DEVELOPMENT SERVICES
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

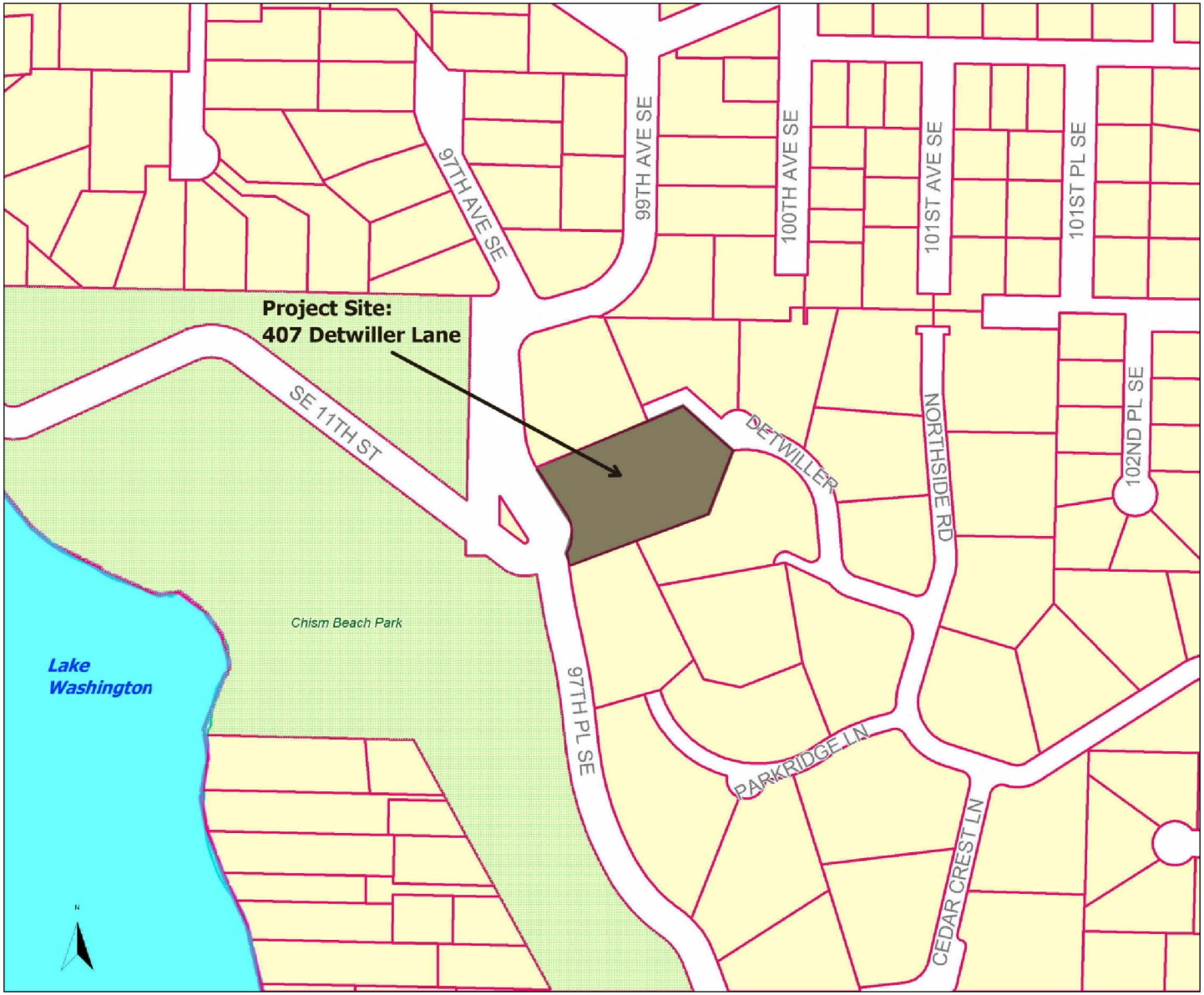
The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No.	11-119016-LO
Project Name/Address:	Scott Slide Repair 407 Detwiller Lane
Planner:	Reilly Pittman
Phone Number:	425-452-4350
Minimum Comment Period:	**August 11, 2011**

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☒ Vicinity Map
- ☒ Plans
- ☒ Other: Narrative Description
  Geotech Report

Scott Slide Repair
File Number: 11-119016-LO



SEPA Checklist Annotated by Reilly Pittman on 7/25/2011

City of Bellevue Submittal Requirements | 27

ENVIRONMENTAL CHECKLIST

4/18/02

Thank you in advance for your cooperation and adherence to these procedures. If you need assistance in completing the checklist or have any questions regarding the environmental review process, please visit or call the Permit Center (425-452-6864) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Our TTY number is 425-452-4636.

INTRODUCTION

Purpose of the 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 City of Bellevue identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the City decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. 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." Giving 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 Planner in the Permit Center 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. Include reference to any reports on studies that you are aware of which are relevant to the answers you provide. The City may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impacts.

Use of a Checklist for Nonproject Proposals: *A nonproject proposal includes plans, policies, and programs where actions are different or broader than a single site-specific proposal.*

For nonproject proposals, complete the Environmental Checklist even though you may answer "does not apply" to most questions. In addition, complete the Supplemental Sheet for Nonproject Actions available from Permit Processing.

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.

Attach an 8 ½" x 11 vicinity map which accurately locates the proposed site.

Received
JUL 14 2011
Permit Processing

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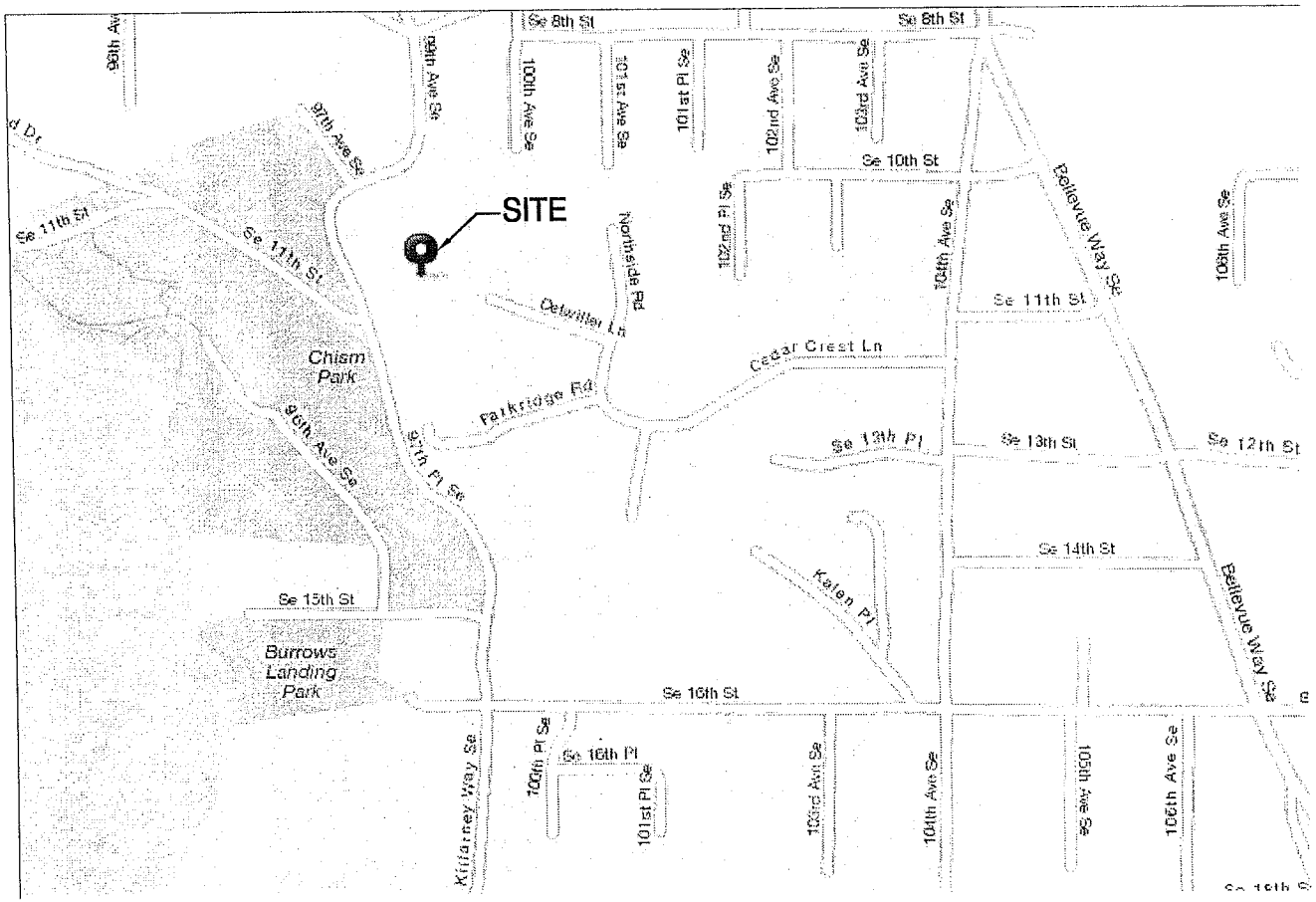

VICINITY MAP

SCALE: N.T.S.

N

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City of Bellevue Submittal Requirements | **27a**

ENVIRONMENTAL CHECKLIST

4/18/02

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BACKGROUND INFORMATION

Property Owner: PHIL SCOTT

Proponent:

Contact Person: ETHAN RAMBERG
(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: 1029 MARKET ST. KIRKLAND WA, 98033

Phone: 425-828-4200 ex. 236

Proposal Title: SCOTT RESIDENCE SHORING WALL

Proposal Location: 407 DETWILLER LANE
(Street address and nearest cross street or intersection) Provide a legal description if available.

Please attach an 8 ½" x 11" vicinity map that accurately locates the proposal site.

Give an accurate, brief description of the proposal's scope and nature:

1. General description: SLIDE REPAIR
2. Acreage of site: 1.367
3. Number of dwelling units/buildings to be demolished: ∅
4. Number of dwelling units/buildings to be constructed: ∅
5. Square footage of buildings to be demolished: ∅
6. Square footage of buildings to be constructed: ∅
7. Quantity of earth movement (in cubic yards): 40 cy Cut / 40 cy Fill
8. Proposed land use: SINGLE FAMILY RESIDENCE
9. Design features, including building height, number of stories and proposed exterior materials:
   SOLDIER PILE & TREATED LAGGING SYSTEM
10. Other

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Estimated date of completion of the proposal or timing of phasing:

9-19-11

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

NO.

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

GEOTECHNICAL REPORT BY: AESI DATED: 02-9-11
BOUNDRY & TOPO PER PLAN (S-2)
VEGITATION & HABITAT BY SANDER GROVES DATED 7-11-11

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known.

NO.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known.

1 — COB CRITICAL AREAS LAND USE PERMIT
2 — BUILDING PERMIT (W/ CLEAR & GRADE

Please provide one or more of the following exhibits, if applicable to your proposal.
(Please check appropriate box(es) for exhibits submitted with your proposal):

☐ Land Use Reclassification (rezone) Map of existing and proposed zoning

☐ Preliminary Plat or Planned Unit Development
Preliminary plat map

☐ Clearing & Grading Permit TO BE SUBMITTED @ A LATER DATE
Plan of existing and proposed grading
Development plans

☐ Building Permit (or Design Review) TO BE SUBMITTED @ A LATER DATE.
Site plan
Clearing & grading plan

☐ Shoreline Management Permit
Site plan

A. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: ☐ Flat ☐ Rolling ☐ Hilly ☒ Steep slopes ☐ Mountains ☐ Other

b. What is the steepest slope on the site (approximate percent slope)?

65%.

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

FINE SANDY SILT
FINE SAND

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

THE SLOPE AREA IS A STEEP SLOPE AND A LANDSLIDE CRITICAL AREA AS DEFINED BY THE CITY OF BELLEVUE

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

CUT: 40 CY

FILL: 40 CY of PEA GRAVEL BACKFILL FOR RETAINING WALL BACKFILL

Erosion control required per BCC 23.76

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

YES. SITE WILL BE UNCOVERED DURING CONSTRUCTION BUT ALL PRECAUTIONARY MEASURES WILL BE TAKEN SITE IS IDLE.

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

14%.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

SOFT STABILIZATION: DRAINAGE & VEGITATION MEASURES

HARD STABILIZATION: SOLDIER PILE & TREATED WOOD RETAINING WALL

2. AIR

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

- AUTOMOBILE ODORS DURING CONSTRUCTION
- NO KNOWN EMISSIONS AFTER CONSTRUCTION

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

NONE KNOWN

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

NONE KNOWN

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

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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.

NO

(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.

NONE

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

NO

(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.

NONE KNOWN

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description.

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 storm water)

(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 RUNOFF FLOWS FROM EXISTING IMPERVIOUS SURFACES AND SEEPS THROUGH BACKYARD TO THE TOE OF SLOPE. FROM THERE IT FLOWS SOUTHWEST THROUGH OTHER VEGITATION.

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

POSSIBLY, CONSTRUCTION MATERIALS

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

RE-VEGITATION

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, bulrush, 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?

BLACKBERRY BUSHES & MISCILLANEOUS SHRUBS

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

NONE KNOWN

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

LANDSCAPING WILL INCLUDE APPLICABLE MEASURES FROM C.O.B. CRIT. AREAS HAND BOOK.
SEE VEGITATION & HABITAT REPORT BY SANDER GROVES

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5. ANIMALS

a. Check or 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: NONE
- ☐ Fish: bass, salmon, trout, herring, shellfish, other:

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

NONE KNOWN

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

NONE KNOWN

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

NONE

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 need? Describe whether it will be used for heating, manufacturing, etc.

GASOLINE - CONSTRUCTION EQUIPMENT

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

NONE

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.

EXPOSURE TO AUTOMOBILE FUMES

POTENTIAL RISK OF FIRE

(1) Describe special emergency services that might be required.

POLICE, FIRE, MEDICAL

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

FOLLOW APPLICABLE SAFTEY PLANS & PROCEDURES

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b. Noise

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

NONE

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

ONLY SHORT TERM - MONDAY to FRIDAY 8AM - 5PM
DUE TO CONSTRUCTION

Noise regulated by BCC 9.18

(3) Proposed measures to reduce or control noise impacts, if any:

NONE

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.

1 - SINGLE FAMILY RESIDENCE

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

NO

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

R-1.8

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

SF-L

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

N/A

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

YES, STEEP SLOPE & LANDSLIDE CRITICAL AREA

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

2

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

0

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

NONE

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

CITY OF BELLVUE
PERMIT APPROVAL PROCESS

9. Housing

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

NONE

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

NONE

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? PROPOSED SOLDIER PILE W/ RETAINING WALL @ +10' ABOVE GRADE or ELEV. 267'

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

NONE

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

NONE

11. Light and Glare

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

NONE

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

NO

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

NONE

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

NONE

12. Recreation

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

LAKE WASHINGTON, BOATING, SWIMMING, FISHING ETC.
CHISM PARK

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:

NONE

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.

NONE KNOWN

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

NONE KNOWN

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. 104TH AVE SE, CEDAR CREST LANE
NORTHSIDE ROAD, DETWILLER LANE

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

NO. 1/2 MILE

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

2 / 0

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

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

NO

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

NONE

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 the public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

NO

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.

NONE

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.....7-14-11

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STRUCTURAL NOTES

GENERAL REQUIREMENTS & DESIGN CRITERIA

BUILDING CODE & REFERENCE STANDARDS: THE "INTERNATIONAL BUILDING CODE" (IBC), 2009 EDITION, AS ADOPTED AND MODIFIED BY THE CITY OF BELLEVUE, GOVERNS THE DESIGN AND CONSTRUCTION OF THIS PROJECT. REFERENCE TO A SPECIFIC SECTION IN THE CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE MATERIALS REFERENCE STANDARDS NOTED BELOW. THE LATEST EDITION OF THE MATERIALS REFERENCE STANDARDS SHALL BE USED.

STRUCTURAL RESPONSIBILITIES: THE STRUCTURAL ENGINEER OF RECORD (SER) IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE PRIMARY STRUCTURE IN ITS COMPLETED STATE.

CONTRACTOR RESPONSIBILITIES: THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND ALL JOB RELATED SAFETY STANDARDS SUCH AS OSHA AND WSHA. THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY.

SITE VERIFICATION: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR CONSTRUCTION. CONFLICTS BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ALL UNDERGROUND UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO EXCAVATION OR DRILLING.

SUBMITTALS & INSPECTIONS

INSPECTIONS: ALL CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL IN ACCORDANCE WITH IBC SEC 109. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS WITH THE BUILDING OFFICIAL. SUBMIT COPIES OF ALL INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

STATEMENT OF SPECIAL INSPECTIONS: REFERENCE PLANS FOR THE STATEMENT OF SPECIAL INSPECTIONS FOR THIS PROJECT CONTAINING ALL INSPECTION, SPECIAL INSPECTION, AND STRUCTURAL OBSERVATION REQUIREMENTS PER IBC CHAPTER 17.

SOILS & FOUNDATIONS
- DURING CONSTRUCTION OF CAST-IN-PLACE DRILLED PILES OR CAISSONS.
- DURING EARTHWORK EXCAVATION, GRADING, PRE-LOADING AND FILLING OPERATIONS TO SATISFY REQUIREMENTS OF IBC 1704.7
- GEOTECHNICAL ENGINEER TO MONITOR EXCAVATION AND PILE INSTALLATION.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: CONFORM TO IBC CHAPTER 18 "SOILS AND FOUNDATIONS."

GEOTECHNICAL REPORT: RECOMMENDATIONS CONTAINED IN "PHIL AND LESLIE SCOTT PROJECT NO. KE100403A" BY ASSOCIATED EARTH SCIENCES, INC, DATED FEBRUARY 9, 2011, WERE USED FOR DESIGN

DESIGN SOIL VALUES:

PASSIVE LATERAL PRESSURE	250 PSF/FT
ACTIVE LATERAL PRESSURE (UNRESTRAINED)	35 PSF/FT

SITE SHORING

SUBMITTALS: SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO ANY FABRICATION OR CONSTRUCTION FOR ALL STRUCTURAL ITEMS INCLUDING THE FOLLOWING: STRUCTURAL STEEL, MISC METALS, GROUT AND SHORING SEQUENCE SHALL ALSO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

SOILS INSPECTION: INSPECTION BY THE GEOTECHNICAL ENGINEER SHALL BE PERFORMED FOR PILE PLACEMENT. ALL PREPARED SOIL BEARING SURFACES SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF PILES. SOILS COMPACTION SHALL BE SUPERVISED BY A GEOTECHNICAL SPECIAL INSPECTOR.

UTILITY LOCATIONS: THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO DRILLING PILE HOLES, TIEBACK ANCHORS, OR CUTTING OR DIGGING ROADWAYS OR ALLEYS. ANY UTILITY INFORMATION SHOWN ON THE PLANS MAY BE NOT COMPLETE.

SPECIAL CONDITIONS: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF EXISTING STRUCTURES IN THE FIELD AND SHALL NOTIFY THE ENGINEER OF ALL FIELD CHANGES PRIOR TO FABRICATION AND INSTALLATION.

PILE PLACEMENT: ALTERNATE PILES SHALL BE PLACED AND COMPLETED SO THAT AT LEAST 24 HOURS IS ALLOWED FOR CONCRETE TO SET PRIOR TO DRILL ADJACENT PILES.

SHORING MONITORING: A SYSTEMATIC PROGRAM OF OBSERVATION SHALL BE CONDUCTED DURING THE PROJECT EXECUTION TO MONITOR FOR ANY ADVERSE EFFECTS OF CONSTRUCTION ON ADJACENT FACILITIES AND STRUCTURES. REFER TO THE GEOTECHNICAL INVESTIGATION FOR RECOMMENDATIONS. FIELD DATA AND MEASUREMENTS ARE TO BE SUBMITTED TO THE STRUCTURAL AND GEOTECHNICAL ENGINEERS FOR REVIEW.

PRODUCTION ANCHORS: REFERENCE THE GEOTECHNICAL REPORT FOR INSTALLATION AND TESTING REQUIREMENTS FOR ANCHORS.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: CONFORM TO:
(1) ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY".
(2) IBC CHAPTER 19.

FIELD REFERENCE: THE CONTRACTOR SHALL KEEP A COPY OF ACI FIELD REFERENCE MANUAL, SP-15, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) WITH SELECTED ACI AND ASTM REFERENCES."

CONCRETE MIXTURES: CONFORM TO ACI 318 CHAPTER 5 "CONCRETE QUALITY, MIXING, AND PLACING."

MATERIALS: CONFORM TO ACI 318 CHAPTER 3 "MATERIALS" FOR REQUIREMENTS FOR CEMENTITIOUS MATERIALS, AGGREGATES, MIXING WATER AND ADMIXTURES.

SUBMITTALS: PROVIDE ALL SUBMITTALS REQUIRED BY ACI 301 SEC 4.1.2. SUBMIT MIX DESIGNS FOR EACH MIX IN THE TABLE BELOW.

MEMBER TYPE/LOCATION	TABLE OF MIX DESIGN REQUIREMENTS STRENGTH (PSI)	TEST AGE (DAYS)	MAXIMUM AGGREGATE	MAXIMUM W/C RATIO	AIR CONTENT
PILE CASEMENT	4000	28	1"	0.48	5%
LEAN MIX	250	56	3/4"	–	–

MIX DESIGN NOTES:
(1) W/C RATIO: WATER-CEMENTITIOUS MATERIAL RATIOS SHALL BE BASED ON THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS. RATIOS NOT SHOWN IN THE TABLE ABOVE ARE CONTROLLED BY STRENGTH REQUIREMENTS.
(2) CEMENTITIOUS CONTENT: THE USE OF FLY ASH, OTHER POZZOLANS, SILICA FUME, OR SLAG SHALL CONFORM TO ACI 301 SEC 4.2.2.8.B. MAXIMUM AMOUNT OF FLY ASH SHALL BE 20% OF TOTAL CEMENTITIOUS CONTENT UNLESS REVIEWED AND APPROVED OTHERWISE BY SER.
(3) AIR CONTENT: CONFORM TO ACI 301 SEC 4.2.2.4. VERTICAL EXTERIOR SURFACES REQUIRE "MODERATE EXPOSURE". TOLERANCE IS +/- 1-1/2%. AIR CONTENT SHALL BE MEASURED AT POINT OF PLACEMENT.
(4) SLUMP: CONFORM TO ACI 301 SEC 4.2.2.2. SLUMP SHALL BE DETERMINED AT POINT OF PLACEMENT.
(5) CLORIDE CONTENT: CONFORM TO ACI 301 SECT. 4.4.1 AND TABLE 4.1.1. FOR "OTHER REINFORCED CONCRETE CONSTRUCTION".

MEASURING, MIXING, AND DELIVERY: CONFORM TO ACI 301 SEC 4.3.

HANDLING, PLACING, CONSTRUCTING AND CURING: CONFORM TO ACI 301 SEC 5.

TESTING AND ACCEPTANCE:
TESTING: OBTAIN SAMPLES AND CONDUCT TESTS IN ACCORDANCE WITH ACI 301 SEC 1.6.4.2. ADDITIONAL SAMPLES MAY BE REQUIRED TO OBTAIN CONCRETE STRENGTHS AT ALTERNATE INTERVALS THAN SHOWN BELOW.

CURE 4 CYLINDERS FOR 28-DAY TEST AGE TEST 1 CYLINDER AT 7 DAYS, TEST 2 CYLINDERS AT 28 DAYS, AND HOLD 1 CYLINDER IN RESERVE FOR USE AS THE ENGINEER DIRECTS. AFTER 56 DAYS, UNLESS NOTIFIED BY THE ENGINEER TO THE CONTRARY, THE RESERVE CYLINDER MAY BE DISCARDED WITHOUT BEING TESTED FOR SPECIMENS MEETING 28-DAY STRENGTH REQUIREMENTS.

ACCEPTANCE – STRENGTH IS SATISFACTORY WHEN:
THE AVERAGES OF ALL SETS OF 3 CONSECUTIVE TESTS EQUAL OR EXCEED THE SPECIFIED STRENGTH. NO INDIVIDUAL TEST FALLS BELOW THE SPECIFIED STRENGTH BY MORE THAN 500 PSI. A "TEST" FOR ACCEPTANCE IS THE AVERAGE STRENGTH OF THE TWO CYLINDERS TESTED AT THE SPECIFIED TEST AGE.

STRUCTURAL STEEL

DESIGN STANDARDS: STRUCTURAL STEEL FOR THIS PROJECT IS DESIGNED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, THIRTEENTH EDITION.

REFERENCE STANDARDS: CONFORM TO:
(1) AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS & BRIDGES."
(2) AWS D1.1 "STRUCTURAL WELDING CODE – STEEL."

SUBMITTALS:
(1) SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH AISC SPECIFICATION SEC M1 "SHOP DRAWINGS."
(2) SUBMIT WELDER'S CERTIFICATES VERIFYING QUALIFICATION WITHIN PAST 12 MONTHS.

MATERIALS:
STRUCTURAL WF SHAPES — ASTM A992, FY = 50 KSI

WELDING: CONFORM TO AWS D1.1. WELDERS SHALL BE CERTIFIED IN ACCORDANCE WITH AWS AND WABO REQUIREMENTS. USE E70 ELECTRODES OF TYPE REQUIRED FOR MATERIALS TO BE WELDED.

FABRICATION/ERECTION: CONFORM TO AISC SPECIFICATION SEC M2 "FABRICATION", AISC CODE SEC 6 "FABRICATION AND DELIVERY" AND AISC CODE SEC 8 "QUALITY CONTROL." THE FABRICATOR AND ERECTOR SHALL MAINTAIN A QUALITY CONTROL PROGRAM TO THE EXTENT DEEMED NECESSARY SO THAT ALL OF THE WORK IS PERFORMED IN ACCORDANCE WITH THIS CODE, THE AISC SPECIFICATION, AND THE CONTRACT DOCUMENTS.

WOOD FRAMING

REFERENCE STANDARDS: CONFORM TO:
(1) IBC CHAPTER 23 "WOOD",
(2) NDS AND NDS SUPPLEMENT – "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION",

IDENTIFICATION: ALL SAWN LUMBER SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF INSPECTION ISSUED BY THE CERTIFYING AGENCY.

MATERIALS:
- SAWN LUMBER: CONFORM TO GRADING RULES OF WWPA, WCLIB OR NLGA.

MEMBER USE	SIZE	SPECIES	GRADE
LAGGING	4x, 6x	HEM-FIR	TREATED NO. 2

PRESERVATIVE TREATMENT: WOOD MATERIALS ARE REQUIRED TO BE "TREATED WOOD" UNDER CERTAIN CONDITIONS IN ACCORDANCE WITH IBC SEC 2304.11 "PROTECTION AGAINST DECAY AND TERMITES". CONFORM TO THE APPROPRIATE STANDARDS OF THE AMERICAN WOOD-PRESERVERS ASSOCIATION (AWPA) FOR SAWN LUMBER, FOLLOW AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) QUALITY ASSURANCE PROCEDURES. PRODUCTS SHALL BEAR THE APPROPRIATE MARK.

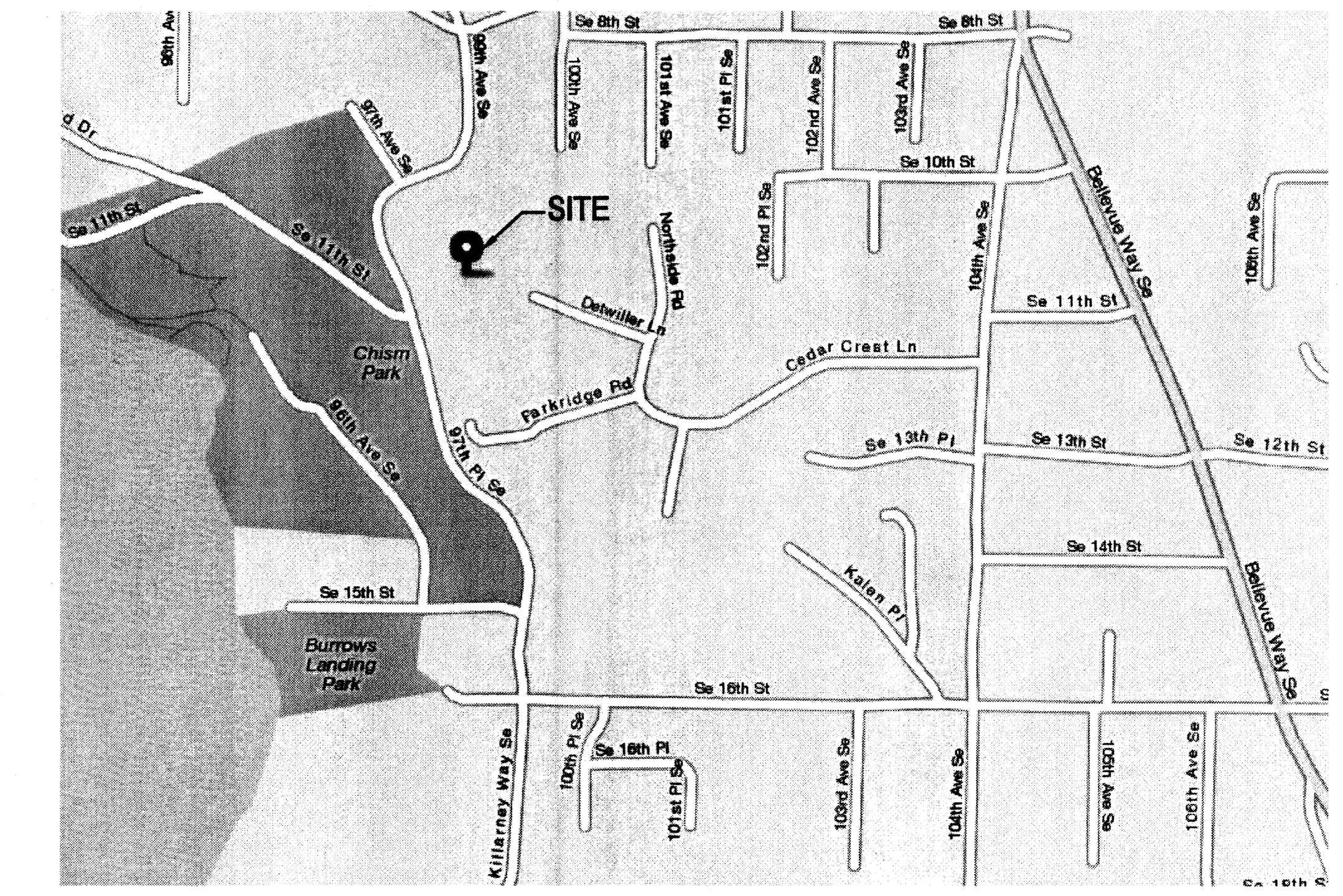
CLEARING & GRADING

REFERENCE STANDARDS: CLEARING AND GRADING CODE (BCC 23.76) AND LAND USE CRITICAL AREAS (LUC 20.25H) GOVERNS THE SITE IN WHICH CONTAINS A CRITICAL AREA, CRITICAL AREA BUFFER, OR CRITICAL AREA STRUCTURE SETBACK AND IS CONSISTENT WITH THE ENVIRONMENTAL ELEMENT OF THE CITY'S COMPREHENSIVE PLAN TO PROTECT WATER AND EARTH RESOURCES, FISH AND WILDLIFE HABITAT, AND PUBLIC HEALTH AND SAFETY FROM THE POTENTIAL ADVERSE IMPACTS ASSOCIATED WITH CLEARING AND GRADING PRIVATE AND PUBLIC LAND IN THE CITY OF BELLEVUE, AS ADDITIONALLY REQUIRED UNDER THE STATE'S GROWTH MANAGEMENT ACT, SHORELINE MANAGEMENT ACT WHERE APPLICAPABLE.

CONTRACTOR/LANDSCAPER RESPONSIBILITIES: THE LANDSCAPER IS RESPONSIBLE TO COMPLY WITH STATED REFERENCE STANDARDS ABOVE AND THOSE ADDITIONAL REQUIRED PER THE CITY'S REVIEW TO ENSURE THAT ALL ENVIRONMENTAL CRITICAL AREAS (ECA) DISTURBED ARE KEPT TO A MINIMUM AND COMPLY TO PERMITTED RESTORATION AND/OR MITIGATION PLAN PROVIDED BY SANDER GROVES LANDSCAPE SERVICES DATED 7/11/11.

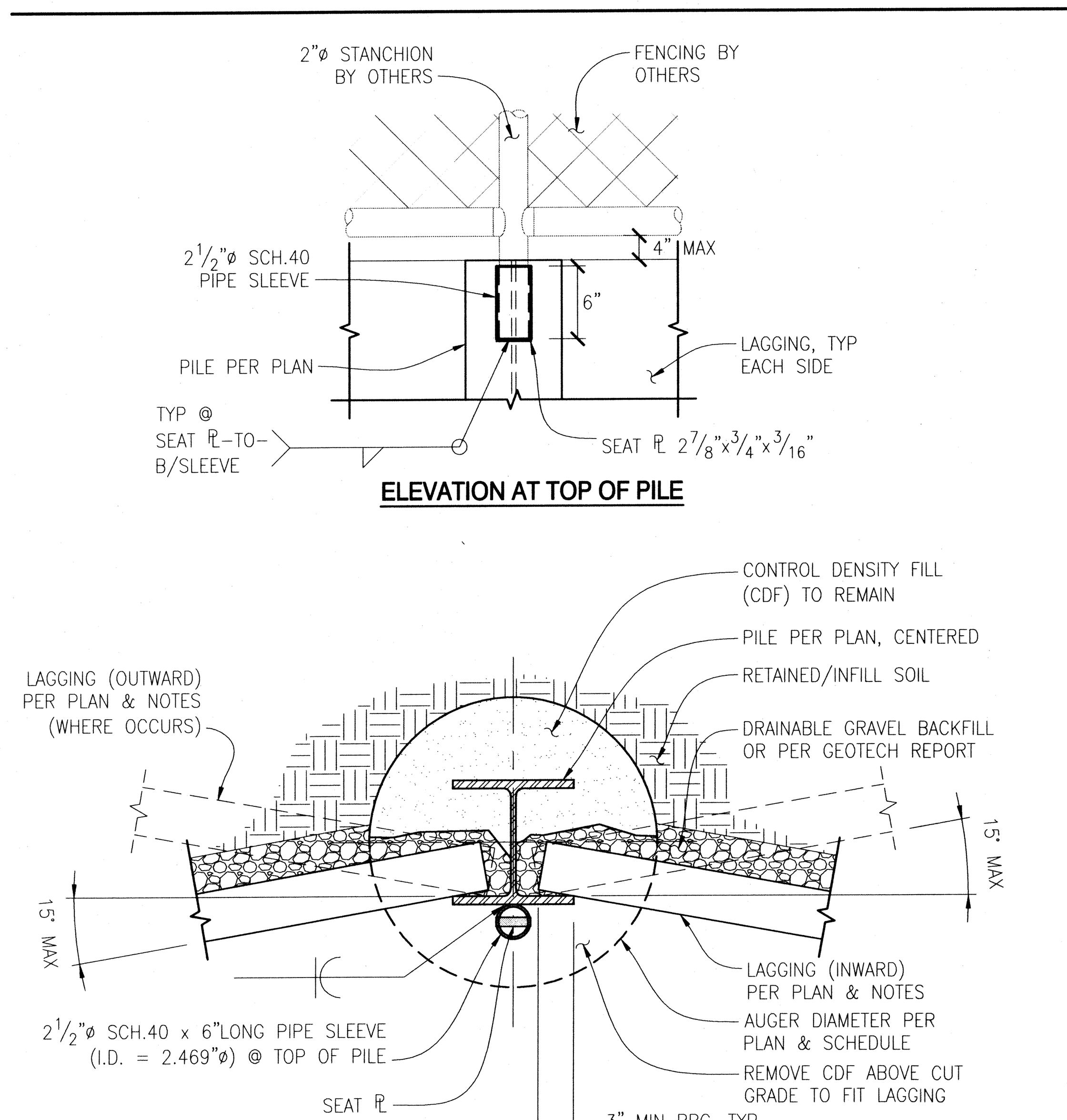
SITE/CONTACT INFORMATION

OWNER:	WALTER P. & LESLIE A. SCHLAEPFER (SCOTT)
SITE ADDRESS:	407 DETWILLER ROAD BELLEVUE, WA 98004
CONTACT/ENGINEER:	DIBBLE ENGINEERS, INC. ATTN: ROBB A. DIBBLE, PE, PRINCIPAL 1029 MARKET STREET KIRKLAND, WA 98028 T: (425) 828-4200 X222 F: (425) 827-6131
LANDSCAPE ARCHITECT:	SANDER GROVES LANDSCAPE SERVICES ATTN: DAN GROVES 20018 NE 50TH STREET REDMOND, WA 98053
JURISDICTION:	BELLEVUE
ZONING:	R-1.8 (SINGLE FAMILY RESIDENTIAL ESTATE)
Q-S-T-R:	NE-6-24-5
PARCEL:	#549310-0080
LEGAL DESCRIPTION:	MEYDENBAUER PARK ADD POR 2 & 3 & VAC STS BEG AT NW COR OF SW 1/4 OF NW 1/4 SEC 5-24-5 TH N 52-07-28 W 109.16 FT TO TPOB TH N 68-46-46 E 52.74 FT TH N 21-21-21 E 124.63 FT TH N 48-19-15 W 121.42 FT TH S 67-23-49 W 288.82 FT TO E MGN CO RD TH SLY ALG SD RD TO PT WCH BEARS S 69-30-27 W FR BEG TH N 69-30-27 E 216.23 FT TO TPOB
LOT AREA:	59,566 SF (1.37 ACRES)
SOFTSCAPE/GRADING:	6,930 SF (11.6%)



VICINITY MAP

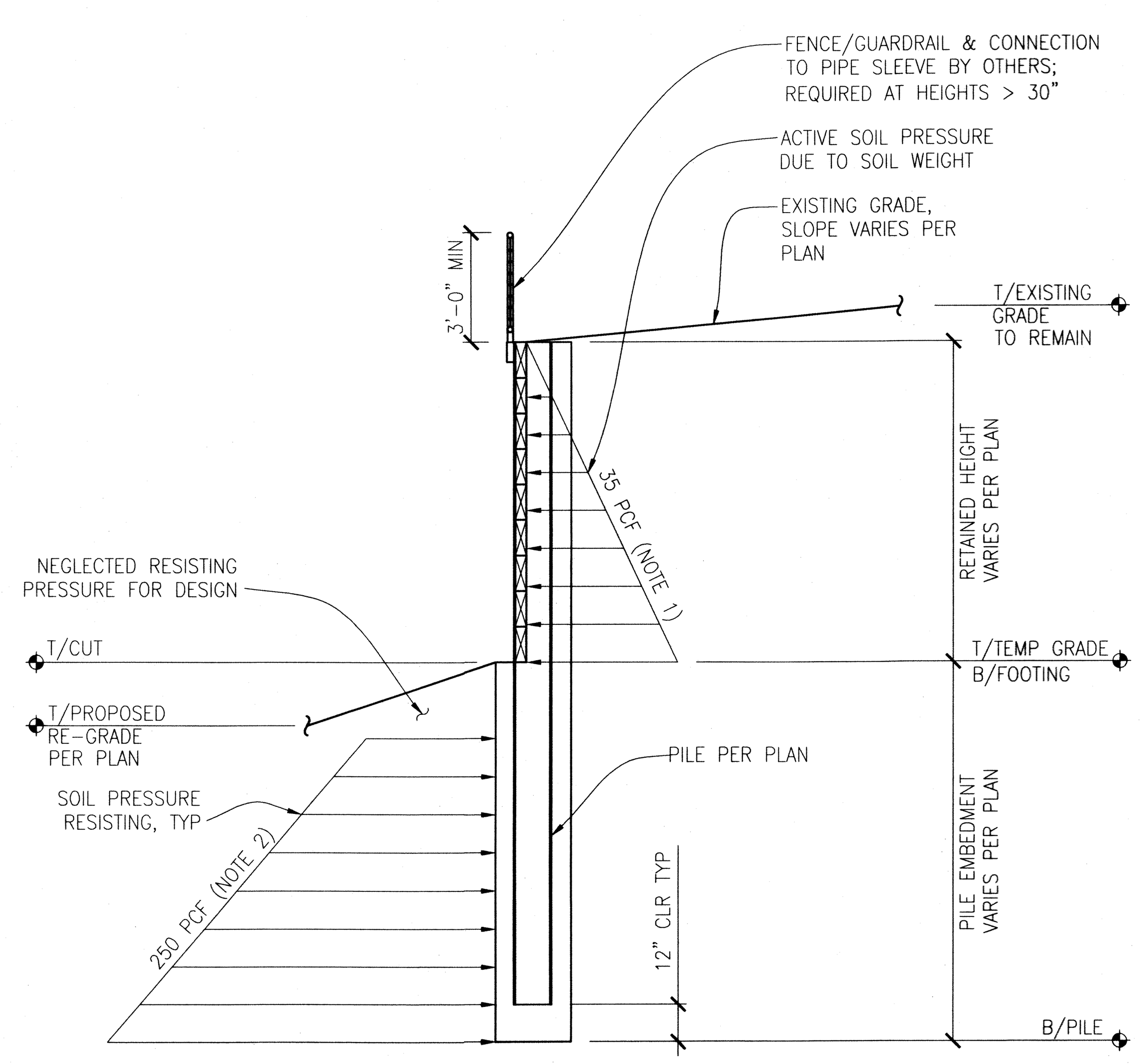
SCALE: N.T.S.



TYPICAL SOLDIER PILE - PLAN VIEW

SCALE: N.T.S.

1

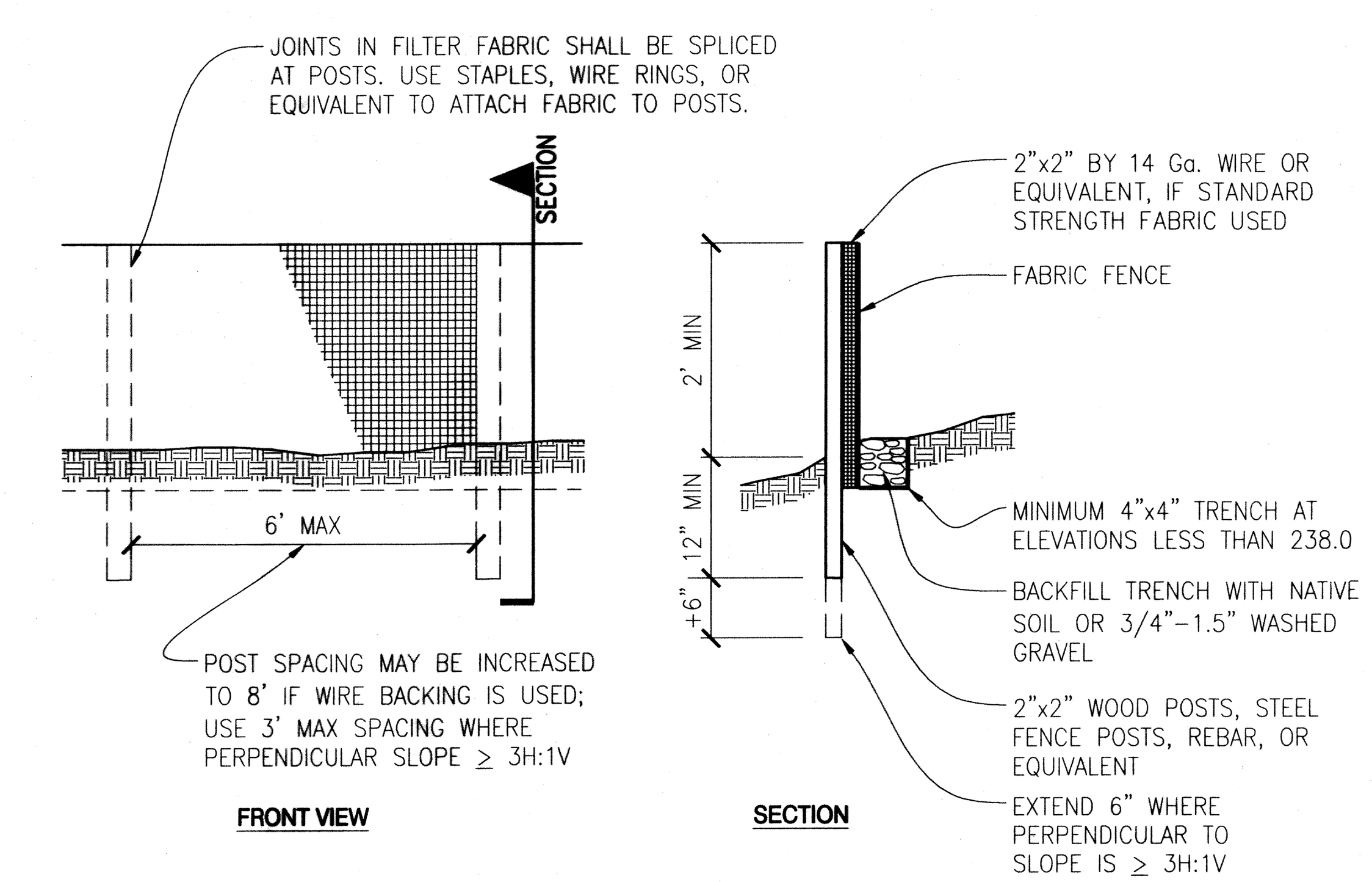


NOTES:
1. PRESSURE DESIGN FOR WOOD LAGGING INCLUDES A 40% REDUCTION FOR SOIL ARCHING EFFECT
2. ACTS ON (2) PILE DIAMETERS FOR SOIL ARCHING EFFECT

SOIL DESIGN PRESSURE DIAGRAM

SCALE: N.T.S.

2

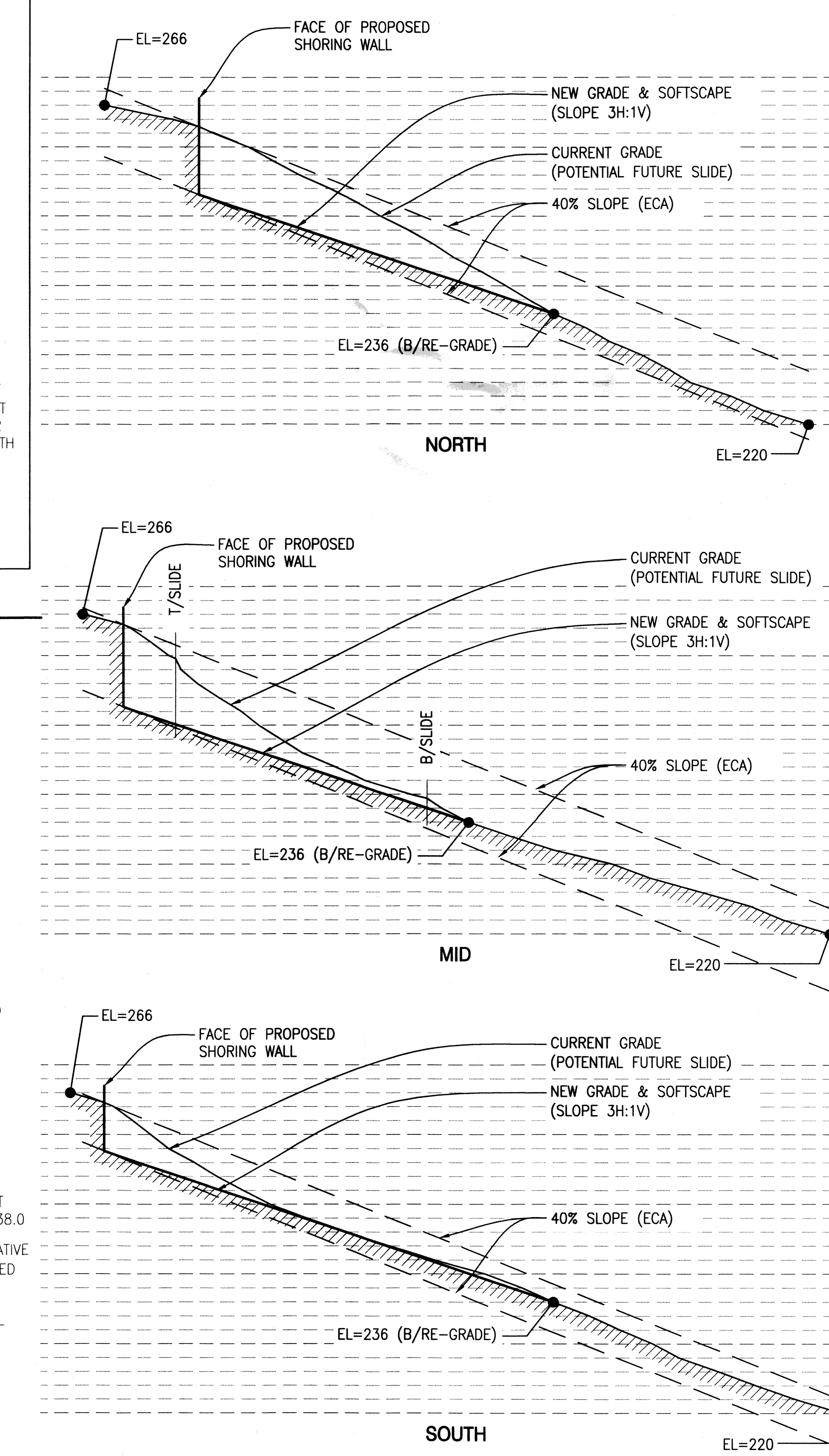


NOTES:
FABRIC FENCES SHALL BE INSTALLED 8'-0" MAX FROM OUTLINED REPLANTING SOFTSCAPE & GRADING AREAS.

ECA PROTECTION / TESC SILT-CONTROL FENCE

SCALE: N.T.S.

3



SOIL PROFILES

SCALE: 1/16" = 1'-0"

4

DIBBLE ENGINEERS, INC.
PROFESSIONAL STRUCTURAL ENGINEERING SERVICES
1029 Market Street, Kirkland, WA 98033
Phone (425) 828-4200 - Fax (425) 827-6131
Robb A. Dibble, PE, Principal
Travis S. Colliander, PE, SE, Associate
Juleen J. Rogness, PE, SE, Associate
WWW.DIBBLEENGINEERS.COM

SEAL:

ROBB A. DIBBLE — STATE OF WASHINGTON — 37445 — REGISTERED PROFESSIONAL ENGINEER — 7/14/11

PROJECT NAME:

SCOTT RESIDENCE
SITE STABILIZING SHORING WALL
407 DETWILLER LANE
BELLEVUE, WA 98004

PROJECT #:	11-047
DRAWN BY:	MRL/TTP
REVIEWED BY:	PK
DATE:	7/14/11

REVISIONS:

#	DATE	COMMENTS

SHEET TITLE:

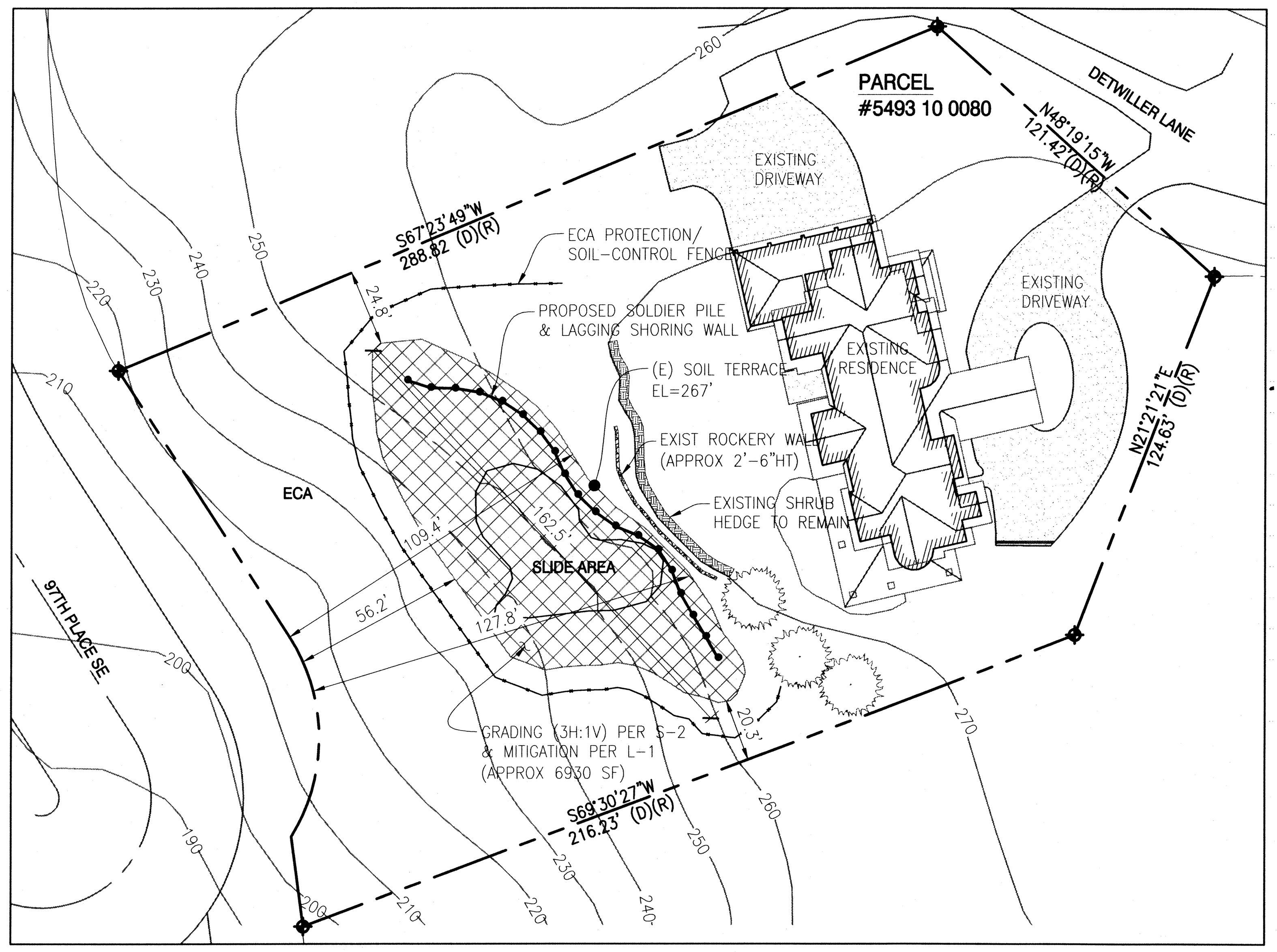
STRUCTURAL GENERAL NOTES, VICINITY MAP, SOIL PROFILES & DETAILS

PERMIT SET

SHEET NUMBER:

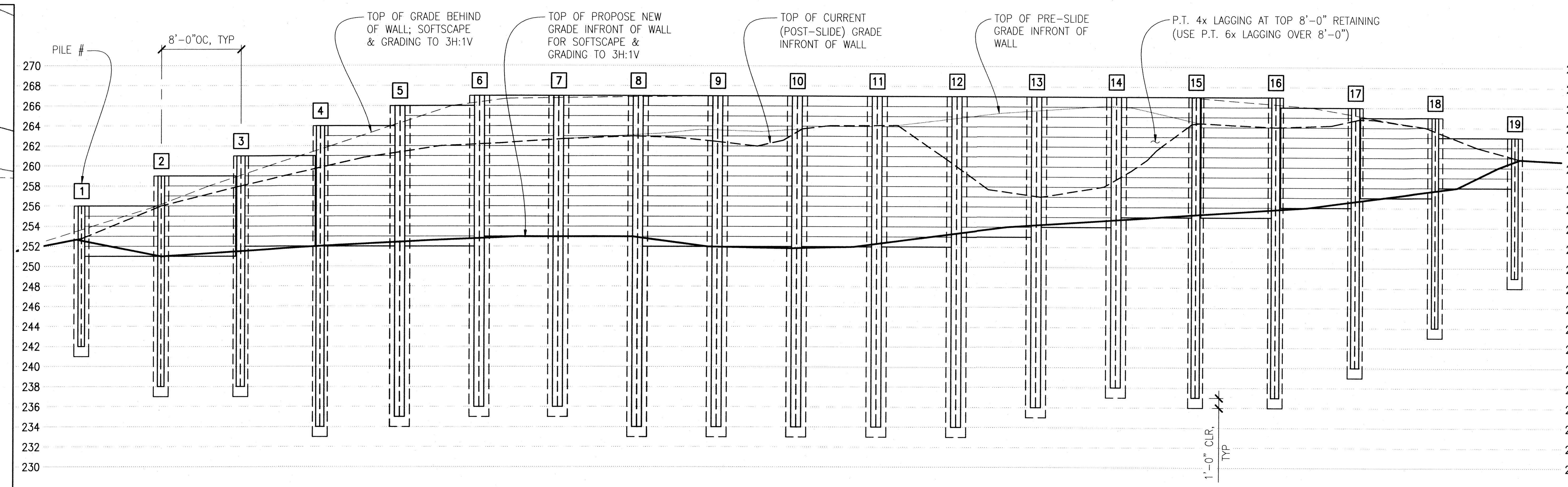
S-1

Received JUL 14 2011 Permit Processing



SITE PLAN

SCALE: 1" = 40'-0"



PILE ELEVATION

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

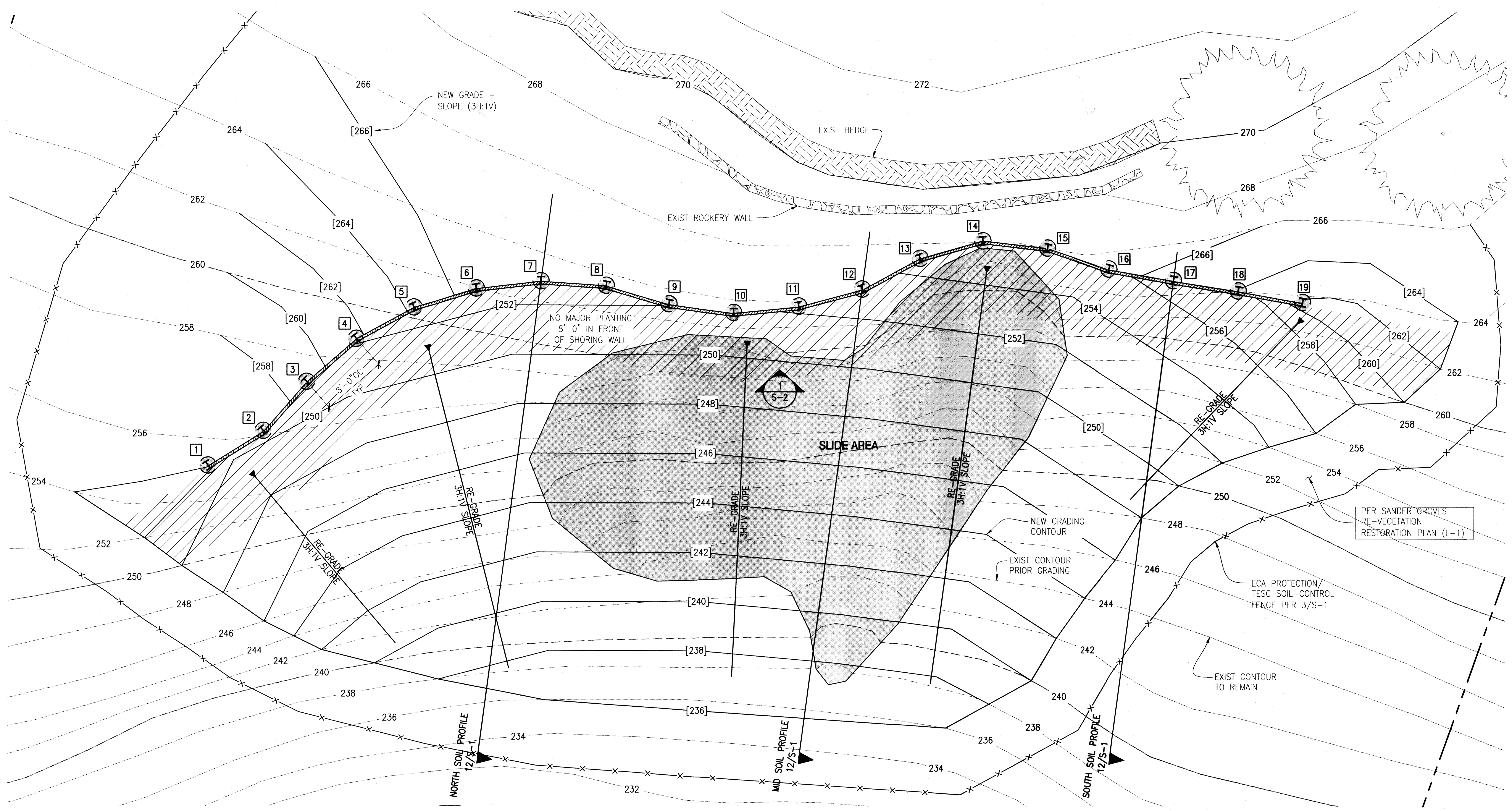
1

PILE #	AUGER DIA	PILE SIZE	MAX RETAIN HEIGHT	EMBED DEPTH	PILE LENGTH	QTY
1, 19	18"ø	W8x35	5'-0"	9'-0"	14'-0"	2
2, 18			8'-0"	13'-0"	21'-0"	2
3		W10x68	9'-0"	14'-0"	23'-0"	1
17			10'-0"	16'-0"	26'-0"	1
4, 15, 16			12'-0"	18'-0"	30'-0"	3
14	24"ø	W12x106	13'-0"	16'-0"	29'-0"	1
5-7, 13			14'-0"	17'-0"	31'-0"	4
8-12			15'-0"	18'-0"	33'-0"	5

PILE SCHEDULE

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

2



PILE LAYOUT PLAN

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

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WWW.DIBBLEENGINEERS.COM

SEAL:

ROBB A. DIBBLE, STATE OF WASHINGTON, 37445, REGISTERED PROFESSIONAL ENGINEER 7/14/11

PROJECT NAME:

SCOTT RESIDENCE
SITE STABILIZING SHORING WALL

407 DETWILLER LANE
BELLEVUE, WA 98004

PROJECT #: 11-047
DRAWN BY: TTP
REVIEWED BY: PK
DATE: 7/14/11

REVISIONS:

#	DATE	COMMENTS

SHEET TITLE:

STRUCTURAL PILE LAYOUT PLAN, SECTIONS & DETAILS

PERMIT SET

SHEET NUMBER:

S-2

Received JUL 14 2011 Permit Processing

CLEARING AND GRADING STANDARD NOTES

1. All clearing & grading construction must be in accordance with City of Bellevue (COB) *Clearing & Grading Code, Clearing & Grading Erosion Control Standard Details (EC-1 through EC-23), Development Standards, Land Use Code, Uniform Building Code*, permit conditions, and all other applicable codes, ordinances, and standards. The design elements within these plans have been reviewed according to these requirements. Any variance from adopted erosion control standards is not allowed unless specifically approved by the City of Bellevue Department of Planning & Community Development (PCD) prior to construction.

   It shall be the sole responsibility of the applicant and the professional civil engineer to correct any error, omission, or variation from the above requirements found in these plans. All corrections shall be at no additional cost or liability to the COB. All details for structural walls, rockeries over four feet in height, geogrid reinforced rockeries and geogrid reinforced modular block walls, must be stamped by a professional engineer.
2. A copy of the approved plans must be on-site during construction. The applicant is responsible for obtaining any other required or related permits prior to beginning construction.
3. All locations of existing utilities have been established by field survey or obtained from available records and should, therefore, be considered only approximate and not necessarily complete. It is the sole responsibility of the contractor to independently verify the accuracy of all utility locations and to discover and avoid any other utilities not shown which may be affected by the implementation of this plan.
4. The area to be cleared and graded must flagged by the contractor and approved by the Clearing and Grading Inspector prior to beginning any work on the site.
5. A reinforced silt fence must be installed in accordance with COB EC-5 and shall be located as shown on the approved plans or per the Clearing and Grading Inspector, along slope contours and down slope from the building site.
6. A hard-surface construction access pad is required per Clearing & Grading Standard Detail EC-1 or EC-2. This pad must remain in place until paving is installed.
7. Clearing shall be limited to the areas within the approved disturbance limits. Exposed soils must be covered at the end of each working day when working from October 1st through April 30th. From May 1st through September 30th, exposed soils must be covered at the end of each construction week and also at the threat of rain.
8. Any excavated material removed from the construction site and deposited on property within the City limits must be done in compliance with a valid clearing & grading permit. Locations for the mobilization area and stockpiled material must be approved by the Clearing and Grading Inspector at least 24 hours in advance of any stockpiling.
9. To reduce the potential for erosion of exposed soils, or when rainy season construction is permitted, the following Best Management Practices (BMPs) are required.
   - Preserve natural vegetation for as long as possible or as required by the Clearing and Grading Inspector.
   - Protect exposed soil using plastic (EC-14), erosion control blankets, straw or mulch (COB Guide to Mulch Materials, Rates, and Use Chart), or as directed by the Clearing and Grading Inspector.
   - Install catch basin inserts as required by the Clearing and Grading Inspector or permit conditions of approval.
   - Install a temporary sediment pond, a series of sedimentation tanks, temporary filter vaults, or other sediment control facilities. Installation of exposed aggregate surfaces requires a separate effluent collection pond onsite.
10. Final site grading must direct drainage away from all building structures at a minimum 2% slope, per the *Uniform Building Code.*
11. The contractor must maintain a sweeper on site during earthwork and immediately remove soil that has been tracked onto paved areas as result of construction.
12. Turbidity monitoring may be required as a condition of clearing and grading permit approval. If required, turbidity monitoring must be performed in accordance with the approved turbidity monitoring plan and as directed by the Clearing and Grading Inspector. Monitoring must continue during site (earthwork) construction until the final sign-off by the Clearing and Grading Inspector.
13. Any project that is subject to Rainy Season Restrictions will not be allowed to perform clearing and grading activities without written approval from the PCD Director. The rainy season extends from November 1st through April 30th, as defined in section 23.76.093A of the Clearing and Grading Code.

GEOTECHNICAL NOTES

The project geotechnical engineer of record or his representative must be onsite during critical earthwork operations. The geotechnical engineer shall observe all excavations and fill areas. In addition, the engineer shall inspect the soil cuts prior to construction of the rockeries and inspect the compaction in fill areas. The engineer must submit field reports in writing to the PCD inspector for soils verification and foundation construction. All earthwork should be in conformance with the recommendations in the geotechnical report.

The geotechnical engineer must be present at the pre-construction meeting. In addition, the following construction stages must be inspected, monitored, and tested as necessary by the geotechnical engineer of record:

1. Site clearing and stripping of organic topsoil for all areas to receive structural fill, pavements, or foundations.
2. Cut slopes over four feet high.
3. Benching for fill to be placed on slopes.
4. Inspection of proposed import fill material, prior to placement.
5. Placement of structural fill, including observation of proper moisture content, lift thickness, and minimum compaction.
6. Subgrades for retaining walls, foundations, and for the base of rockeries.
7. Installation of subsurface drainage facilities.
8. Utility trench bedding and backfill, including observation of proper moisture content, lift thickness, and minimum compaction.
9. Utilities on steep slopes; slope anchors and/or backfill slope stabilization.
10. Any unusual seepage, slope, or subgrade condition as delineated in the geotechnical report or discovered in the field.

At the end of the construction, the geotechnical engineer shall submit a final summary letter verifying that critical stages of the construction have been inspected and are in conformance with Geotechnical Report.

CONSTRUCTION NOISE NOTES

Construction noise outside the allowable hours is prohibited per BCC 9.18.040. To be considered a violation, the construction-related noise must be audible across a property line or at least 75 feet from the source. Any violation is a civil infraction and the City may assess a monetary penalty to the individual creating the noise. The penalties are:

- A warning will be issued if no construction noise violation has been committed by the same person within the previous two years at any location within the City.
- A citation will be issued and a $125 fine imposed if one previous violation has been committed by the same person within the previous two years at any location within the City.
- A citation will be issued and a $250 fine imposed if two or more previous violation have been committed by the same person within the previous two years at any location within the City.

FOR ALL COMMERCIAL, MULTI-FAMILY, AND NEW SINGLE-FAMILY HOMES:

Construction-related noise is allowed:
- 7 am to 6 pm on weekdays
- 9 am to 6 pm on Saturdays

Construction –related noise is not allowed:
- Outside of allowable hours
- Legal holidays
- Sundays

MOBILIZATION/STOCKPILE AREA NOTES

Any excavated material removed from the construction site and deposited on property within the City limits must be done in compliance with a valid clearing & grading permit. Locations for the mobilization area and stockpiled material must be approved by the PCD inspector at least 24 hours in advance of any dumping.

STREET SWEEPING NOTE

Contractor shall immediately sweep the paved City Right-of-Way when dirt or other construction related debris is deposited.

DUST SUPPRESSION

Dust from clearing, grading, and other construction activities shall be minimized at all times. Any dust suppressants used shall be approved by the director. Petrochemical dust suppressants are prohibited. Watering the site to suppress dust is also prohibited unless it can be done in a way that keeps sediment out of the public drainage system.

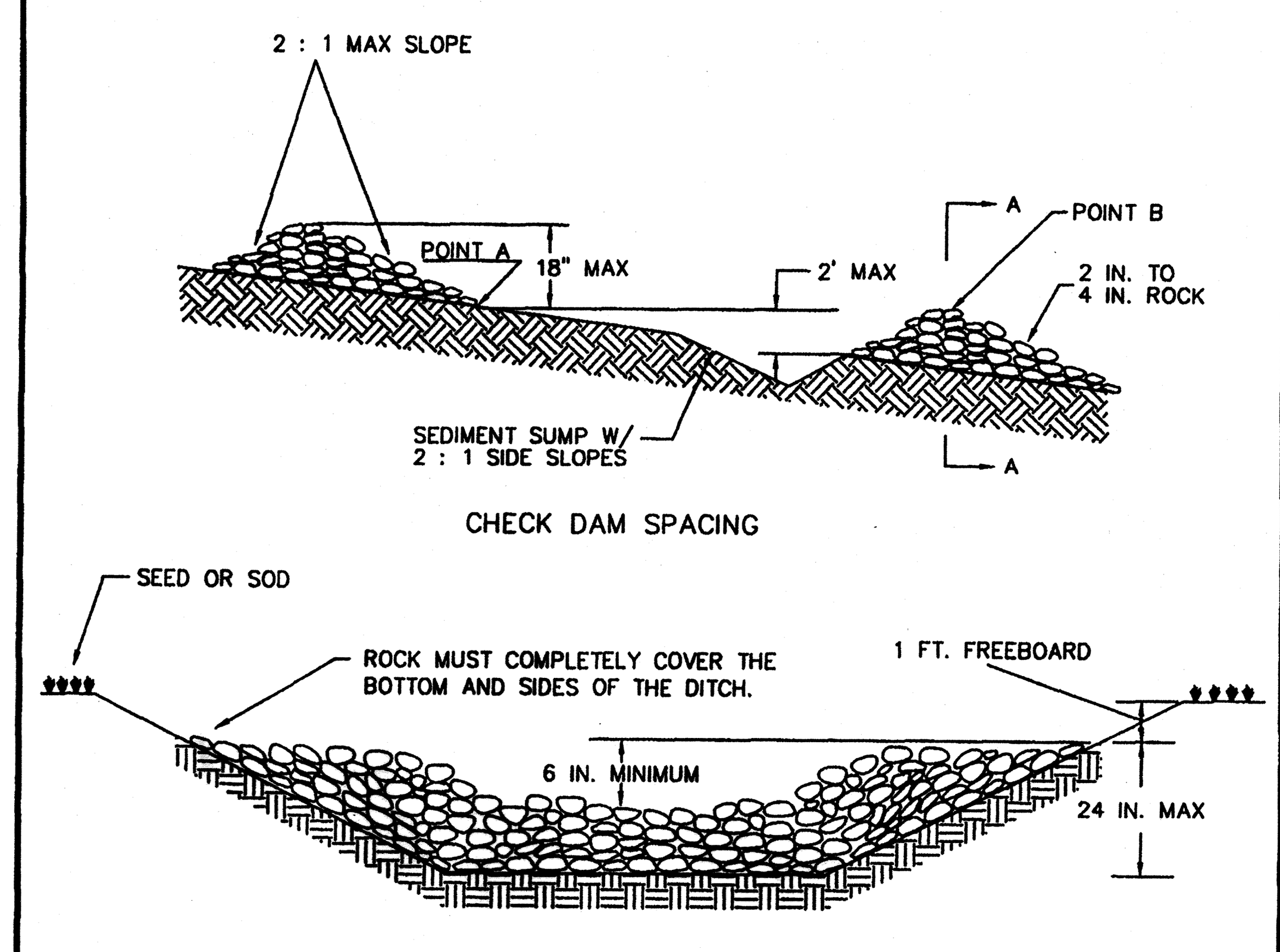
DESIGN CHANGES AFTER PERMIT ISSUANCE

If utilities design changes result in changes to the clearing limits shown on these plans, the applicant must submit a revision to the clearing and grading permit that indicates the location of the new clearing limits.

Guide to Mulch Materials, Rates and Use

Mulch Material	Quality Standards	Application /1000 sf	Application / acre	Depth of Application	Remarks
Gravel, slag, or crushed stone	Washed, 3/4"- 1-1/2" size		9 cu yds	3 inches	For short slopes and around woody plants & ornamentals, Use where subject to foot traffic. Approx. 2000 lbs/cu yd
Hay or straw	Air dried, free from unwanted seeds & coarse material	75-100 lbs. or 2-3 bales	1-1/2 to 2-1/2 tons or 90-120 bales	Minimum of 2 in. depth; greater on steep areas or near protected areas)	Use where the mulching effect is to be maintained for less than 3 months. Anchor by crimping, covering with netting, spraying with tackifier and/or kept moist.
Plastic sheeting	minimum 6-mil thickness				Anchor with sandbags or tires on 10-foot grid in all directions. Overlap edges.
Jute mat, woven straw blanket= synthetic fiber blanket	N/A	N/A			Use on slopes greater than 2:1 in addition to hydroseed or wood fiber with tackifier
Wood fiber cellulose (partially digested wood fibers)	Dyed green should not contain growth inhibiting factors.	25 - 30 lbs.	1000-1500 lbs.		If used on critical areas, or steep slopes, double the normal application rate. Apply w/hydromulcher. No tie-down required.
Wood fiber applied with hydroseeding or alone		1.25 Tons per acre;			Use 90 gal/acre tackifier for slopes less than 2:1; 120 gal/acre for steeper than 2:1.
Bark chips				Minimum of 2 in. depth	Do not use on slopes steeper than 6%
Wood chips (hog fuel)	treat with 12 lbs. nitrogen fertilizer per ton			Minimum of 2 in. depth	Do not use on slopes steeper than 15%
Hydroseed	Use mix recommended iby COB, State Stormwater Manual or King County Surface Water Drainage Manual.				Use DOT slope mix for steep slopes. Fast germinating mix required on all 2:1 or steeper slopes after October 1.

All mulches will provide some degree of (1) erosion control, (2) moisture conservation, (3) weed control, and (4) reduction of soil crusting.
Rev 11/96

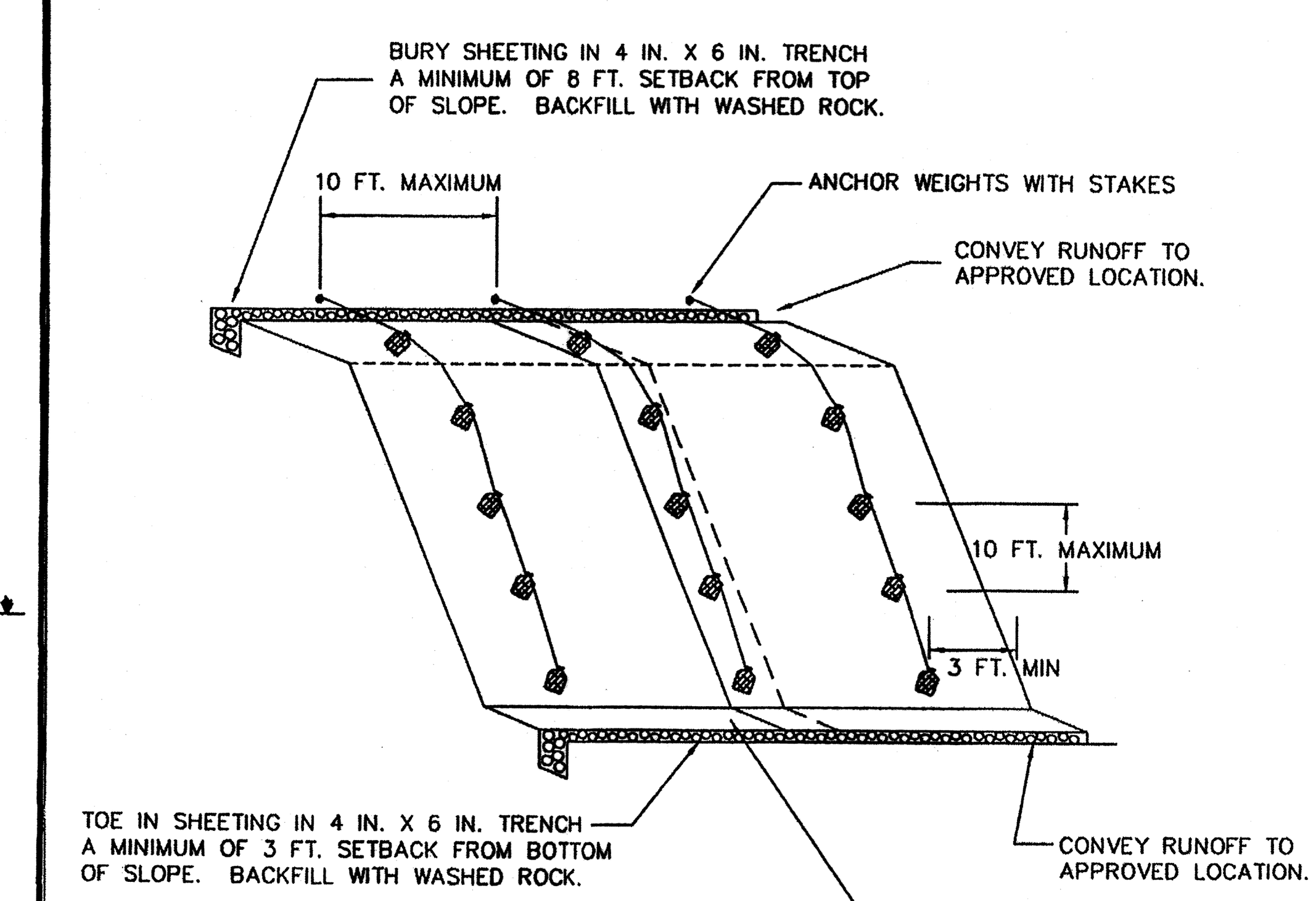


NOTES :

SECTION AA

1. 50 FT MAXIMUM SPACING BETWEEN CHECK DAMS.
2. ANY SEDIMENT DEPOSTION OF MORE THAN 0.5 FT. IN DEPTH SHALL BE REMOVED SO THAT THE CHANNEL IS RESTORED TO ITS ORIGINAL DESIGN CAPACITY.
3. THE CHANNEL SHALL BE EXAMINED FOR SIGNS OF SCOURING AND EROSION OF THE BED AND BANKS. IF SCOURING OR EROSION HAS OCCURED, AFFECTED AREAS SHALL BE PROTECTED BY RIP-RAP, AN EROSION CONTROL BLANKET, OR A NET.
4. A 6-INCH SUMP SHALL BE PROVIDED IMMEDIATELY UPSTREAM OF CHECK DAM.
5. CHECK DAMS SHALL BE CONSTRUCTED SO THAT POINTS A AND B ARE OF EQUAL ELEVATION.
6. SANDBAG CHECK DAMS MAY BE SUBSTITUTED FOR ROCK CHECK DAMS AS APPROVED BY THE CLEARING AND GRADING INSPECTOR.

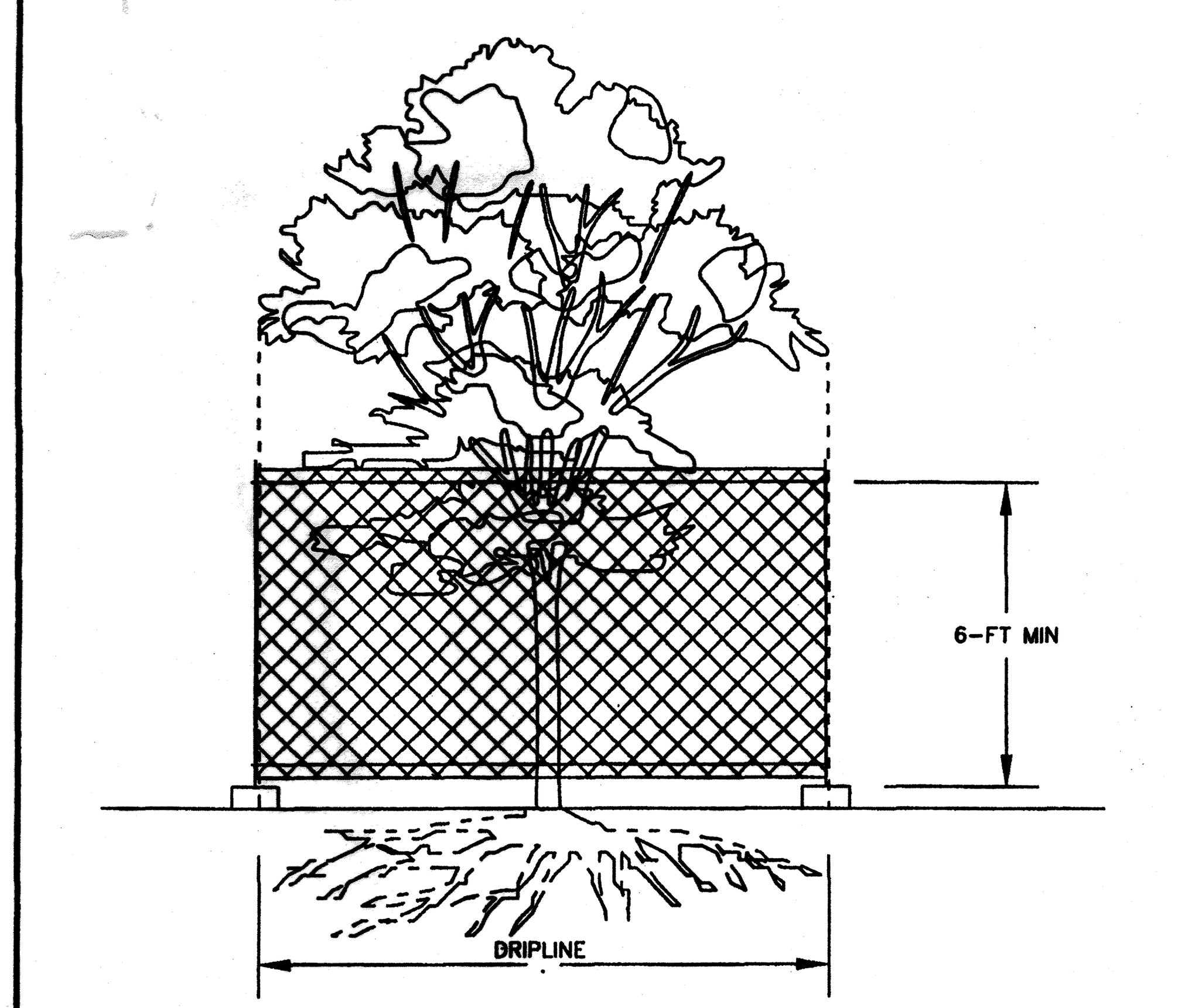
City of Bellevue — NO SCALE
TITLE: ROCK CHECK DAM
REV. DATE 10/2000 — NO. EC-10



NOTES:

1. TIRES, SANDBAGS, OR EQUIVALENT MAY BE USED TO WEIGHT PLASTIC SHEETING.
2. SEAMS BETWEEN SHEETS MUST OVERLAP A MINIMUM OF 12 IN. AND BE WEIGHTED OR TAPED.
3. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 6 MIL.
4. DUE TO RAPID RUNOFF CAUSED BY PLASTIC SHEETING, THIS METHOD SHALL NOT BE USED UPSLOPE OF AREAS THAT MIGHT BE ADVERSELY IMPACTED BY CONCENTRATED RUNOFF.
5. CONSTRUCT BERM OR SWALE AT TOP OF SLOPE AS DIRECTED BY THE CLEARING AND GRADING INSPECTOR.
6. CONSTRUCT DITCH AT BASE OF SLOPE AS REQUIRED BY CITY CLEARING AND GRADING INSPECTOR. DISCHARGE TO APPROVED LOCATION.

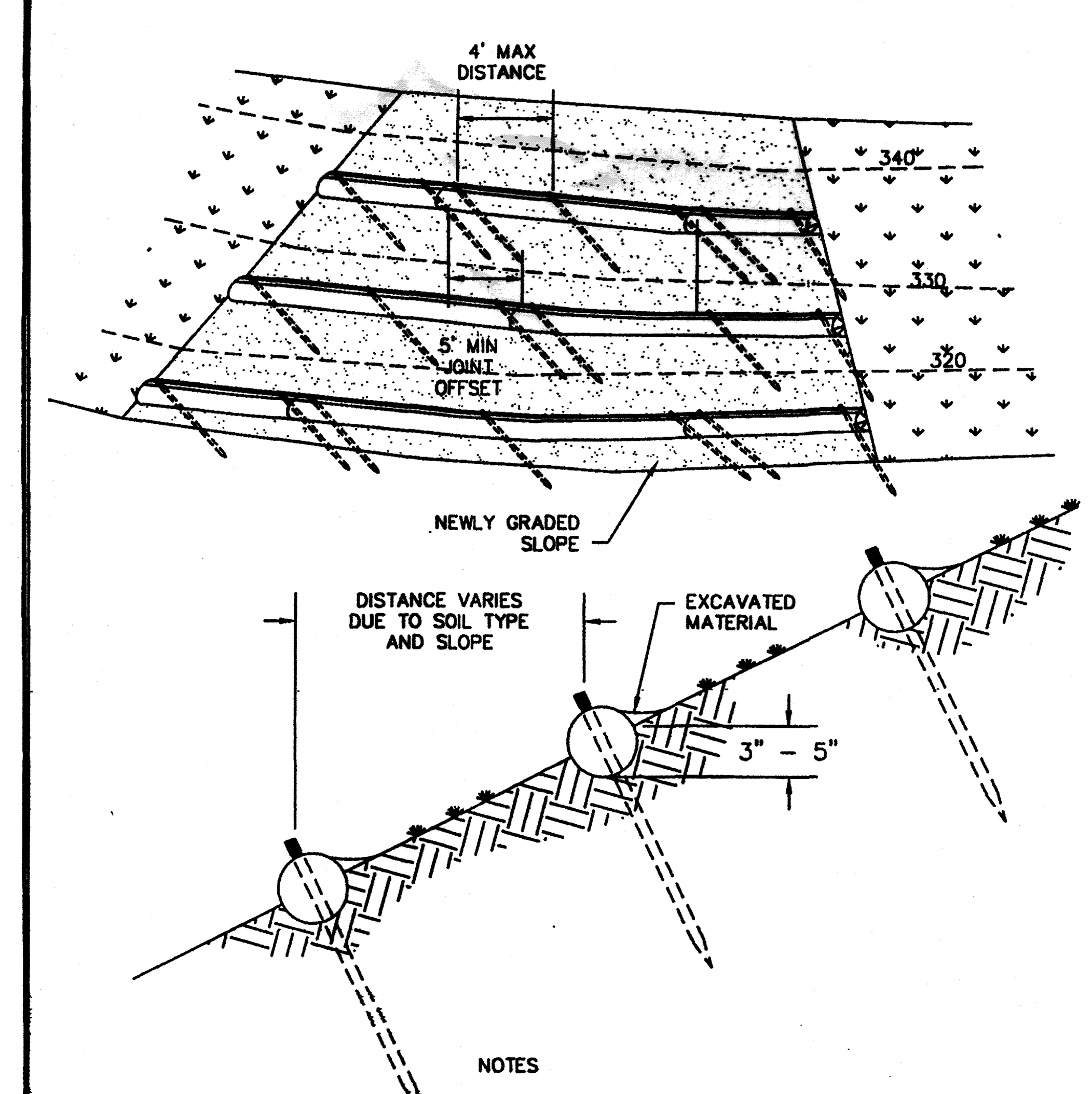
City of Bellevue — NO SCALE
TITLE: PLASTIC COVERING FOR SLOPES AND STOCKPILES
REV. DATE 10/2000 — NO. EC-14



NOTES:

1. 6-FT. HIGH TEMPORARY CHAIN LINK FENCE SHALL BE PLACED AT THE DRIPLINE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE THE TREE(S). INSTALL FENCE POSTS USING PIER BLOCKS ONLY. AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS.
2. FOR ROOTS OVER 1-IN DIA. THAT ARE DAMAGED DURING CONSTRUCTION, MAKE A CLEAN, STRAIGHT CUT TO REMOVE THE DAMAGED PORTION. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND SHALL BE COVERED WITH SOIL AS SOON AS POSSIBLE.
3. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING.

City of Bellevue — NO SCALE
TITLE: TREE PROTECTION
REV. DATE 10/2000 — NO. EC-21



NOTES

1. JOINTS MUST BE OFFSET BY NO LESS THAN FIVE FEET.
2. ROLLS SHALL BE ALIGNED PARALLEL TO ELEVATION CONTOURS.
3. HYDROSEED OR MULCH SLOPE FOR ADDITIONAL EROSION CONTROL.

City of Bellevue — NO SCALE
TITLE: STRAW ROLLS
REV. DATE 10/2000 — NO. EC-16

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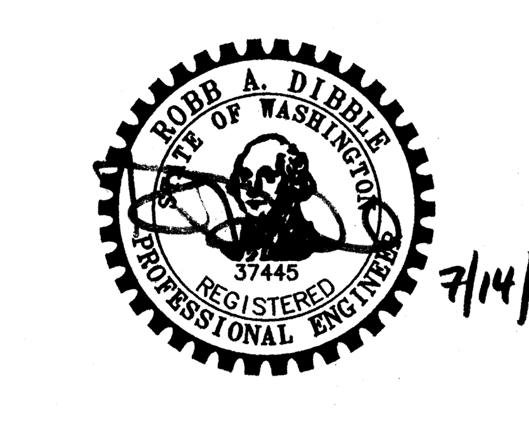


PROJECT NAME:

SCOTT RESIDENCE
SITE STABILIZING & SHORING WALL
407 DETWILLER LANE
BELLEVUE, WA 98004

PROJECT #: 11-047
DRAWN BY: TTP
REVIEWED BY: PK
DATE: 7/14/11

REVISIONS:

#	DATE	COMMENTS

SHEET TITLE:

CLEARING & GRADING STANDARD DETAIL & NOTES

PERMIT SET

SHEET NUMBER:

S-3

PLANT KEY

TREES

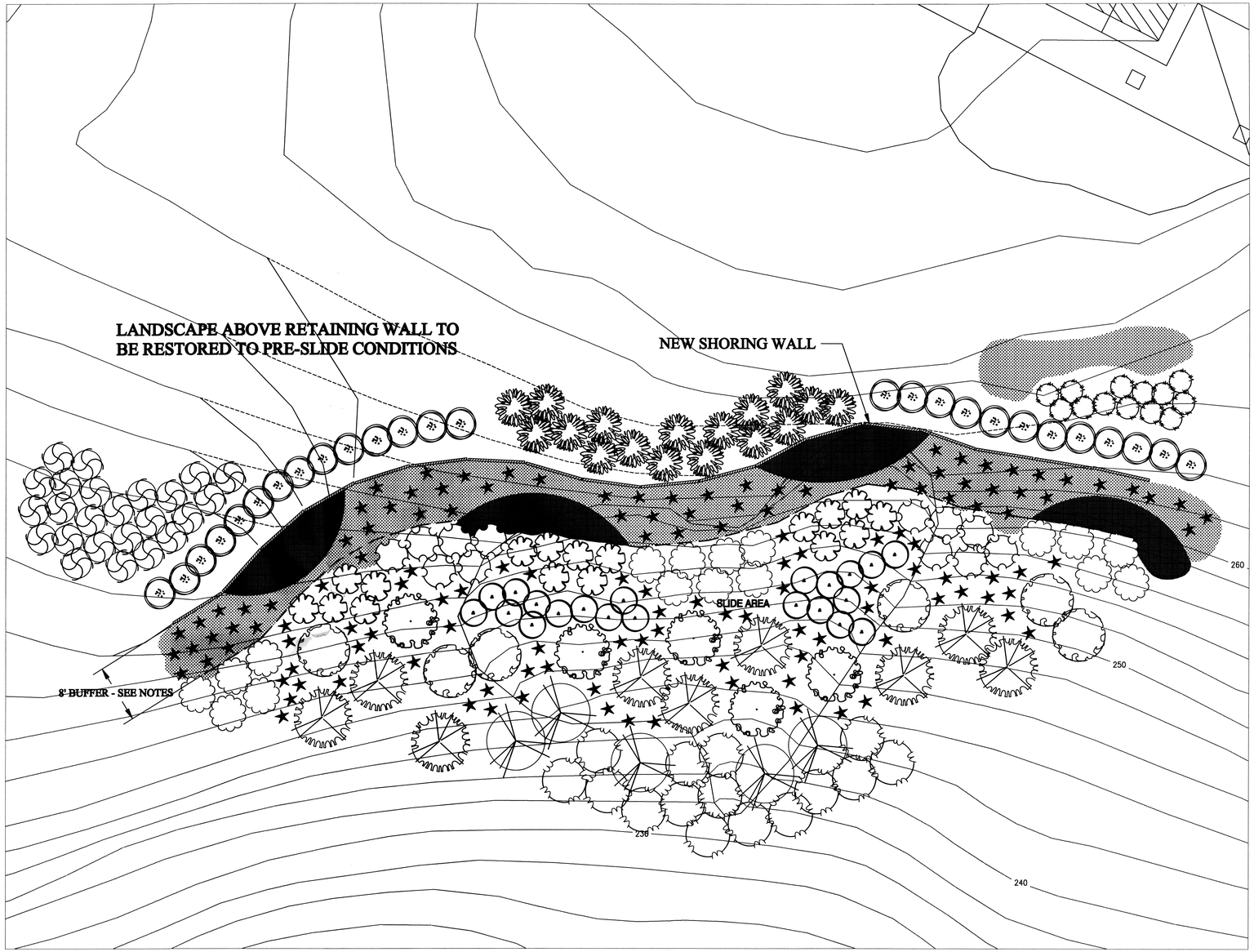
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
	Acer circinatum	VINE MAPLE	5-6' multi-trunk
	Amelanchier alnifolia	SERVICEBERRY	1.5 to 2" cal.
	Pseudotsuga menziesii	DOUG FIR	5-6'
	Thuja plicata	WESTER RED CEDAR	5-6'

SHRUBS

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
	Cornus sericea	RED-OSIER DOGWOOD	#5
	Holodiscus discolor	OCEAN SPRAY	#2
	Mahonia aquifolium	TALL OREGON GRAPE	#1
	Prunus laurocerasus 'Schipkaensis'	SCHIPKA LAUREL	3-4' high, B&B
	Ribes sanguineum	FLOWERING CURRANT	#5
	Rosa nutkana	NOOTKA ROSE	#2
	Salix sitchensis	SITKA WILLOW	#5
	Sambucus racemosa	RED ELDERBERRY	#5
	Spiraea douglasii	DOUGLAS' SPIRAEA	#2

GROUND COVERS & FERNS

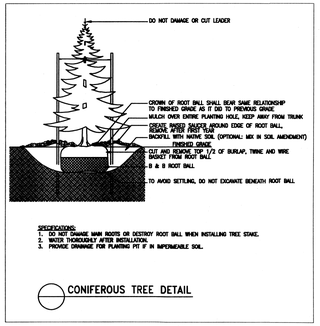
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
	Gaultheria shallon	SALAL	4"
	Mahonia nervosa	CASCADE OREGON GRAPE	4"
	Polystichum munitum	WESTERN SWORD FERN	#1

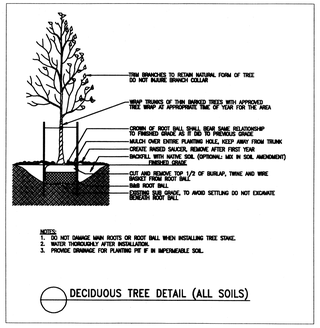


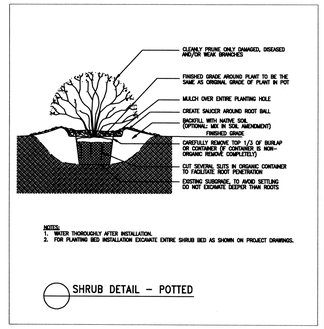
NOTES

1. 8' RESTRICTED BUFFER ON THE TOE SIDE OF THE SHORING WALL INCLUDES NO MAJOR VEGETATIVE PLANTINGS. TO BE PLANTED WITH FERNS AND GROUND COVERS THAT EXTEND NO MORE THAN 12" INTO THE NATIVE SOILS TO PREVENT REDUCING THE PASSIVE RESISTANCE CAPACITY IN FRONT OF THE WALL.
2. TOPSOIL AMENDED AS NEEDED WITH SANDY LOAM AND COMPOST.
3. ALL DISTURBED AREAS TO RECEIVE A 2" MULCH TOPDRESS FOR WATER RETENTION AND WEED CONTROL.
4. ALL TREES TO BE STAKED.

PLANTING DETAILS







Revisions	By

SANDER GROVES
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THE SCOTT RESIDENCE
407 Detwiller, Bellevue, WA
SLOPE PLANTING PLAN

Received
JUL 14 2011
Permit Processing

Date 7/11/11

Scale 1/8" = 1'-0"

Drawn DG/AW

Sheet L of 1
4 Sheets

DIBBLE ENGINEERS, INC.

Professional Structural Engineering Services

Structural Review Summary

DATE:	July 13, 2011	JOB#:	DEI #11-047
TO:	City of Bellevue		
FROM:	Robb Dibble, P.E. Ethan Ramberg, EIT		
PROJECT:	Scott Residence – Hardscape and Softscape Landslide Soil Stabilization and Shoring Wall, Bellevue, WA		
SUBJECT:	**NARRATIVE FOR CRITICAL AREA STABILIZATION**		

The purpose of this summary is to outline the conditions which led to the proposed permanent soldier pile slope configuration system as the primary means to stabilize the environmentally critical slope area. The purpose of the wall is to protect the Owner's property, residence and site improvements through landslide mitigation with both hardscape and softscape improvements to create an improved stability of the hillside.

Following a shallow landslide in the winter of 2010, a subsurface exploration was prepared to determine the composition of underlying soils. A thorough soil study and summary report from Associated Earth Sciences, Inc. (AESI) found that the project site is characterized by a sloped topography with stiff to very stiff soils, with minimal ground water. The slope, defined as a steep slope and a landslide critical area by the city of Bellevue, exceeds the normal stability slope angle that the existing soils can tolerate. The historic slides have created an escarpment which over time has allowed edge sloughing which has created shallow surface landslide conditions. This condition is generally consistent across the subject property and similar to the adjacent property to the south. Our intent in coordination with the Geotechnical Engineer is to provide a permanent means to eliminate the natural escarpment and create a structurally sound vertical step to provide both stability to the Owner's property on the high side and create a stable slope on the toe side of the wall by reducing the gradient angle.

Our analyses considered several options, including slope stabilization methods through stepped rockeries, soil nailing, geo-grid reinforcing, and a series stepped walls to create a stable sloped condition. Our joint conclusion, includes the combined cantilever soldier pile wall and re-vegetation, was the most efficient method of protecting the property with the least amount of disturbance in the ECA area. This allows the minimum amount of disturbance through creating stable slopes on both sides of the wall while achieving a vertical tolerance. The use of just re-planting the hillside will not work as a permanent solution due the existing escarpment that exists and the continuation of similar landslides that will occur. Simple replanting of the hillside cannot provide enough integral stabilization of the slope.

There also exists a significant and serious concern of the existing escarpment that is currently covered in plastic tarps and sand bags that a future landslide is imminent and that the next landslide will endanger the city of Bellevue right of way road and access below. The work should be considered an emergency repair that is needed to be done during the current summer/fall dry season to protect property and road egress prior to increased danger of the coming rainy season.

In addressing a permanent solution we combined the hardscape wall stabilization measures with the landscaping soft stabilization measures through improved slope drainage and slope stabilizing vegetation. In addressing the water management from general surface run off and basic landscape watering, we are proposing a permeable wall that will allow any shallow surface water that reaches the wall to dissipate its energy through the walls drain rock backfill and allow it to disperse uniformly across the wall to provide aquatic support to the native re-vegetation. A proposed softscape replanting plan is provided.

The proposed construction plan includes a disturbance area fence and temporary erosion control measures until such time the permanent wall and vegetation are established. The wall and restoration is designed as a permanent slope stabilization solution based on the site surface and sub-surface conditions.

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Associated Earth Sciences, Inc.

Celebrating Over 25 Years of Service

February 9, 2011
Project No. KE100403A

Phil and Leslie Scott (Schlaepfer)
407 Detwiller Lane
Bellevue, Washington 98004

Subject: Landslide Evaluation
Scott Residence
407 Detwiller Lane
Bellevue, Washington

Dear Mr. and Ms. Scott (Schlaepfer):

This letter summarizes our findings of the subsurface exploration and geotechnical engineering study, and provides recommendations for mitigation of landslide hazards at the subject site. Our work has been completed in accordance with our authorized scope, schedule, and budget in accordance with generally accepted geotechnical engineering practices. This letter was prepared for the exclusive use of Phil and Leslie Scott (Schlaepfer), and their agents, for specific application to this project. No other warranty, express or implied, is made.

SITE AND PROJECT DESCRIPTION

The project site consists of a single-family residence located at 407 Detwiller Lane in Bellevue, Washington (Figure 1). A relatively level area of grass lawn and other landscaping located on the west (back) side of the home leads to the top of a steep, west-facing slope. The top of the steep slope is located approximately 60 feet west of the house. A concrete rubble wall, approximately 3 feet high, is located at the top of the slope.

A landslide recently occurred on the upper portion of the slope, approximately where shown on Figure 2. The top of the landslide is located approximately 1 foot below the toe of the rubble wall. The slide consisted of a shallow failure, less than approximately 2 feet in maximum depth. The total height of the portion of the slope over which the landslide occurred was visually estimated to be approximately 20 feet. At the time of our January 20, 2011 site visit, the slide area had been overlain by jute matting to control erosion. Vegetation remaining on the upper slope along the edges of the landslide consists predominantly of blackberries. The portion of the slope below the slide is forested (primarily with evergreen trees) with moderately thick to thick underbrush.

It should be noted that another slide recently occurred on the lower portion of the northern extension of the slope, on the adjoining property to the north. This slide reportedly occurred in mid-December and is located approximately 150 feet northwest of the slide on the subject property. The off-site slide is more deeply seated (approximately 7 feet deep) than the slide on the subject site. During a brief reconnaissance of the off-site slide, we observed emergent seepage flowing from the base of the slide scarp. Because no ground water seepage was observed in the area of the landslide on the subject site, it is apparent that the subsurface conditions, and factors that triggered the off-site slide are likely different than those within the area of the slide on the Scott property.

A detailed topographic survey of the property was not available at the time of our study. A 3-dimensional depiction of the morphology of the slope and surrounding area is shown in the LIDAR-based image of the site shown on Figure 3. LIDAR (Light Detection and Ranging) is a technology that utilizes lasers to determine the distance to an object or surface, such as the surface of the earth. LIDAR-generated images of the type shown on Figure 3, project an image of the ground surface that is free of vegetation or other surface obstructions. These images can reveal geomorphologic details not readily apparent in conventional aerial photographs. The topographic contours shown on Figure 3 are based on the LIDAR data. Slope gradients depicted on Figure 3 on the steep slope west of the house range from approximately 35 to 60 percent grade, with the steepest gradients occurring just below the top of the slope. The total height of the slope from its top in the rear yard of the subject site to its toe adjacent to 97th Place SE is approximately 70 feet.

The purpose of this study was to evaluate the stability of the slope and to provide geotechnical design recommendations for landslide hazard mitigation.

SUBSURFACE CONDITIONS

In order to evaluate subsurface conditions in the area of the landslide, two exploration borings were drilled near the top of the slope, approximately where shown on Figure 2. Drilling was conducted using a limited-access, dolly-mounted, hollow-stem auger drill rig. During drilling, soil samples were collected at depth intervals of approximately 2.5 to 5.0 feet using the Standard Penetration Test (SPT) procedure in accordance with *American Society for Testing and Materials* (ASTM):D 1586. This test and sampling method consists of driving a standard 2-inch, outside-diameter, split-barrel sampler a distance of 18 inches into the soil with a 140 pound hammer free-falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance ("N-Value"), or blow count. If a total of 50 blows is recorded within one 6-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration. The Standard Penetration Resistance provides a measure of the relative density of granular soils, or the relative consistency of cohesive soils; these values are plotted on the boring logs in Appendix A.

The samples obtained from the split-barrel SPT samplers were classified in the field and representative portions placed in water-tight containers. The samples were then transported to our laboratory for further visual classification and laboratory testing, as necessary.

Stratigraphy

Sediments encountered in the upper portions of both borings generally consisted of stiff to very stiff, tan to grayish tan silt with minor quantities of fine sand. At the location of exploration boring EB-1, the silt became hard below a depth of approximately 12 feet with slight fracturing, oxidized fracture surfaces, and scattered laminated zones. Similar sediments were encountered to the maximum depth explored in this boring of approximately 21.5 feet below the ground surface. Sediments encountered below a depth of approximately 12 feet in exploration boring EB-2 generally consisted of very dense, clean, fine sand. The very dense sand was encountered in this boring to the maximum depth explored of approximately 26.5 feet. Although the soil conditions encountered in the two borings were fairly different, the two borings were only drilled approximately 15 feet apart.

It is our opinion that the sediments encountered in the borings are representative of material deposited prior to the most recent glaciation of the subject area. This glacial period, known as the Vashon Stade of the Fraser Glaciation, occurred approximately 12,500 to 15,000 years ago. Review of the *Geologic Map of King County*, by Booth, Troost, and Wisher (2006) indicates that the area of the subject site is mapped as Vashon lodgement till with Vashon advance outwash sediments mapped on the lower portion of the slope. Although no pre-Vashon-aged sediments are mapped in the immediate vicinity of the subject site, some exposures of pre-Vashon sediments are mapped northwest of Meydenbauer Bay approximately 2 miles northwest of the subject site.

Hydrology

Although no ground water seepage was encountered in either of our borings, a minor amount of emergent seepage was observed near the toe of the slope, a few feet above 97th Place SE. It should be noted that the occurrence and level of ground water seepage below the site may vary in response to such factors as changes in season and precipitation patterns.

SLOPE STABILITY ANALYSIS

In order to evaluate the global stability of the proposed wall, we conducted a stability analysis of the slope using the slope modeling program Slope/W (Version 2007), by Geo-Slope International. The program used the Morgenstern-Price method for evaluating a rotational failure. Input parameters for the analysis included slope geometry, geology and ground water conditions, soil strength parameters, and dynamic (i.e., seismic) conditions. For our model, we assumed a slope inclination of 65 percent for the upper 20 feet of the slope, and an inclination of 50 percent for the remainder of the slope along the trace of section line A-A' (Figure 2). The 65 percent inclination used for the upper slope was estimated from maximum

hand-held inclinometer measurements observed within the area of the recent landslide. The 50 percent inclination used for the lower slope was based on the topography depicted on Figure 3.

For evaluation of slope stability under seismic conditions, a horizontal ground acceleration of 0.19g was used in our analysis. This seismic coefficient is equal to 0.5 times the 2009 *International Building Code* (IBC) peak ground acceleration. Soil strength parameters used for our analysis were assumed based on typical published values and our prior experience. The values assumed were conservatively selected to fall within the mid to lower range of typical values for the sediment types encountered. These values are shown in Appendix B.

As previously discussed, soil conditions differed fairly significantly between the two borings even though they were only located about 15 feet apart. For this reason, two separate models were evaluated for our analysis: one based on the conditions encountered in boring EB-1, and one based on the conditions encountered in boring EB-2. Because a minor amount of seepage was observed at the toe of the slope adjacent to 97th Place SE, a piezometric surface was included in the model, emerging a few feet above the toe of the slope.

The stability of a slope can be expressed in terms of its factor of safety. The factor of safety is the ratio between the forces that resist sliding to the forces that drive sliding. For example, a factor of safety of 1.0 would indicate a slope where the driving forces and the resisting forces are exactly equal. Increasing factor of safety values greater than 1.0 indicate increased stability. Factors of safety below 1.0 indicate conditions where driving forces exceed resisting forces and landsliding is imminent. In accordance with generally accepted engineering practice, factors of safety of 1.5 and 1.1 were considered to be the minimum acceptable values for slope stability under static and seismic conditions, respectively.

The results of the slope stability analyses are summarized below in Table 1. Copies of the Slope/W profiles, the soil strength parameters used for our analysis, and the calculated minimum factors of safety are provided in Appendix B.

Table 1
Summary of Slope Stability Analysis Results

Case	Minimum Factor of Safety	
	Static	Seismic
EB-1 Soil Conditions (Silt)	1.91	1.32
EB-2 Soil Conditions (Silt/Sand)	1.78	1.20
Minimum Acceptable Value	1.5	1.1

Our exploration was intended to evaluate the subsurface conditions in the area of the recent landslide. As previously discussed, the off-site landslide on the adjoining property to the north is deeper-seated than the sliding that occurred on the subject site, and occurred in an area of emergent seepage. Although no emergent seepage was observed in the area of the landslide on the Scott property, an area near the toe of the slope below the slide (adjacent to 97th Place SE)

was wet, indicating the presence of some emergent seepage in this area as well. Although no geomorphologic indications of previous sliding on the lower slope was observed, the presence of emergent seepage is a factor that increases the risk of sliding in this area. Review of the LIDAR image (Figure 3) indicates that the location of the recent off-site slide lies in a bowl-shaped depression on the lower slope. The morphology of this area suggests it may have been subjected to landslides in the past.

DESIGN RECOMMENDATIONS

Discussion

Our analysis indicates that the factors of safety calculated for the slope exceed the minimum generally accepted values of 1.5 and 1.1 for static and seismic conditions, respectively. It is important to recognize that the calculated values represent factors of safety with respect to the global stability of the slope. The recent slide that occurred on the slope is shallow, with a maximum estimated depth of approximately 2 feet or less and the slope stability analyses conducted for our study are not intended to model the potential for this sort of shallow landslide event.

In our opinion, this slide likely occurred as a result of saturation of the near-surface soils on the slope. The density/consistency of soils exposed on the face of such slopes is typically significantly lower than the underlying soils due to weathering and colluvial deposition. As a result, the shear strength of these materials is lower than the underlying intact sediments. Because of their reduced density, the permeability of weathered or colluvial sediments exposed on slope faces is also typically higher than that of the underlying unweathered sediments, increasing their vulnerability to saturation and further weakening. Although our analyses indicate that there is a low potential for a global, deep-seated failure of this slope, it is our opinion that there is a high risk of future, shallow failures similar to the recent slide. In particular, the head scarp of the recent slide is oversteepened and lies within approximately 1 foot of the toe of the existing rubble wall. There is a high risk that the head scarp will ravel to a more stable inclination, and such raveling could adversely impact the rubble wall.

Recommended Mitigation – Soldier Pile Wall Recommendations

In order to mitigate the risk damage to the existing rubble wall and landscaped portion of the yard, we recommend construction of a retaining wall at the top of the slope. It is our opinion that a soldier pile wall would be a suitable type of retaining structure for this application. Soldier piles consist of wide-flanged steel beams placed in pre-drilled holes that extend below the bottom of the retained soil zone. The portion of each soldier pile that extends below the retained soil height is grouted in place with sufficient-strength concrete to transmit the load from the soldier beams into the soil below the full depth of the retained soil. The portion of the soldier pile within the retained soil zone is backfilled with a relatively weak grout so that it may be removed, as necessary, for placement of lagging.

The soldier pile wall could be constructed in front of the existing rubble wall, and then backfilled, burying the rubble wall. Alternatively, the rubble wall could be removed. At a minimum, we recommend that the soldier pile wall extend laterally along the top of the slope at least 10 feet beyond the edges of the adjacent recent slide zone. The length of the wall could be increased beyond these points, if desired, to provide mitigation of additional area at the top of the slope.

We recommend that the soil immediately adjacent to the downslope side of the wall be excavated to a depth of 2 vertical feet below the existing grade to form a horizontal bench in front of the wall. The soil removed from this bench will reduce the driving force at the top of the steep slope and construction of the bench would eliminate the upper portion of the oversteepened slide scarp. Lagging should be placed between the soldier piles above the level of the bench. Given the height of the existing rubble wall of approximately 3 feet, removal of 2 feet of soil in front of the soldier pile wall would result in a total exposed wall height of 5 feet.

Because of the potential for continued landsliding on the downslope side of the wall, we recommend that the wall be designed to allow up to 5 vertical feet of additional soil loss on the east side of the wall. This would result in a wall designed to cantilever a vertical distance of 10 feet below the top of the wall. Greater loss of soil from in front of the wall would require supplemental soil anchors. A channel section should be welded to the soldier beams at the base of the lagging to provide support for the lagging in the event that continued loss of ground in front of the wall occurs. In the event of continued loss of ground in front of the wall, additional lagging should be added, as necessary, up to the full-recommended cantilever design height of 10 feet.

For wall heights of approximately 15 feet or less, soldier piles typically may be cantilevered without the use of tiebacks. For applications such as this where there are no settlement-sensitive structures near the back (upslope) side of the wall, the soldier pile wall may be designed using active lateral earth pressure conditions. Active earth pressure conditions will allow a small amount of movement of the retained soil and wall to develop the shear strength within the retained soil, and reduce the shoring design loads. Under these conditions, the amount of lateral movement of the wall will be equal to approximately 0.1 percent of the wall height. If minor settlement behind the wall does occur, we estimate that it will occur within a distance behind the wall approximately equal to the height of the retained soil.

For a cantilever shoring system, the applied lateral pressure can be represented by a triangular pressure distribution termed as an equivalent fluid density. We have provided equivalent fluid densities for shoring design based on a horizontal backslope behind the soldier pile wall. The equivalent fluid density presented subsequently does not account for stockpiled materials or additional surcharge loads within the influence zone behind the top of the wall. Based on these considerations and the anticipated soil conditions in the vicinity of the proposed retaining wall, we recommend design of the shoring with an active earth pressure condition using an equivalent fluid density of 35 pounds per cubic foot (pcf). The active pressure distribution should be assumed to be applied over the pile spacing above the base of the future soil level in

front of the wall (10 vertical feet). Below the base of the future downslope soil level, the lateral pressure should be applied over one concreted soldier pile diameter. To resist lateral loads, an allowable passive equivalent fluid unit weight of 250 pcf should be used for design assuming the soldier piles are embedded in the undisturbed, stiff to hard pre-Vashon silt or very dense sand sediments. The passive fluid pressure can be assumed to act over two concreted pile diameters. The passive pressure presented incorporates a factor of safety of at least 1.5.

Embedment depths of soldier piles below the design wall height of 10 feet must be designed to provide adequate lateral and/or kickout resistance to horizontal loads and satisfy force equilibrium. The design lateral resistance may be computed on the basis of the pressures presented previously. We recommend that lagging be installed over the full exposed height of the wall, with additional lagging to be added up to the maximum design height of 10 feet should additional loss of ground occur in front of the wall. Due to soil arching effects, lagging may be designed for 50 percent of lateral earth pressures used for wall design. Prompt and careful installation and backfilling of lagging will reduce potential loss of ground. Requirements for lagging should be made the responsibility of the wall contractor to prevent soil failure, sloughing, and loss of ground and to provide a safe working condition. We recommend that any voids between the lagging and the retained soil be backfilled. However, the backfill should not allow potential hydrostatic buildup behind the wall. Drainage behind the wall must be maintained. To help reduce the likelihood of soil migration from behind the lagging, we recommend the use of pea gravel for filling the voids behind the lagging.

Vertical loads on piles could be resisted by a combination of friction and end bearing. We recommend an allowable side friction value of 500 pounds per square foot (psf) and an end-bearing value of 10 kips per square foot (ksf) for design. The 10 ksf end-bearing value is predicated on embedment of at least 10 feet below the base of the retained soil zone and assumes penetration into the very stiff to hard pre-Vashon silt or very dense sand. These values include a factor of safety of at least 1.5.

A graphic representation of the active and lateral soil distributions is shown on Figure 4, "Soldier Pile Wall Design Criteria." The required pile lengths, steel reinforcement, and other design details should be determined by a structural engineer.

Although it is our opinion that the borings drilled for the soldier piles will generally remain open for a sufficient length of time to allow installation of the soldier piles, the contractor should be prepared to case the soldier pile borings if caving conditions are encountered to prevent loss of ground and facilitate proper grout placement.

Since completion of the piling takes place below ground, the judgment and experience of the geotechnical engineer or his field representative must be used for determining the acceptability of each pile. Consequently, the use of the presented design information requires that all piles be inspected by a qualified geotechnical engineer or engineering geologist from our firm who can interpret and collect the installation data and observe the contractor's operations. AESI,

acting as the owner's field representative, would keep records of pertinent installation data. A final summary report would then be distributed following completion of pile installation.

A survey of the surrounding structures and other critical reference points should be performed prior to construction activities. These points should then be accurately monitored both horizontally and vertically by a licensed surveyor, until the excavation is complete and permanent walls are constructed. A photographic and/or video survey is also recommended for surrounding structures to document their condition prior to development. This monitoring would act to provide early notice of slope movement or site settlement and provide an accurate record of pre-construction site conditions.

Future Wall Performance

The intent of the wall design presented in this report is to reduce the risk that loss of ground will occur within the landscaped portion of the yard in the event that additional landsliding should occur on the steep slope. Stabilization of a landslide mass from the top of the slide is difficult or impossible to accomplish and stabilization of the slope is not the intended purpose of the wall. The design recognizes the likelihood of future movement and incorporates the flexibility to accommodate a finite amount of movement. Building a wall that would not be affected by any future movement downslope may not be economically feasible. Therefore, the design as presented may need to be improved (i.e., tieback anchors) or augmented in the future.

PERMITTING CONSIDERATIONS

The steep slope on which the landslide occurred is classified by the City of Bellevue as a critical area due to the presence of the recent slope movement and due to the presence of slope inclinations in excess of 40 percent grade over a height exceeding 10 feet. Subsection 20.25H.055.C.3.M of the *Bellevue Municipal Code* (BMC) states that *"proposed stabilization measures within a critical area or critical area buffer to protect against streambank erosion or steep slopes or landslide hazards may be approved in accordance with this subsection."* In order for such work to be approved, the stabilization measure must be demonstrated to be technically feasible by addressing five factors. These five factors, along with our comments responding to the technical feasibility of each factor, are listed below.

1. **Site Conditions, including topography and the location of the primary structure in relation to the critical area.**

   The primary structure would consist of a soldier pile wall to be constructed near the top of the steep slope (i.e., near the top of the critical area). In order to protect the existing landscaped portion of the backyard, the wall would be constructed several feet in front (downslope) of the existing rubble wall. Because the top of the steep slope currently extends to within approximately 1 foot of the toe of the rubble wall, positioning the soldier

pile wall in front of the rubble wall would place the new wall within the critical area. The inclination of this portion of the slope is estimated to be approximately 60 percent grade.

2. **The location of existing infrastructure necessary to support the proposed measure or technique.**

   Existing infrastructure currently at risk of damage by landsliding includes the rubble wall and adjacent landscaped area of the backyard.

3. **The level of risk to the primary structure or infrastructure presented by erosion or slope failure and the ability of the proposed measure to mitigate that risk.**

   As previously discussed in this letter, it is our opinion that the risk of future shallow landslide events, similar in nature to the recent landslide event, is high. It is also our opinion that the recent landslide has resulted in an oversteepened condition that will likely ravel to a more stable inclination over time. Because the top of the existing slide scarp extends to within approximately 1 foot of the toe of the rubble wall, the risk posed by additional earth movement in this area to the rubble wall and adjacent portion of the yard is high. Construction of a soldier pile retaining wall at the top of the slope will effectively mitigate the risk of damage to the developed (landscaped) portion of the yard.

4. **Whether the cost of avoiding disturbance of the critical area or critical area buffer is substantially disproportionate as compared to the environmental impact of proposed disturbance, including any continued impacts on functions and values over time.**

   The rubble wall and adjacent landscaped portion of the yard are already existing so avoiding the critical area through the use of setbacks from these features does not apply in this case. The adjacent portion of the steep slope is vegetated primarily with blackberries. The area within the recent landslide is currently devoid of vegetation. The quality of the existing vegetation within the area of the proposed soldier pile wall is low.

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

   Permanent disturbance posed by the proposed wall construction will be limited to the footprint of the wall. Because the proposed retaining wall will have a small footprint, the area of permanent disturbance will be low. In addition, construction of the wall will provide a long-term reduction in disturbance by mitigating the risk of landslide-related disturbance behind (upslope of) the wall. Temporary disturbance resulting from construction of the wall will be limited to a relatively small area adjacent to the wall and in the adjacent upslope area outside of the critical area. This disturbance to the site can be readily mitigated through the use of prudent erosion control management practices, including, but not necessarily limited to:

- The use of properly embedded silt fencing around the lower perimeter of the cleared area.

- Stabilizing the construction entrance with a gravel pad to minimize tracking sediment off-site.

- Limiting the construction to the dry season (typically April 1st to October 31st).

- Temporarily covering areas stripped of vegetation during construction with mulch, plastic sheeting, or other temporary cover measures.

- Directing runoff from upslope areas away from the areas of disturbance.

- Hauling off or covering soil stockpiles with plastic sheeting, and limiting placement of stockpiled soils locations outside of the critical area.

- Monitoring the effectiveness of the erosion control practices in use and maintaining/improving these practices, as appropriate.

- Re-establishing vegetation in disturbed areas of the slope by placement of hydroseed and/or landscaping plants.

Removal of the existing blackberry cover in the disturbed portion of the steep slope and replacing these plants with hydroseed or native plants will result in a higher quality vegetative cover.

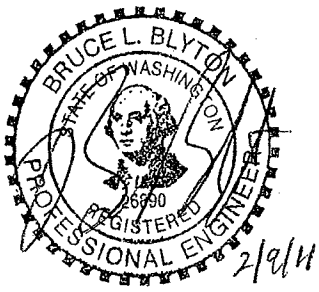
PROJECT DESIGN AND CONSTRUCTION MONITORING

Prior to proceeding with further design work, we recommend scheduling a pre-application meeting with the City of Bellevue to discuss any permitting/code issues the City may have for the project, prior to proceeding forward with further design work. A topographic survey of the project area will be needed to verify the estimated slope gradients assumed for our analysis and to determine the wall layout. We are available to assist you in arranging for this service.

We recommend that AESI perform a geotechnical review of the plans prior to final design completion. In this way, our earthwork and foundation recommendations may be properly interpreted and implemented in the design. We are also available to provide geotechnical engineering and monitoring services during construction. The integrity of the soldier pile wall will depend on proper construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent. Construction monitoring services are not part of this current scope of work. If these services are desired, please let us know, and we will prepare a proposal.

We appreciate this opportunity to have been of service to you with your project. Should you have any questions, or require additional information, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington



Timothy J. Peter, L.E.G., L.Hg.
Senior Project Geologist

Bruce L. Blyton, P.E.
Principal Engineer

Attachments:
Figure 1: Vicinity Map
Figure 2: Site and Exploration Plan
Figure 3: Site – LIDAR Imagery
Figure 4: Soldier Pile Wall Design Criteria
Appendix A: Exploration Logs
Appendix B: Slope/W Slope Stability Analysis Profiles

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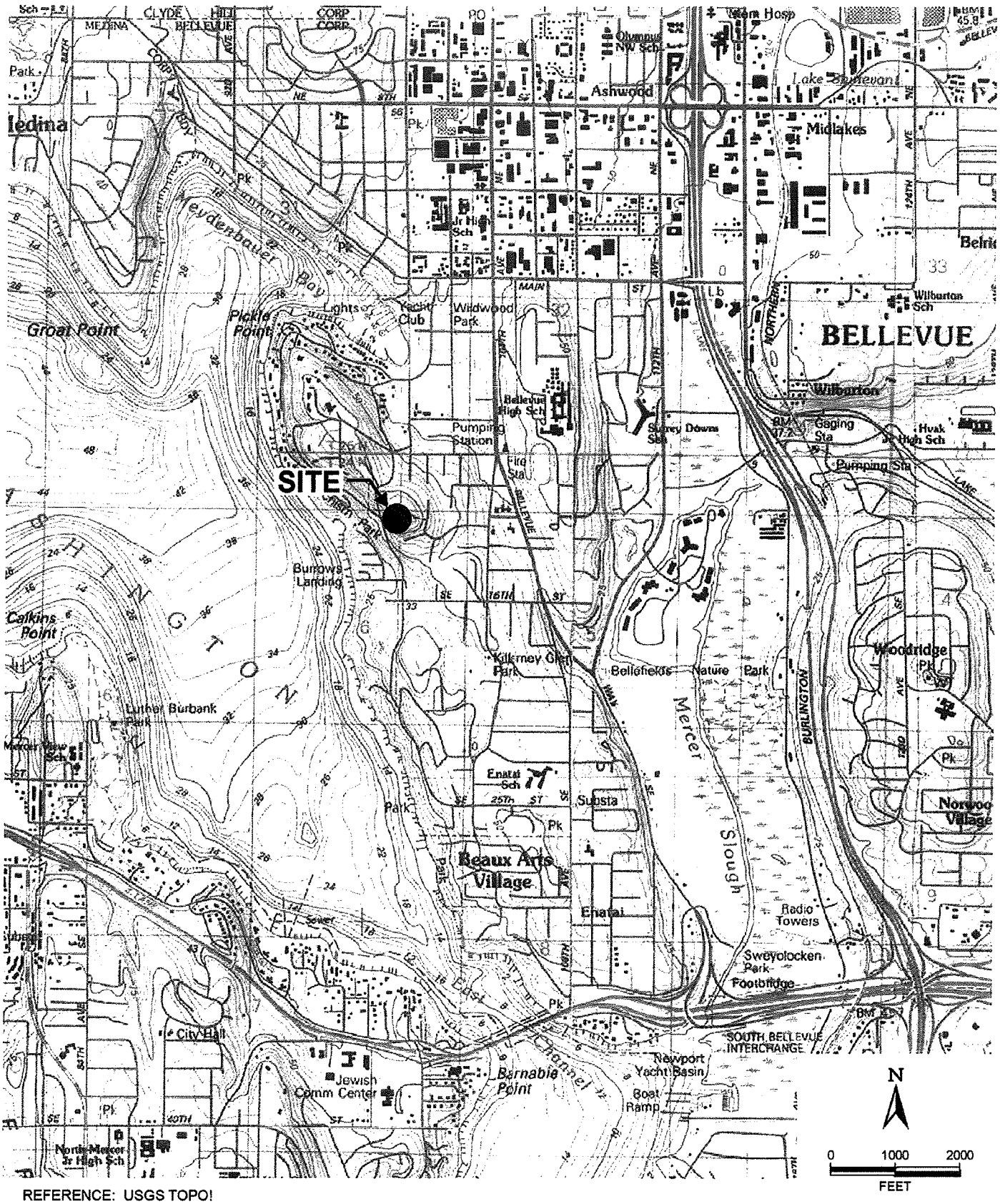
KE100403A2
Projects\20100403\KE\WP



REFERENCE: USGS TOPO!

Associated Earth Sciences, Inc.

VICINITY MAP

SCOTT RESIDENCE

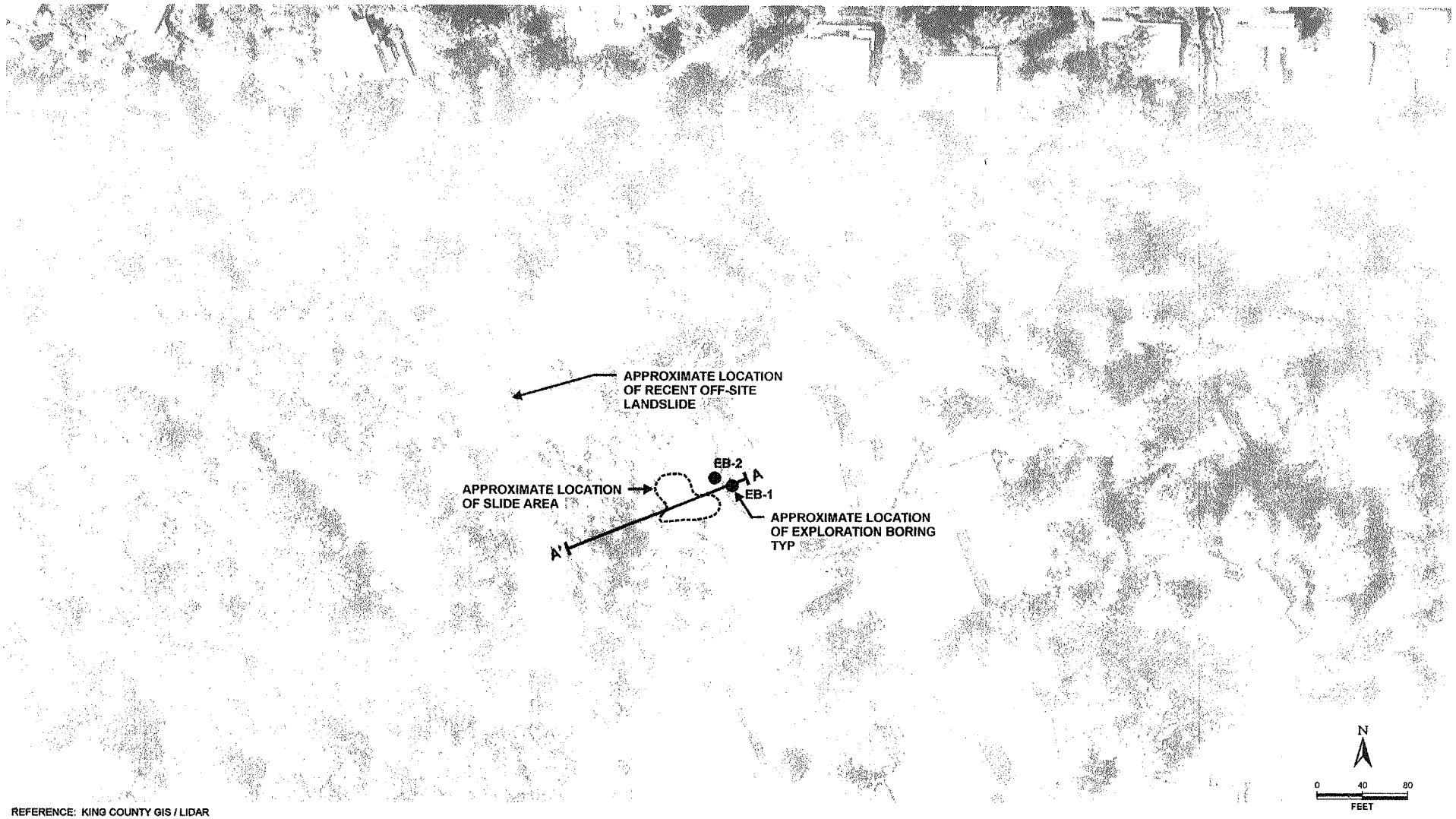
BELLEVUE, WASHINGTON

FIGURE 1

DATE 2/11

PROJ. NO. KE100403A

100403 Scott Residence \ 100403 Vicinity.cdr



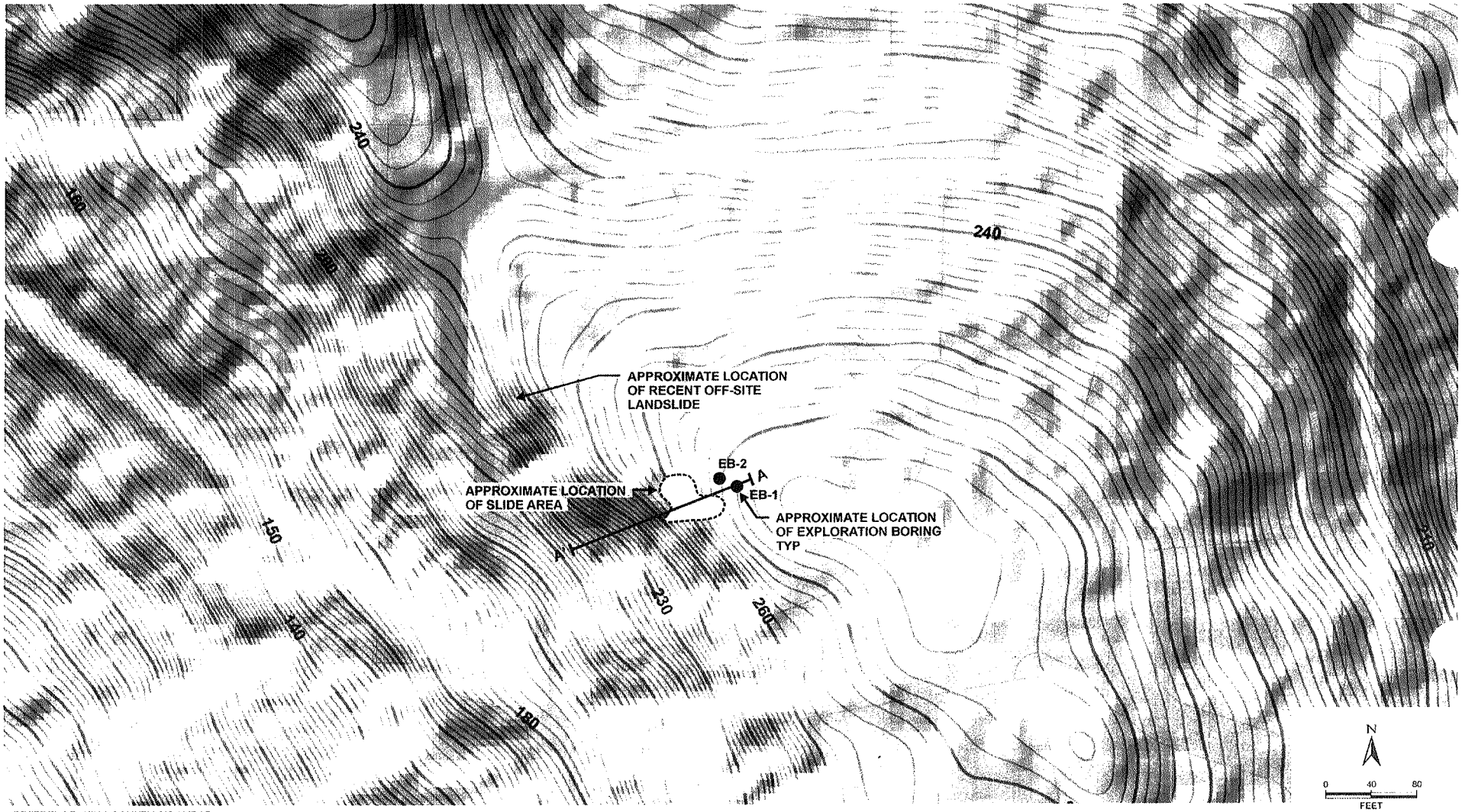
REFERENCE: KING COUNTY GIS / LIDAR

Associated Earth Sciences, Inc.

SITE AND EXPLORATION PLAN
SCOTT RESIDENCE
BELLEVUE, WASHINGTON

FIGURE 2
DATE 2/11
PROJ. NO. KE100403A

100403 Scott Residence \ 100403 Site and Expl.cdr PAGE 2: Expl

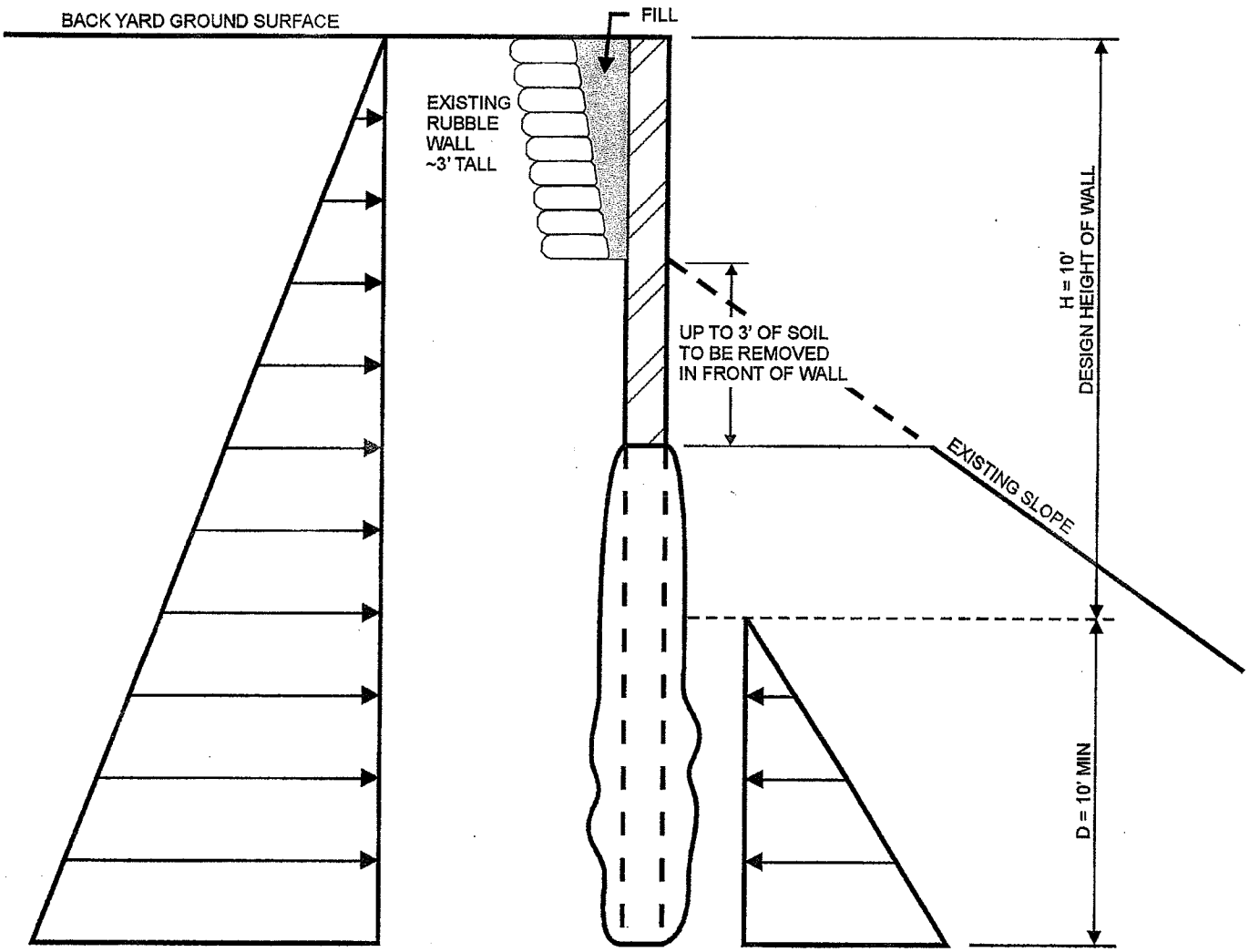


REFERENCE: KING COUNTY GIS / LIDAR

Associated Earth Sciences, Inc.

SITE - LIDAR IMAGERY
SCOTT RESIDENCE
BELLEVUE, WASHINGTON

FIGURE 3
DATE 2/11
PROJ. NO. KE100403A



NOTES:

1. SOLDIER PILE EMBEDMENT DEPTH "D" SHOULD CONSIDER NECESSARY VERTICAL CAPACITY, KICK-OUT, AND OVERTURNING RESISTANCE.
2. PASSIVE PRESSURE INCLUDES A FACTOR SAFETY OF 1.5.
3. DIAGRAM DOES NOT INCLUDE HYDROSTATIC PRESSURES AND ASSUMES WALLS ARE SUITABLY DRAINED TO PREVENT BUILDUP OF HYDROSTATIC PRESSURE.
4. DIAGRAM IS ILLUSTRATIVE AND NOT REFERENCED TO A PARTICULAR LOCATION.
5. DIAGRAM DOES NOT INCLUDE PRESSURES DUE TO SURFACE SURCHARGES INCLUDING, BUT NOT LIMITED TO SOIL STOCKPILES AND CONSTRUCTION EQUIPMENT.
6. LAGGING MAY BE DESIGNED USING 50 PERCENT OF THE ACTIVE EARTH PRESSURE.
7. ALLOWABLE SKIN FRICTION OF SOLDIER PILE: 500 PSF OVER DEPTH "D". ALLOWABLE END BEARING: 10 KIPS PER SQUARE FOOT.

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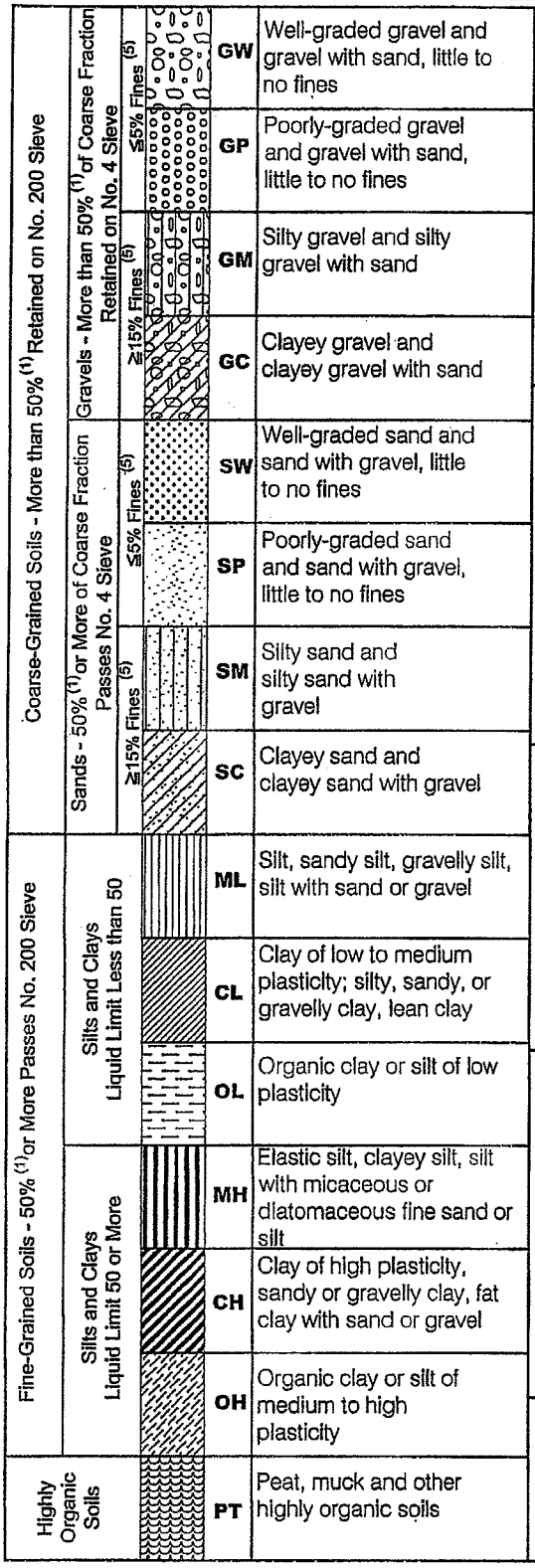
SOLDIER PILE WALL DESIGN CRITERIA
SCOTT RESIDENCE
BELLEVUE, WASHINGTON

FIGURE 4
DATE 2/11
PROJ. NO. KE100403A

APPENDIX A

Exploration Logs



Terms Describing Relative Density and Consistency

	Density	SPT (2) blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50
	Consistency	**SPT (2) blows/foot**
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

(3) Estimated Percentage

Component	Percentage by Weight
Trace	<5
Few	5 to 10
Little	15 to 25
With	- Non-primary coarse constituents: ≥ 15% - Fines content between 5% and 15%

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch

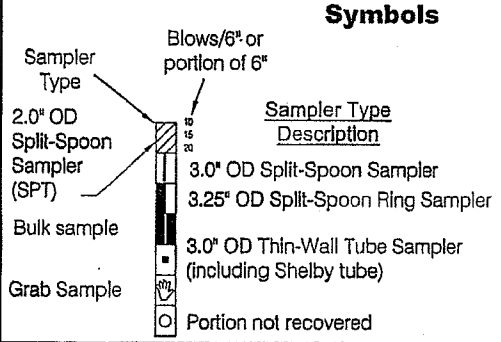
Slightly Moist - Perceptible moisture

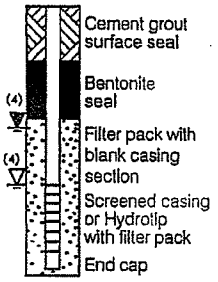
Moist - Damp but no visible water

Very Moist - Water visible but not free draining

Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
ATD = At time of drilling
Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 15%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

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EXPLORATION LOG KEY

FIGURE A1

blocks\log_key.dwg LAYOUT: Layout2

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Exploration Log

Project Number	Exploration Number	Sheet
KE100403A	EB-1	1 of 1

Project Name	Scott Residence	Ground Surface Elevation (ft)	Unknown
Location	Bellevue, WA	Datum	N/A
Driller/Equipment	CN Drilling/Acker	Date Start/Finish	1/18/11,1/18/11
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	4 1/2"

Depth (ft)	USCS	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
		S-1		3 inches sod/topsoil.			2 2 4	▲6	
				Pre-Vashon Undifferentiated Very moist, tan, fine sandy SILT (ML).					
		S-2		Becomes mottled, slight increase in moisture, few fine sand.			2 5 8	▲13	
5		S-3		Becomes grayish tan with rust mottling; trace fine sand.			5 8 15	▲23	
10		S-5		Contains scarce fine sand partings.			6 11 13	▲24	
		S-6		Slight decrease in moisture and no mottling; slightly fractured with oxidized fracture surfaces.			10 15 21	▲36	
15		S-7					8 12 22	▲34	
		S-4		(Driller adding water)			7 16 19	▲31	
20		S-8		Becomes gray, contains laminated zones.			15 22 26	▲48	
				Bottom of exploration boring at 21.5 feet Exploration terminated due to refusal.					
25									
30									
35									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: TJP

Approved by:

AESIBOR 100403A.GPJ January 21, 2011

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
KE100403A	EB-2	1 of 1

Project Name: Scott Residence
Location: Bellevue, WA
Driller/Equipment: CN Drilling/Acker
Hammer Weight/Drop: 140# / 30"

Ground Surface Elevation (ft): Unknown
Datum: N/A
Date Start/Finish: 1/18/11 ,1/18/11
Hole Diameter (in): 4 1/2"

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
		S-1		Topsoil			1 2 3	▲5	
				Pre-Vashon Undifferentiated Very moist, tan, SILT (ML).					
		S-2					2 3 4	▲7	
5		S-3		(Driller adding water) Lightly mottled.			6 8 15	▲23	
		S-4		Contains fine sand partings.			10 20 29	▲49	
10		S-5		Moist to very moist, tan, fine SAND, few silt. Very moist, tan, SILT (ML).			15 16 10	▲26	
		S-6		Moist, tan, fine SAND, few silt (SP).			18 27 40	▲67	
15		S-7		Gravelly drilling action at approximately 14 1/2 to 15 1/2 feet.			23 28 32	▲60	
				(Driller adding water)					
20		S-8		Becomes grayish tan, trace silt.			21 32 50	▲82	
25		S-9		Trace gravel, little silt at tip of sampler.			32 37 50/5"	▲50/5"	
				Bottom of exploration boring at 26.5 feet No ground water encountered.					
30									
35									

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: TJP
Approved by:

AESIBOR 100403A.GPJ February 2, 2011

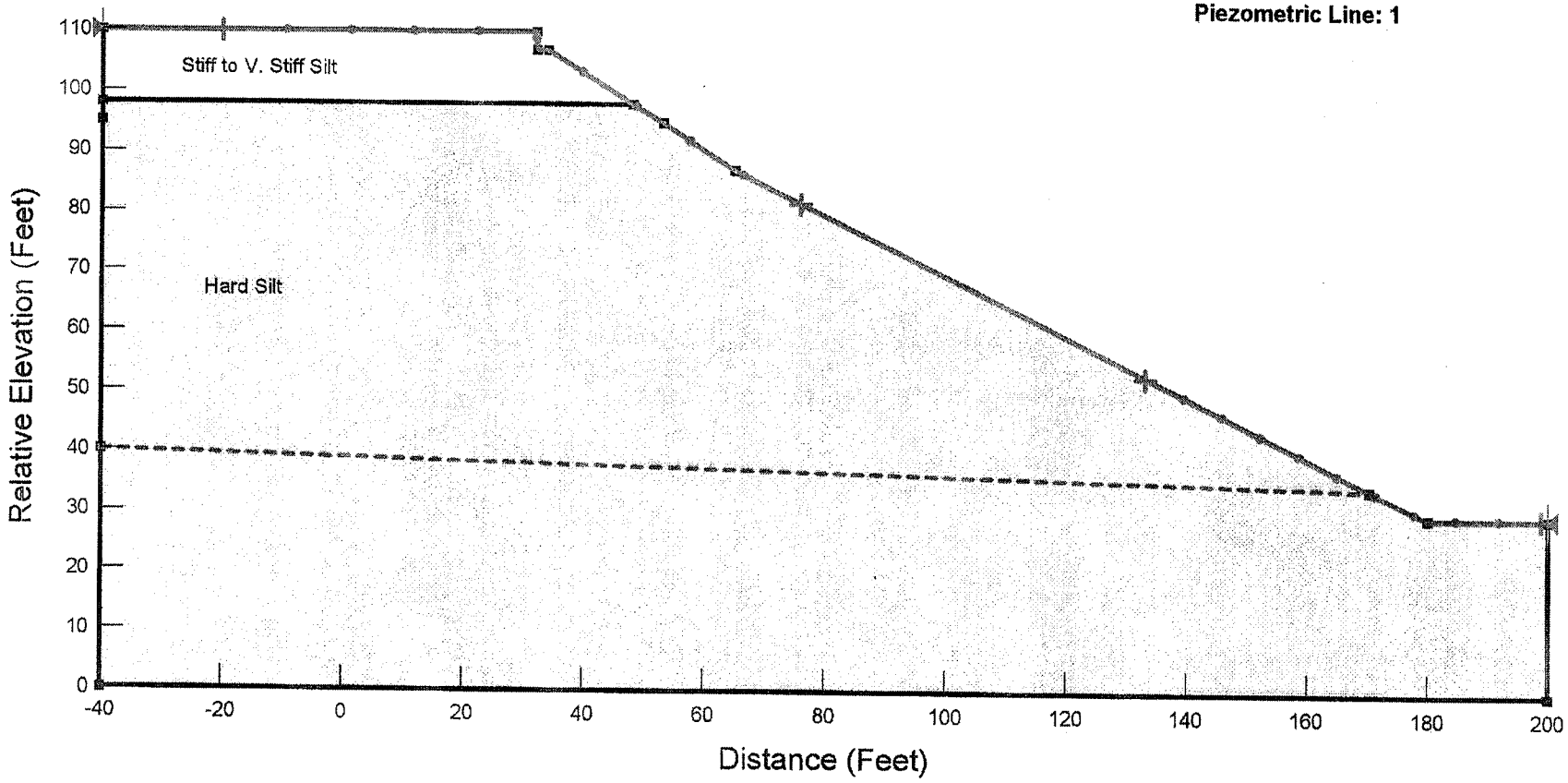
APPENDIX B

Slope/W Slope Stability Analysis Profiles

Scott Residence

Slope A-A' - Slope Geometry with Subsurface Conditions
Case 1: Stiff to Very Stiff Silt Over Hard Silt

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °
Piezometric Line: 1
Name: Hard Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 1000 psf
Phi: 25 °
Piezometric Line: 1

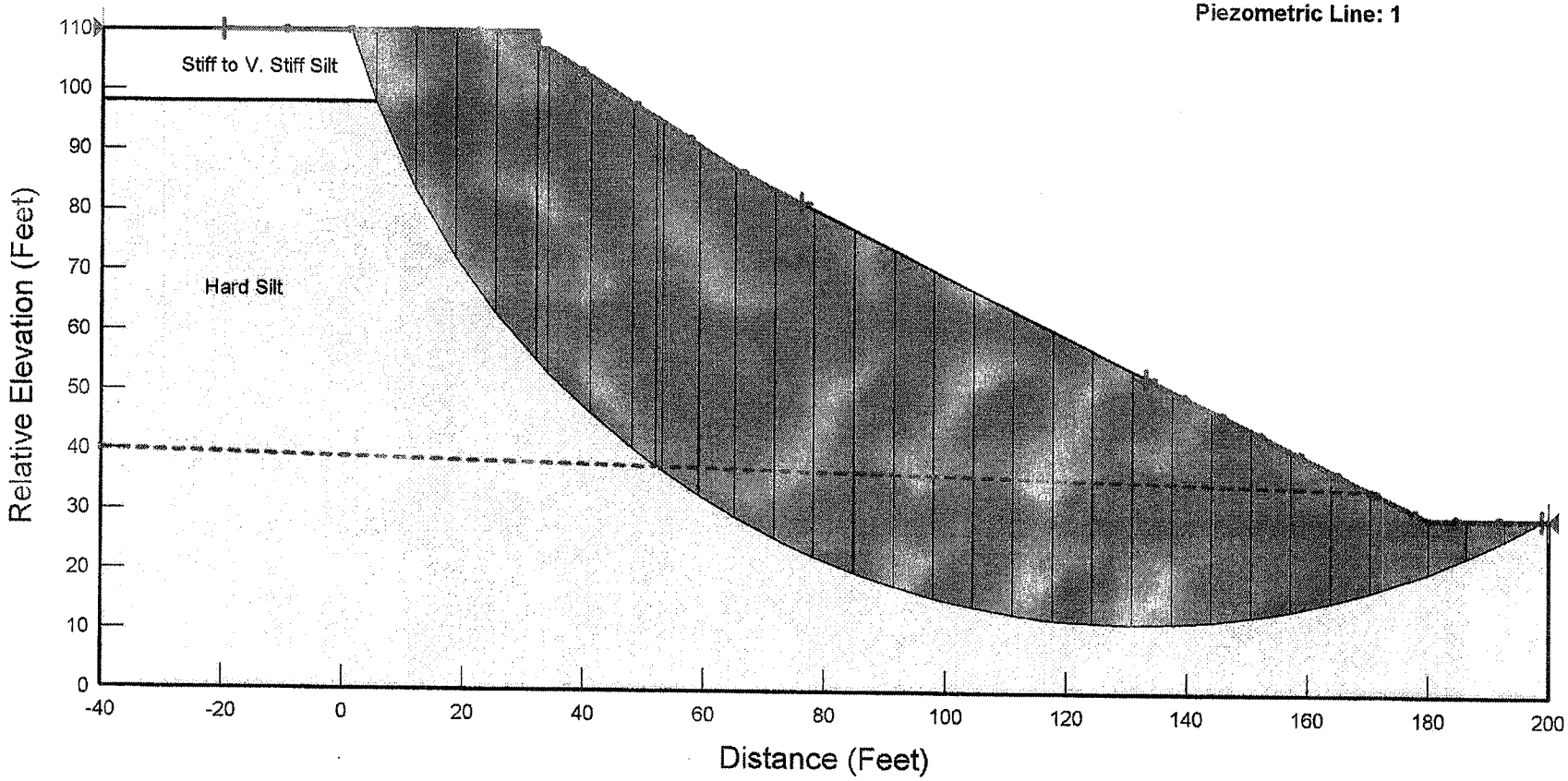


Scott Residence

Slope A-A' - Static Analysis
Case 1: Stiff to Very Stiff Silt Over Hard Silt

1.91

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °
Piezometric Line: 1
Name: Hard Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 1000 psf
Phi: 25 °
Piezometric Line: 1

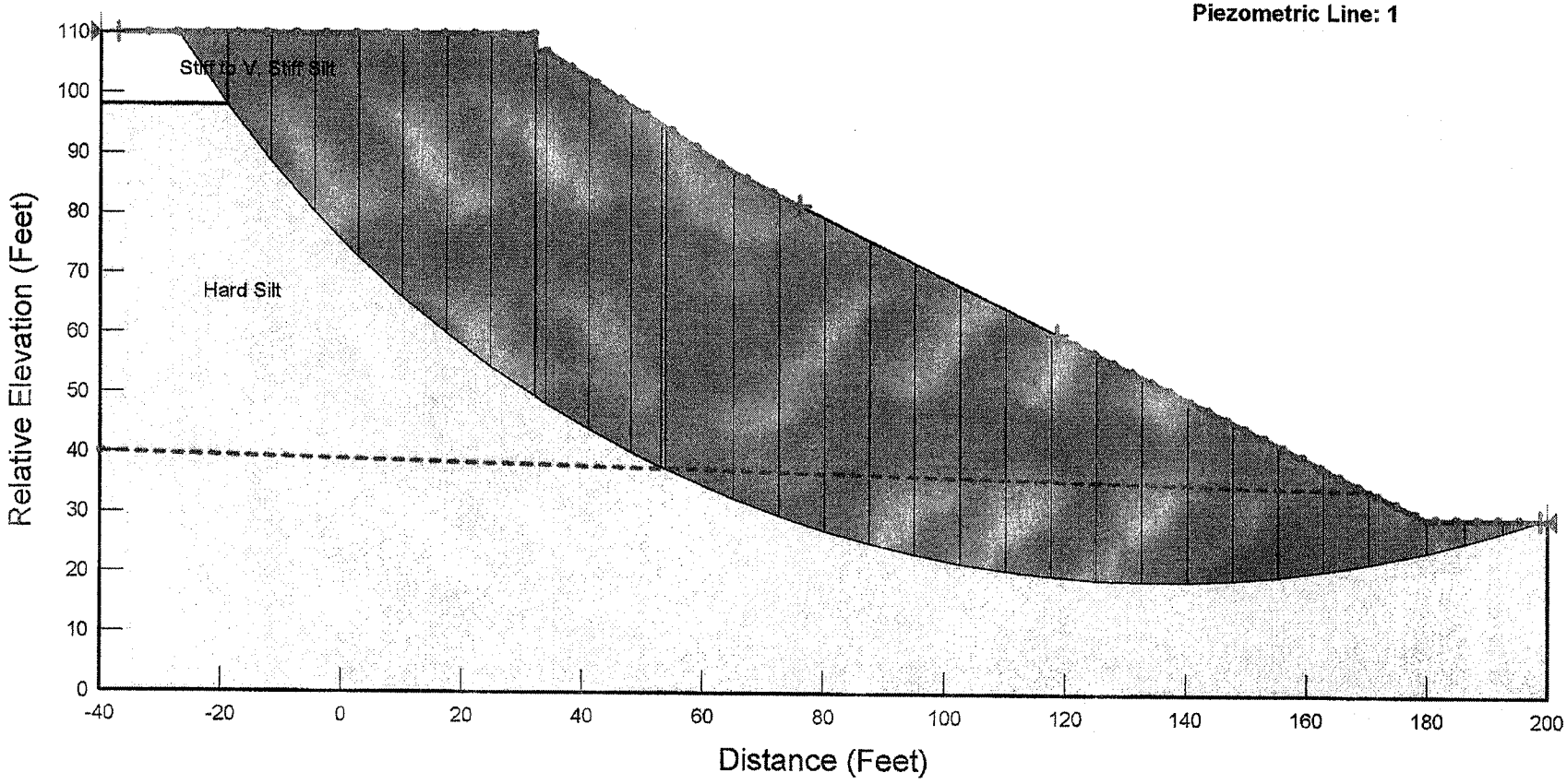


Scott Residence

Slope A-A' - Seismic Analysis 0.19g
Case 1: Stiff to Very Stiff Silt Over Hard Silt

1.32

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °
Piezometric Line: 1
Name: Hard Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 1000 psf
Phi: 25 °
Piezometric Line: 1

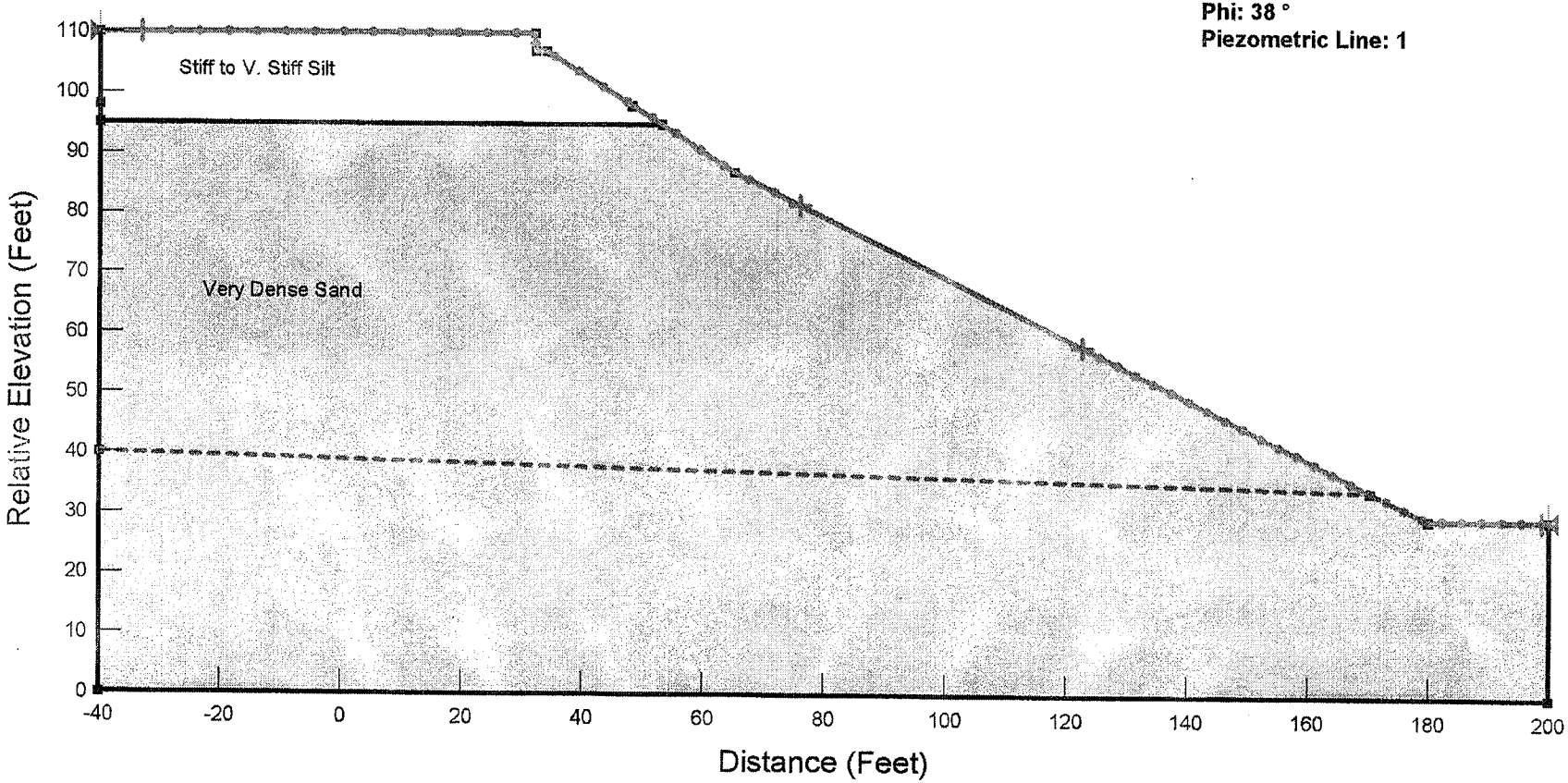


Scott Residence

Slope A-A' - Slope Geometry with Subsurface Conditions
Case 2: Stiff to Very Stiff Silt Over Very Dense Sand

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °

Name: Very Dense Sand
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 100 psf
Phi: 38 °
Piezometric Line: 1



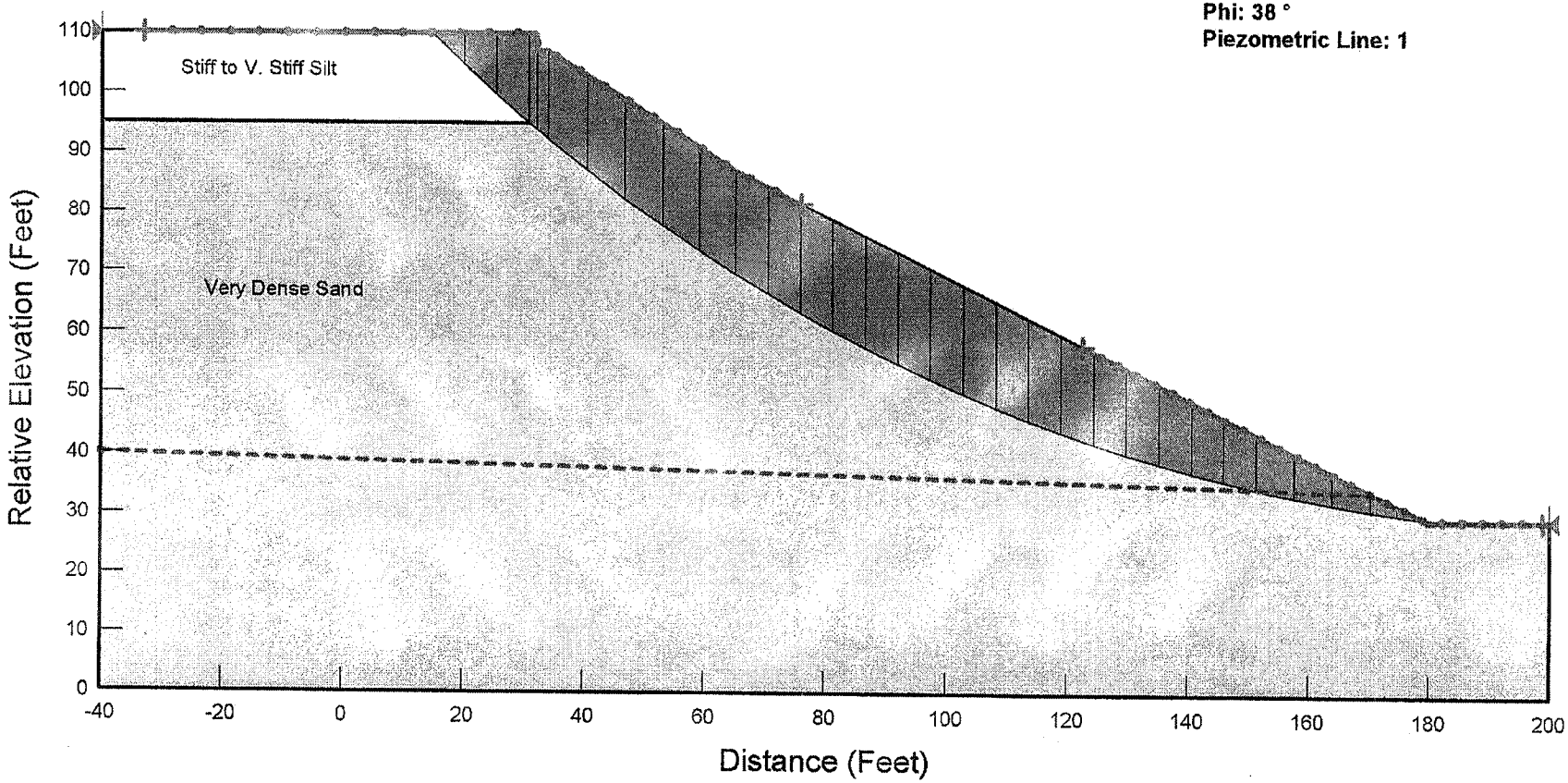
Scott Residence

Slope A-A' - Static Analysis
Case 2: Stiff to Very Stiff Silt Over Very Dense Sand

1.78

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °

Name: Very Dense Sand
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 100 psf
Phi: 38 °
Piezometric Line: 1



Scott Residence

Slope A-A' - Seismic Analysis 0.19g
Case 2: Stiff to Very Stiff Silt Over Very Dense Sand

1.20

Name: Stiff to Very Stiff Silt
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 500 psf
Phi: 20 °

Name: Very Dense Sand
Model: Mohr-Coulomb
Unit Weight: 120 pcf
Cohesion: 100 psf
Phi: 38 °
Piezometric Line: 1