.

All existing fill, topsoil (and other organic materials), as well as loose or disturbed native soils should be removed from planned building and pavement areas. Following stripping of these unsuitable soils, exposed subgrades should consist of native medium dense to very dense glacial till. Undisturbed firm native soils are considered suitable for support of improvements and structural fill.

Excavations

The stability of excavations and temporary cut slopes made during site work is a function of many factors, including, but not limited to, the following considerations: 1) the presence and

abundance of groundwater; 2) type and density of the various soil strata; 3) the depth of the cut; 4) surcharge loadings adjacent to the excavations; and 5) the length of time the excavation remains open. Consequently, it is exceedingly difficult to establish a safe and maintenance-free cut slope angle in advance of construction. Cut slope stability should, therefore, be the responsibility of the contractor, since he is continuously at the job site, able to observe the nature and condition of the subsurface materials encountered, monitor the cut performance, and control the scheduling of site activities.

We recommend that excavations greater than 4 feet in vertical height be adequately sloped or braced to prevent injury to workers from localized sloughing and spalling. Based on observed conditions in the borings, we anticipate that temporary construction cut slopes of 1.5H:1V (horizontal:vertical) or flatter will be necessary without bracing or shoring. Under adverse weather conditions, it may be necessary to flatten cut slopes, and temporary slopes should be draped with plastic sheeting or other means to protect them from the elements and minimize sloughing and erosion. All excavations should be accomplished in accordance with applicable local, State or Federal safety provisions.

Structural Fill

All fill within building and pavement areas should be placed as structural fill. The structural fill should be placed after removal of any loose, soft or deleterious materials and after the site has been prepared in accordance with the "Site Preparation" section of this report.

We recommend that new structural fill placed on the existing native slope consist of a fill embankment that include a basal keyway. This keyway should extend at least 3 feet down into the native medium dense to very dense glacial till as observed in the borings and be at least 5 feet wide. The uphill side of the embankment fill should be "benched" into existing site soils. Benches should be graded level or with a slight (1 to 2 percent) grade into the hillside. We recommend that benches be at least 6 feet wide and no higher than 3 feet. Permanent outside embankment fill slopes should be constructed no steeper than 2H:1V and should be compacted to the degree recommended below.

Structural fill should be placed in lifts not exceeding 10 inches in thickness and thoroughly compacted to at least 95 percent of the maximum dry density (MDD) as described by the ASTM D-1557 test procedure. We recommend that a representative from our firm be present during placement of the structural fill to monitor fill operations and perform field density tests. In pavement areas where new fill thickness is greater than two feet, the structural fill below two feet can be placed at a compaction level of at least 92 percent of the MDD. This applies to utility trench backfill as well.

The suitability of excavated site soils and import soils for compacted structural fill use will depend on the gradation and moisture content of the soil when it is placed. As the amount

of fines (that portion passing the U.S. No. 200 sieve) increases, soil becomes increasingly sensitive to small changes in moisture content and adequate compaction becomes more difficult or impossible to achieve. Soils containing more than about 5 percent fines (based on the soil fraction finer than a U.S. No. 4 sieve) cannot be consistently compacted to a dense, non-yielding condition when the moisture content is more than 2 percent above or below optimum. Optimum moisture content is that moisture which results in the greatest compacted dry density with a specified compactive effort.

Non-organic site soils are considered suitable for structural fill provided that their moisture content is within roughly 2 percent of the optimum moisture level as determined by the ASTM D-1557 test. With these soils, moisture conditioning (in this case drying) is generally only considered feasible or cost-effective during extended periods of dry weather. Even during the summer, delays in grading can occur due to excessively high moisture conditions of the soils or due to precipitation. If wet weather occurs, the upper wetted portion of the site soils may need to be scarified and allowed to dry prior to further earthwork.

Drying of the site soils may only be accomplished during favorable dry weather. We therefore recommend that grading on this site be scheduled for the driest time of year, if possible. We also recommend that the contractor anticipate significant, but unavoidable commitment of effort to adjust the moisture content of site soils for reuse in compacted fills. If it is not possible to complete the earthwork during dry weather, the owner and general contractor should anticipate that a significant portion of the site soils will not be available for reuse as fill for utility backfill or grading. When moisture conditioning of the soils is required, we recommend that the soils be blended to provide uniform moisture contents throughout the affected soils.

Placement and compaction of structural fill should be observed by a representative from our firm. A representative number of in-place density tests should be performed as the fill is being placed to determine if the recommended level of compaction is being achieved.

Foundations

Conventional spread footing foundations for the residence should extend into the native medium dense to dense soils observed in the borings. Under limited circumstances, footings can be founded on a zone of structural fill (embankment fill) that extends to competent native soils. Differential settlement of the house foundations may occur to a greater extent if some of the footings are supported on compacted fill and others are supported on native soils. If support of footings on fill is planned, special measures may be appropriate to limit differential settlements. These can be determined following development of a grading plan and/or foundation plan for the house.

We recommend that subgrade soils in footing areas be prepared as described in the Site Preparation and Structural Fill sections in this report and proofrolled or probed to verify that they are firm and unyielding. A geotechnical engineer should monitor or perform the proofrolling or probing efforts. Loose or otherwise unsuitable bearing soils should be removed to firm, undisturbed native soils and replaced with structural fill.

The depth of embedment for all exterior footings should be at least 18 inches below lowest adjacent surface grade. Interior footings should be at least 12 inches below finish floor grade. We recommend a minimum footing width of 18 inches for continuous wall footings and 24 inches for isolated column footings. For footings supported on native, firm, undisturbed soils, or on a zone of structural fill placed on these soils, we recommend an allowable bearing pressure of 2,000 pounds per square foot (psf). This value applies to the total of all dead plus long-term live loads, exclusive of the weight of the footing and any overlying backfill. This value may be increased by one-third when considering wind or seismic loads. For those portions of foundations embedded more than 18 inches below finish surrounding grade, we recommend using an allowable passive earth pressure of 300 pounds per cubic foot (pcf). We recommend using an allowable base friction coefficient of 0.35.

Assuming that footings are founded on the medium dense to dense, native, undisturbed glacial soils, or on a zone of structural fill that extends to competent native soils, we estimate that total settlements should be less than 1-inch with differential settlements on the order of 1/2-inch or less over a distance of 30 feet. The majority of the settlement should occur elastically during construction. However, if any disturbed or loose soils are left within the footing areas prior to concrete placement, settlement may be increased. Loose or disturbed soils in footing areas should be removed and replaced with compacted structural fill that has been compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 test method.

Alternative foundation support of the residence, via piers or piles, could be used at this site. We are available to provide additional information relative to alternative foundation support options, if requested.

Slab-on-Grade and Pavement Subgrades

Subgrades to support on-grade floors and pavements should be prepared as described in the Site Preparation and Structural Fill sections of this report. As stated in the Site Preparation section, existing topsoil and loose fill should be removed below floor slabs and pavements. Estimated settlements for on-grade floor slabs will be similar to the foundation settlement estimates presented above.

In living areas of the building, we recommend that the floor slabs be underlain by at least 6 inches of clean, well-graded sand and gravel to function as a capillary break and working surface. The fines content of the capillary break material should be limited to 3 percent or less, when based on that soil fraction passing the U.S. No. 4 sieve.

We recommend that the use of a vapor retarder (barrier) beneath interior slabs. If a vapor retarder is used, we recommend using a puncture-resistant proprietary product such as RUFCO 3000B, Vapor Block VB 10, Stego Wrap, or an approved equivalent that is classified as a Class A vapor retarder in accordance with ASTM E 1745. To avoid puncturing of the vapor barrier, construction equipment should not be allowed to drive over any vapor retarder material. The slab designer and slab contractor should refer to ACI 302 for procedures and cautions regarding the use and placement of a vapor retarder. The moisture protection details should be reviewed by the architect and owner. If required, more stringent moisture protection details should be specified for protection of floor finishes

Seismic Design Considerations

Based on subsurface conditions encountered in the explorations and our familiarity with area soils, the subsurface site conditions are interpreted to correspond to Site Class C per the 2003 *International Building Code* (IBC). Site Class C applies to an average soil profile within the top 100 feet consisting predominantly of stiff soil characterized by Standard Penetration Test blow counts greater than 50, a shear wave velocity of 1,200 to 2,500 feet per second, and undrained shear strength greater than 2,000 psf.

We recommend that spectral response accelerations per Figures 1615(1) and 1615(2) as presented in the 2003 IBC be used in design. We are available to provide site-specific spectral response accelerations, if required.

Soil liquefaction is a condition wherein loose sand soils located below the groundwater surface lose strength during ground shaking associated with an earthquake. Due to the overall dense condition of native site soils, the risk of liquefaction is considered negligible at this site.

Lateral Earth Pressures

The following recommended earth pressures, presented as equivalent fluid densities, are based on the assumption of a uniform level backfill with no buildup of hydrostatic pressure behind subgrade walls. If backfilled walls are structurally restrained from lateral movement at the top, we recommend that they be designed for an "at-rest" equivalent fluid density of 55 pounds per cubic foot (pcf). If the top of the wall is free to move laterally in an amount equal to at least 0.1 percent of the wall height, they may be designed for an "active" equivalent fluid density of 35 pcf.

Surcharges due to hydrostatic pressures, sloping ground, adjacent footings, vehicle loads, etc., must be added to the above values. The above equivalent fluid pressures assume that the backfill behind the walls is level and compacted to approximately 90 to 92 percent of the modified Proctor (ASTM D-1557) maximum dry density. Additional compaction adjacent to the wall will increase the earth pressure, while a lesser degree of compaction could result in post construction settlements.

Passive resistance for retaining structures and foundation elements embedded at least 18 inches below finish grades may be computed using an allowable equivalent fluid density of 275 pcf. An allowable frictional resistance may be computed using a coefficient of friction of 0.35 applied to the dead load forces. Prior to final design of any wall structures, we recommend that ZZA be given the opportunity to review the design and verify, or modify as necessary, the above recommended earth pressures.

To minimize lateral earth pressures and prevent the buildup of hydrostatic pressures, we recommend that drainage be provided behind below grade walls. Drainage provisions should be provided as described in the Drainage Considerations section of this report.

Drainage Considerations

We recommend that footing drains be installed around the perimeter of the residence, particularly behind below grade walls. The drains should consist of a minimum 4-inch diameter perforated pipe embedded in at least an 18-inch wide envelope of clean, free-draining granular material containing less than 5 percent fines (material passing the U.S. No. 200 sieve). For below grade walls, the zone of free-draining material should extend up the wall to within 1-foot of the surface. The upper 1-foot of backfill behind below grade walls should consist of low permeability silty soil. Footing drains should be directed toward appropriate storm water drainage facilities and not onto adjacent slopes. Roof drains should not be connected to the footing drains. Soils backfilled against foundations should be sloped to provide positive drainage away from building.

Erosion

Based on soils observed in the borings and the National Resources Conservation Service (NRCS) maps of Kitsap County, this area is mapped as Poulsbo gravelly sandy loam, and is reported as having moderate erosion potential. Although construction may occur during wetter months, we recommend that earthwork activities be completed during the drier seasons of the year, if possible to mitigate erosion issues.

Erosion and sedimentation Best Management Practices (BMPs) are recommended during construction to reduce the potential impacts to sloped areas and adjacent properties.

Erosion control measures should be designed to prevent sediment generation and transport. This may be accomplished by establishing highly visible clearing limits, constructing water bars, sediment traps, or utilizing other methods to control surface water runoff, and constructing silt fences to control sedimentation. If construction is accomplished during the winter months, we further recommend that temporary erosion protection be provided consisting of covering exposed soil areas with plastic sheeting, jute mating, straw, or other approved protective covering. We recommend that the amount of soil-exposed areas be limited during grading activities, particularly during the wetter seasons, to reduce the potential for off-site transport of sediment-laden runoff. All grading limitations and erosion control measures should conform to current City of Poulsbo and/or Kitsap County requirements.

USE OF THIS REPORT

This report has been prepared for the exclusive use of Greg Smith for the planned residence on 11th Avenue NE in Poulsbo, Washington. The data and report should be provided to prospective contractors for bidding or estimating purposes, but our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions. No warranties, express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others.

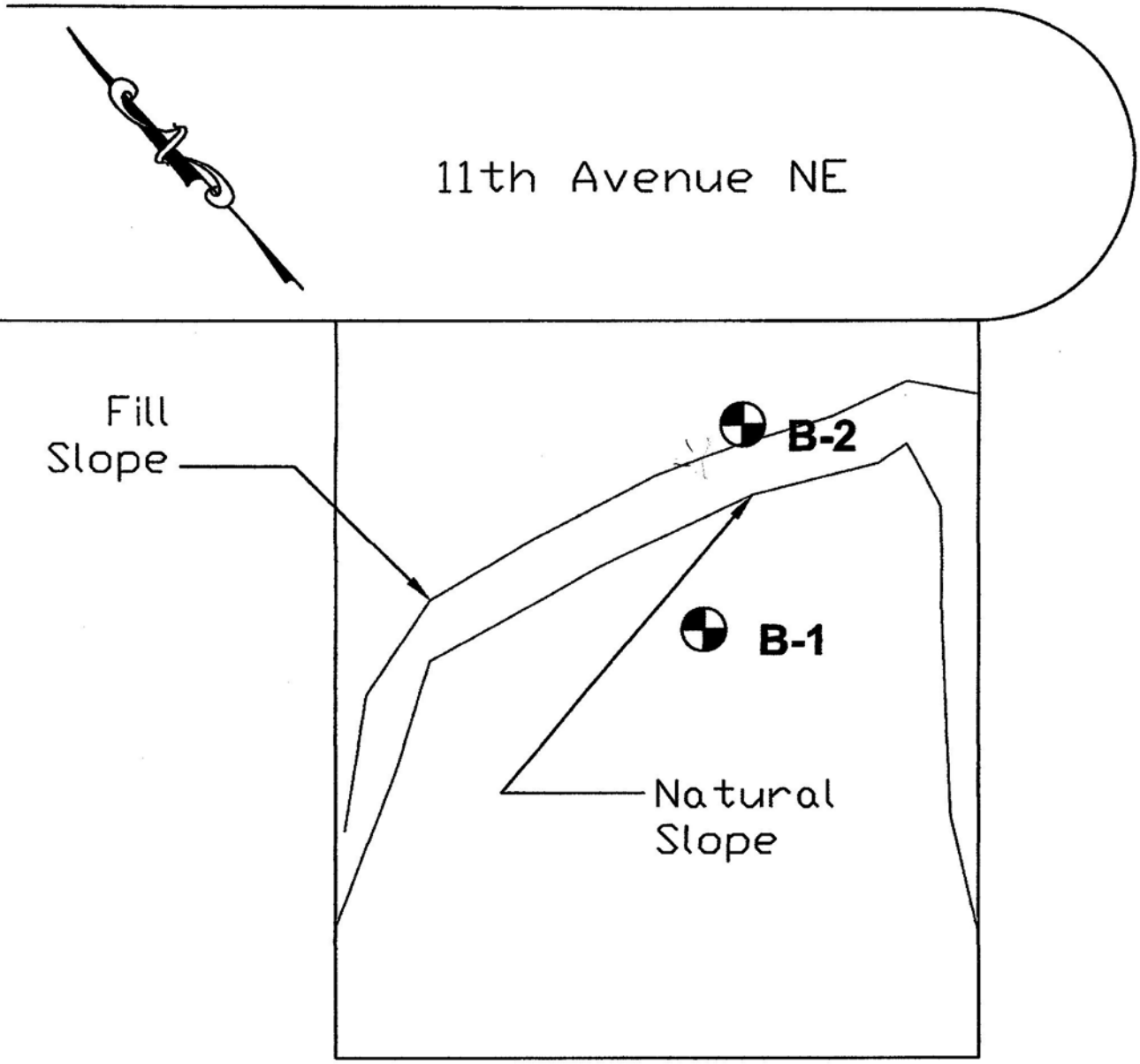
In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless ZZA reviews the changes and either verifies or modifies the conclusions of this report in writing. When the design has been finalized, we recommend that the final design drawings and specifications be reviewed by our firm to see that our recommendations have been interpreted and implemented as intended.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty or other conditions, express or implied, should be understood.

ZZA should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. ZZA also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project. Sufficient monitoring, testing and consultation should be provided by our firm during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork and foundation installation activities comply with the contract plans and specifications.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. A contingency for unexpected conditions should be included in the project budget and schedule. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, and bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.



08/02/04

0 25 50

APPROXIMATE SCALE IN FEET

LEGEND:

B-1 BORING NUMBER AND APPROXIMATE LOCATION

Figure drawn from ZZA field measurements and does not reflect actual survey.

Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting

2115 South 56th Street, Suite 405
Tacoma, Washington 98409
Tele: (253) 573-9939 Fax: (206) 573-9959

Project No. 81075833
Date: June 22, 2007
Drawn by: J.Eastman
Scale: As Noted

Proposed Smith Residence
11th Avenue NE
Poulsbo, Washington

FIGURE 1: SITE AND EXPLORATION PLAN

LOG OF BORING NO. B-1

OWNER: Mr. Greg Smith

SITE: 11th Avenue NE, Poulsbo, WA

PROJECT: Proposed Smith Residence

Boring Location: Down slope

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	Topsoil 0.5				HS					
	SILTY GRAVELLY SAND, Brown, Loose to Medium Dense, Damp (Fill slough) 2.5									
	SILTY GRAVELLY SAND, Grey-Brown, Loose, Wet (Glacial Till)			1	SS	8	4			
					HS					
	Grades Very Dense	5		2	SS	12	78			
					HS					
				3	SS	12	70			
	9 ▽ SILTY SAND, Brown, Medium Dense, Saturated 10				HS					
	SILTY GRAVELLY SAND, Grey-Brown, Very Dense, Wet (Glacial Till) 10.5	10		4	SS	6	50/6"			
	BOTTOM OF BORING									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 9	WD	▽
WL	▽		▽
WL			

Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting
A Terracon Company

BORING STARTED	6-19-07		
BORING COMPLETED			
RIG	Acker	CO.	GDI
LOGGED	JGE	JOB #	81075833

BOREHOLE ZZA 81075833.GPJ TERRACON.GDT 8/23/07

LOG OF BORING NO. B-2

OWNER: *Mr. Greg Smith*

SITE: 11th Avenue NE, Poulsbo, WA

PROJECT: Proposed Smith Residence

Boring Location: Top of slope

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.5 Topsoil				HS					
	SILTY SAND, TRACE GRAVEL, Brown, Loose, Damp (Fill)			1	SS	2	4			
	Cobbles				HS					
		5		2	SS	8	4			
					HS					
				3	SS	8	6			
	10				HS					
	SILTY GRAVELLY SAND, Brown, Loose, Moist (Fill)	10		4	SS	8	4			
	12.5				HS					
	SILTY GRAVELLY SAND, Dark Brown, Loose, Moist (Wood Bits) (Probable Native)			5	SS	2	6			
					HS					
	Grades Medium Dense,	15		6	SS	0	15			
					HS					
	Grades Wet			7	SS	12	11			
	20				HS					
	SILTY SAND, Brown, Medium Dense, Wet	20		8	SS	14	25			
	22.5				HS					
	SILTY GRAVELLY SAND, Grey-Brown, Very Dense, Moist (Glacial Till)			9	SS	16	80			
		25			HS					
				10	SS	14	87			
					HS					
		30								
	33.75			11	SS	16	95			
	BOTTOM OF BORING									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▽	▼
WL		

ZZA Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting
A Terracon Company

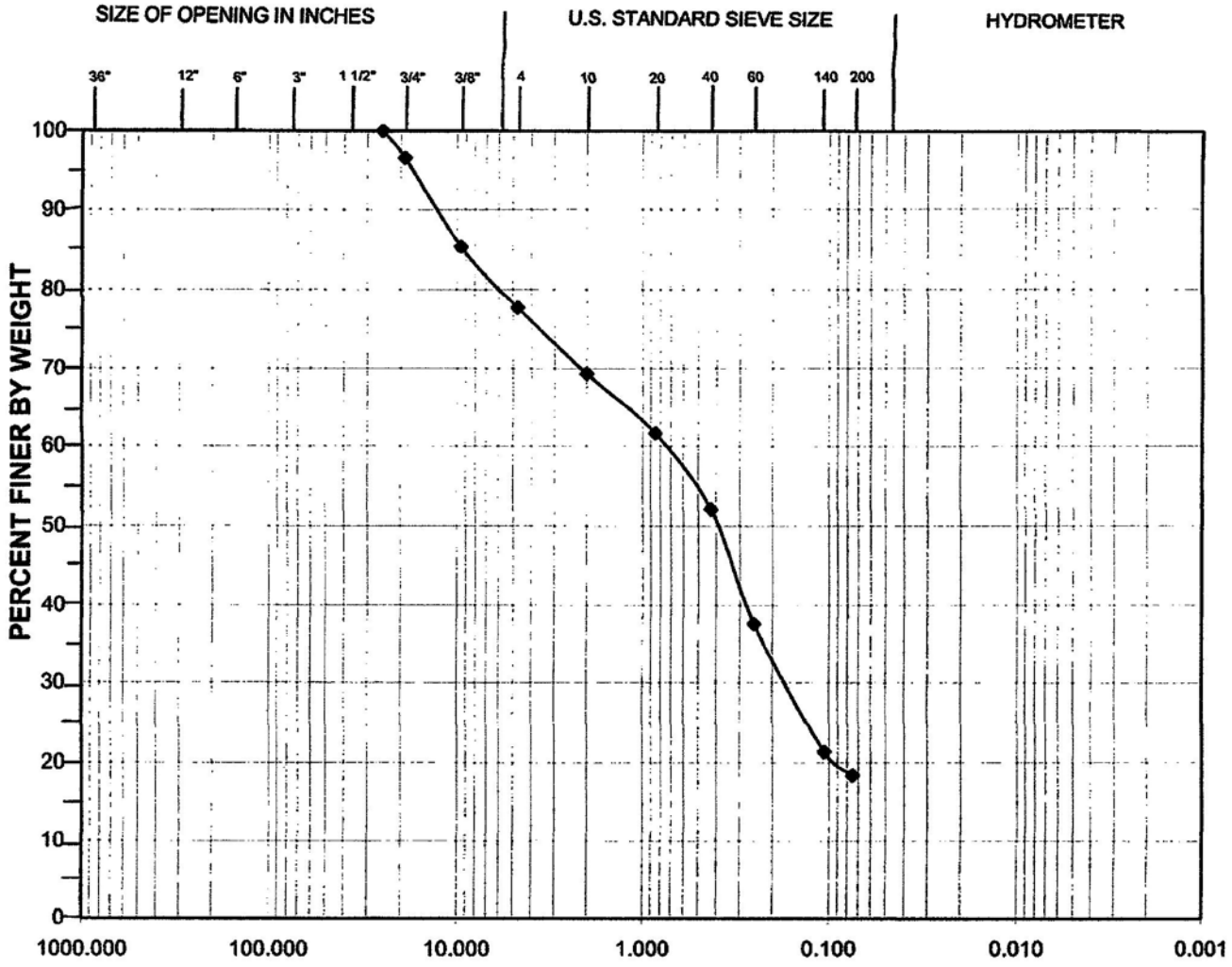
BORING STARTED	6-20-07		
BORING COMPLETED			
RIG	B-59	CO.	Holt
LOGGED	JGE	JOB #	81075833

BOREHOLE ZZA 81075833.GPJ TERRACON.GDT 8/23/07

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments: Sieves 3/8, #4, #10 and #20 also retained some wood pieces

Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-2	S-5 and S-7 Combined	12.5 and 17.5	15	18.4	silty SAND with gravel

ZZA Zipper Zeman Associates, Inc.
Geotechnical and Environmental Consulting
2115 S.56th Ave, #405 Tacoma, WA 98409
Phone: (253) 573-9939 Fax: (253) 573-9959

JOB NO: 81075833

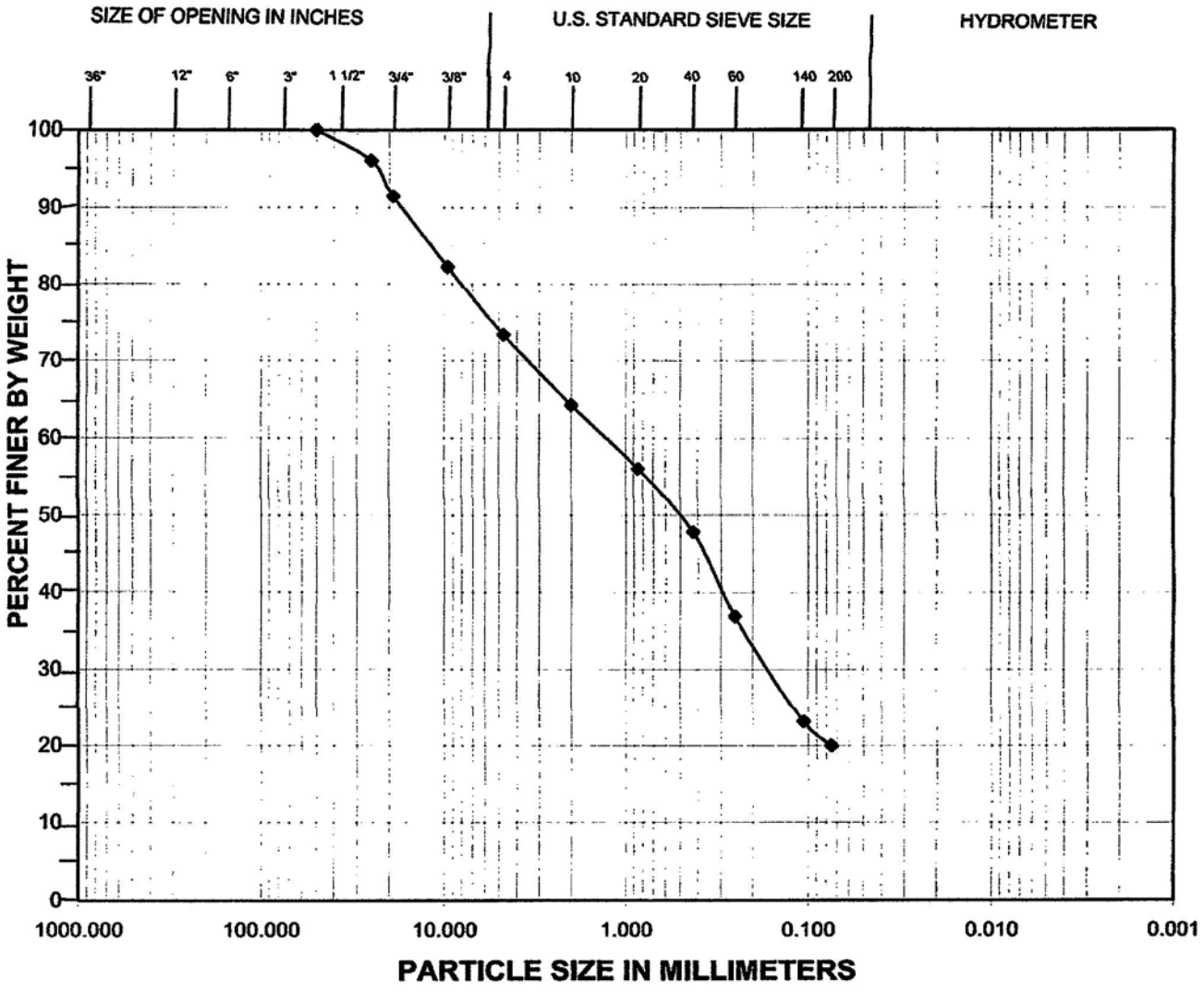
DATE OF TESTING: 6/22/2007

PROJECT NAME: Smith Residence

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-2	S-1, S-2 and S-3 Combined	5 - 7.5	10	20.0	silty SAND with gravel

ZZA Zipper Zeman Associates, Inc.
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2115 S.56th Ave, #405 Tacoma, WA 98409
Phone: (253) 573-9939 Fax: (253) 573-9959

JOB NO: 81075833

DATE OF TESTING: 6/22/2007

PROJECT NAME: Smith Residence

RECEIVED
JUL 25 2017
PLANNING

Arborist Report
Dan Field
Field's Tree Care LLC
ISA Certified Arborist PN-6880A
360.994.0166
fieldstreecare@gmail.com

Report for Larry Smith
15930 Lindsey Ln
Poulsbo, Wa 98370

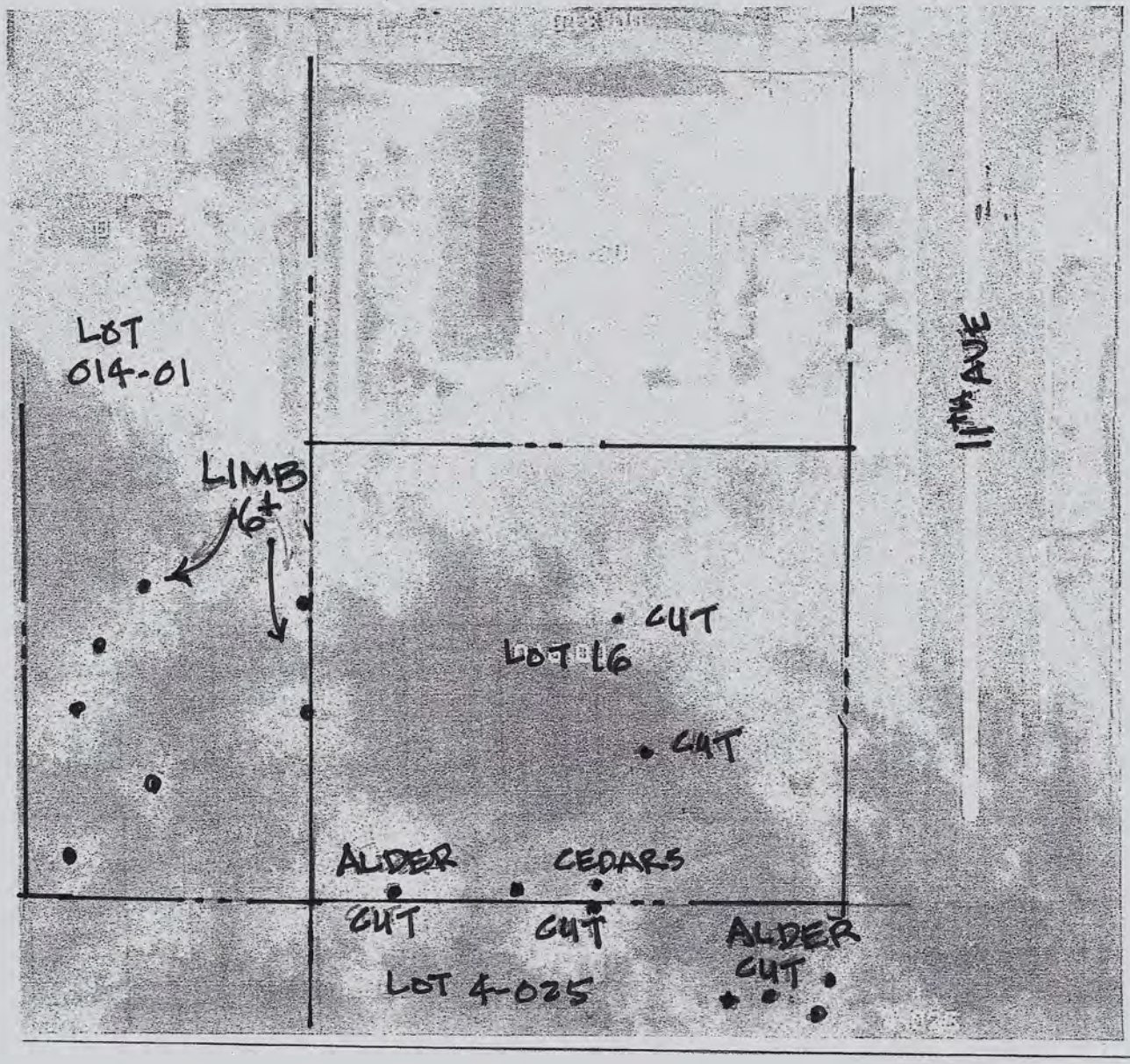
To whom it may concern,

I was contacted by Larry Smith to evaluate some trees on and adjacent to his vacant lot at the end of 11th Ave in Poulsbo WA. I met him onsite on July 18th 2017. He is requesting to remove a small grove of Red Alder at the top of the lot, a few Western Red Cedar along the side of the property, and a mature Red Alder near the corner of his property line. He has attached a map labeling the marked trees. Some are on his property and some on his neighbors. He has signed approval from his neighbor regarding removal of these trees. In my professional opinion the removal of said trees will not impact the slope nor the forest surrounding the trees in question.
Larry is also requesting to lightly thin 6 Western Red Cedars at the bottom of his property. Some of these are again on a different neighbors property, that he has gotten signed approval from. These are dense Cedars that would benefit from minor thinning to promote better air flow and end weight reduction on the longest limbs to reduce wind sail.

Dan Field
PN-6880A

LEROY KUEHNE. LOT 014-01
DAVID SORENSON - LOT 4-025

7/12/17



SMITH TREE SITE PLAN