



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

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**Proposal Name:** 310 Parkridge Lane Slope Stabilization

**Proposal Address:** 310 Parkridge Lane

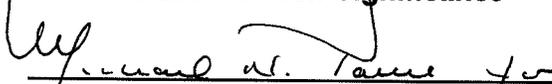
**Proposal Description:** The applicant is requesting a retroactive Critical Areas Land Use Permit to implement emergency stabilization measures within a top-of-slope critical area buffer. Work also includes installation of storm drainage connection through a geologic hazard critical area and vegetation restoration.

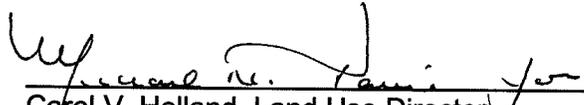
**File Number:** 09-126857-LO

**Applicant:** Jason Schemmel

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

**Planner:** Kevin LeClair, Planner

**State Environmental Policy Act  
Threshold Determination:** **Determination of Non-Significance**  
  
Carol V. Helland, Environmental Coordinator  
Development Services Department

**Director's Decision:** **Approval with Conditions**  
  
Carol V. Helland, Land Use Director  
Development Services Department

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**Application Date:** September 29, 2009  
**Notice of Application Publication Date:** October 8, 2009  
**Decision Publication Date:** November 12, 2009  
**Project/SEPA Appeal Deadline:** November 30, 2009

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



DEVELOPMENT SERVICES DEPARTMENT  
ENVIRONMENTAL COORDINATOR  
450 100<sup>th</sup> Ave NE., P.O. BOX 90012  
BELLEVUE, WA 98009-9012

## DETERMINATION OF NON-SIGNIFICANCE

**PROPONENT:** Jason Schemmel

**LOCATION OF PROPOSAL:** 310 Parkridge Lane

**NAME & DESCRIPTION OF PROPOSAL:**

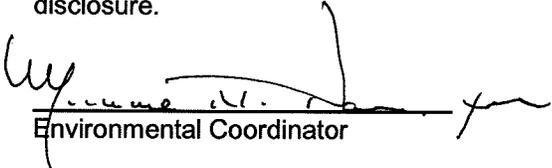
The applicant is requesting a retroactive Critical Areas Land Use Permit to implement emergency stabilization measures within a top-of-slope critical area buffer. Work also includes installation of storm drainage connection through a geologic hazard critical area and vegetation restoration.

**FILE NUMBER:** 09-126857-LO

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

- There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on \_\_\_\_\_.
- This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on November 30, 2009.
- This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on \_\_\_\_\_. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5 p.m. on \_\_\_\_\_.

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

  
Environmental Coordinator

November 12, 2009

Date

**OTHERS TO RECEIVE THIS DOCUMENT:**

State Department of Fish and Wildlife  
State Department of Ecology,  
Army Corps of Engineers  
Attorney General  
Muckleshoot Indian Tribe

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### **Attachments**

1. Geotechnical Evaluation
2. Environmental Checklist
3. Site Plan

## **I. Proposal Description**

The applicant is requesting a retroactive Critical Areas Land Use Permit to implement emergency stabilization measures within a top-of-slope critical area buffer. Work also includes installation of storm drainage connection through a geologic hazard critical area and vegetation restoration. The work was reviewed and permitted through a clearing and grading permit prior to the issuance of this Critical Areas Land Use Permit because the slope was at risk and work needed to occur prior to the onset of the rainy winter season.

The stabilization plans include driven H-beams and lagging tiered walls. The proposed system will incorporate relatively short cantilever pile retaining walls constructed about 10 feet from the western edge of the primary structure and second wall located lower on the slope along the non-disturbance area. Both walls will have maximum exposed heights of three feet. Total pile lengths are anticipated to be on the order of 20 feet. Once the piles are installed, pressure-treated timber lagging will be installed between the beams along the exposed section of wall. Landscaping will then be installed in the space between the walls.

The Land Use Code (LUC) Critical Areas Overlay District section 20.25H.055 classifies "slope stabilization measures" as an allowed land use in critical areas and critical area buffers when applicable performance standards can reasonably be met.

A portion of the property down-slope from the proposed stabilization measures contains a geologic hazard critical area steep slope, which is defined by LUC 20.25H.120 as a slope of 40 percent or more with a rise of 10 or more feet and a contiguous land area of at least 1000 square feet.

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

### **A. Site Description**

The property is located at 310 Parkridge Lane in the West Bellevue neighborhood area. The parcel is developed with a single-family residential primary structure. At the time of the writing of this report, the structure is under construction and nearing completion.

The property is approximately .99 acres in size. It slopes down to the west with views to the west of Seattle and Lake Washington. With the exception of the developed central portion of the property, the borders are vegetated with a dense mixture of native and invasive plants.

### **B. Zoning**

The property is zoned R-1.8. As stated above, the property contains a geologic hazard critical area, and therefore is within the critical areas overlay district.

### C. Land Use Context

The property is located on the western edge of the plat of Sibley Wood Addition in West Bellevue. The neighborhood is characterized by relatively private, approximately 1 acre lots with significant, established native landscaping. The property is accessed via a narrow, winding public road off of 104<sup>th</sup> Ave SE. One major defining trait of the property is the view to the west of Seattle and Lake Washington. The property is perched above the public right-of-way of 97<sup>th</sup> PI SE. The property can be seen from 97<sup>th</sup> PI SE, but the view is obscured by native and invasive vegetation and the steep slope.

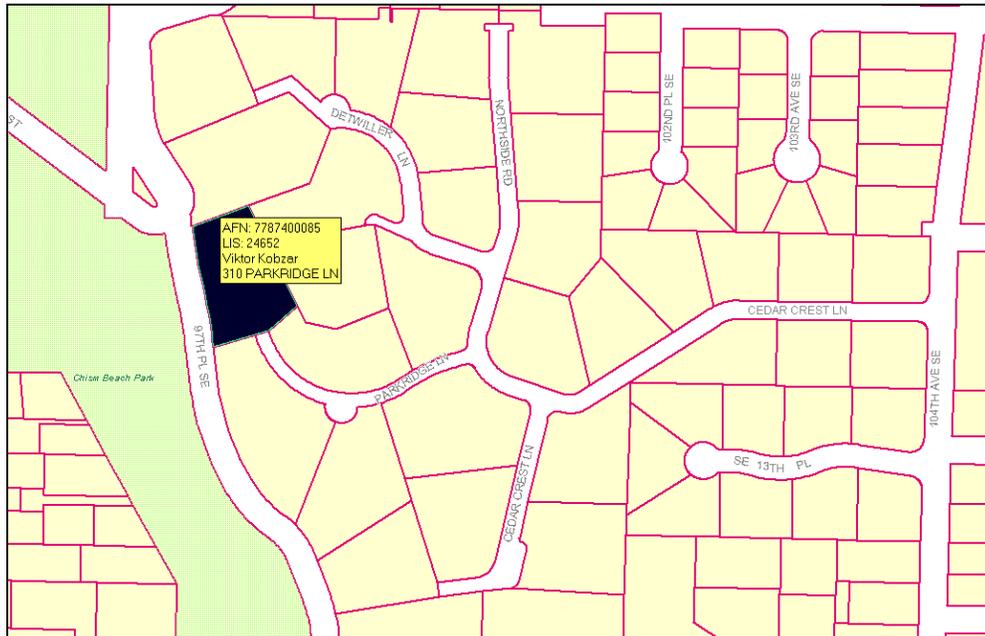


Figure 1: Vicinity Map

### D. Critical Areas Functions and Values

#### i. Geologic Hazard Areas

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

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

urbanized areas enhancing property values and buffering urban development.

### **III. Consistency with Land Use Code Requirements:**

#### **A. Zoning District Dimensional Requirements:**

The site is located in the R-1.8 land use zoning district. The activities proposed under this application pertain to the stabilization of a the top of the steep slope critical area between the approved single-family residence and 97<sup>th</sup> Place SE. The dimensional requirements stated in the land use code are not applicable.

#### **B. Critical Areas Requirements LUC 20.25H:**

##### **i. Performance Standards for Specific Uses LUC 20.25H.055**

Stabilization measures within a critical area or critical area buffer to protect against steep slopes or landslide hazards may be approved in accordance with this subsection.

New stabilization measures are allowed in order to protect existing primary structures and where avoidance measures are not technically feasible.

The slope in question has already begun to exhibit signs of a failure with several historic significant erosion events and the presence of several surface cracks along the top of the slope. The use of soft-stabilization measures were considered by the applicant's geotechnical engineer, but the type of slope failure that is occurring could only be stabilized in the time necessary to prevent a catastrophic failure using hard stabilization measures. A failure of the slope in this location would endanger the primary structure and the public right-of-way.

#### **C. Consistency with Land Use Code Critical Areas Performance Standards:**

##### **i. Performance standards for landslide hazards and steep slopes LUC 20.25H.125**

In addition to applicable performance standards set forth in LUC 20.25H.055, development within a steep slope critical area buffer shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

*The proposed two-tiered retaining wall system is designed to be the minimum necessary to stabilize the top of the slope in order to protect the existing primary structure above and the public right-of-way below. The natural contour of the site will remain unmodified with the exception of the two-tier retaining structure at the top of the slope.*

Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;  
*A determination was made that the most critical portion of the site is the steep slope critical area that was designated as a “non-disturbance” area as part of the development process for the single-family residence. The proposed stabilization measures preserve this area completely.*

The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;  
*A determination was made in the applicant’s geotechnical report that the proposed stabilization does not result in a greater risk or need for increased buffers on neighboring properties.*

The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;  
*The design of the two-tiered retaining wall system is minimizing any grading of the natural slopes on the site. The design includes filling behind the retaining structures with structural fill and planting soil for the establishment of the restoration plantings.*

Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;  
*The proposed stabilization measures are creating no new impervious surface on the property.*

#### **IV. Public Notice and Comment**

Application Date:	September 29, 2009
Public Notice (500 feet):	October 8, 2009
Minimum Comment Period:	October 22, 2009

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on October 8, 2009. It was mailed to property owners within 500 feet of the project site. No comments have been received from the public as of the writing of this staff report.

#### **V. Summary of Technical Reviews**

##### **Clearing and Grading:**

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

## **VI. State Environmental Policy Act (SEPA)**

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

### **A. Earth and Water**

A temporary erosion and sedimentation control plan is included in the project plans, and addresses all requirements for restoring the site to its current condition as well as erosion and sedimentation management practices. Erosion and sediment control best management practices include the installation of silt fencing below the work area and covering exposed soils to prevent migration of soils. In addition, a geotechnical engineer shall be on-site to supervise the installation of the piles and ensure surface soil stabilization measures are adequate. See Section X for a related condition of approval.

### **B. Animals**

The project site contains vegetation and a location in the landscape that is quality habitat for birds and mammals. The property is adjacent to a property that is known to contain an active bald eagle nest. The proposed construction of the proposed stabilization measures could pose a potential threat to the bald eagle. The project is to be constructed at a time of year that avoids disturbance to the bald eagle. This non-disturbance window is between the months of August and January. The project is also proposing to remove a tree to the northwest of the existing residence that was severely damaged during the construction process and is now posing a threat to the property. The loss of the tree will be mitigated by a full implementation of a restoration plan for all areas of temporary disturbance. See Section X for related conditions of approval.

### **C. Plants**

Mitigation for temporary and permanent disturbance will be approved pursuant to an approved re-vegetation plan. See Section X for related conditions of approval.

### **D. Noise**

The site is adjacent to single-family residences whose residents are most sensitive to disturbance from noise during evening, late night and weekend hours when they are likely to be at home. Construction noise will be limited by the City's Noise Ordinance (Chapter 9.18 BCC) which regulates construction hours and noise levels. See Section X for a related condition of approval.

## **VII. Changes to proposal as a result of City review**

No changes have been made to the project as a result of City review.

## **VIII. Decision Criteria**

### **A. Critical Areas Land Use Permit Decision Criteria 20.30P**

The Director may approve or approve with modifications an application for a critical areas land use permit if:

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

**Finding:** The proposed project is required to and has obtained a Right-of-Way Use Permit (09-114104-TG), a Clearing and Grading Permit (09-126856-GH), and a Utility Storm Connection Permit (09-126861-GH).

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

**Finding:** The proposed project has been designed and reviewed by the a geotechnical engineer. The design is the minimum necessary to stabilize the steep slope that is at risk of failure. The stabilization measures are within the most degraded area of the property and are avoiding any disturbance within the steep slope critical area.

#### **3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;**

**Finding:** *The proposal has incorporated and addressed all of the applicable performance standards enumerated in LUC 20.25H. See Section III above for a detailed discussion.*

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

**Finding:** The property is currently served by adequate public facilities. Nothing in the proposal will increase the need for public facilities at the property.

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

**Finding:** The applicant has supplied a restoration plan for all areas of temporary disturbance consistent with the requirements of LUC 20.25H.210.

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

**Finding:** As discussed in Section IV & V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

**IX. Conclusion and Decision**

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of Planning and Community Development does hereby **approve with conditions** the proposal to construct stabilization measures within the 50-foot critical area buffer at 310 Parkridge Lane, along with installation of necessary utilities from the primary structure down to 97<sup>th</sup> Place SE.

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

**X. Conditions of Approval**

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

<u>Applicable Ordinances</u>	<u>Contact Person</u>
Clearing and Grading Code- BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code- BCC 20.25H	Kevin LeClair, 425-452-2928
Noise Control- BCC 9.18	Kevin LeClair, 425-452-2928

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

**1. Restoration for Areas of Temporary Disturbance:** A restoration plan for all areas of temporary disturbance is required to be submitted for review and approval by the City of Bellevue prior to the issuance of the Clearing and Grading Permit. The plan shall include the documentation of existing site conditions and shall identify the restoration measures to return the site to a condition as good or better than exists presently per LUC 20.25H.220.H.

Authority: Land Use Code 20.25H.220.H  
Reviewer: Kevin LeClair, Land Use

**2. Rainy Season restrictions:** Due to the proximity to a steep slope critical area and the history of past erosion events, no clearing and grading activity may occur during the rainy season, which is defined as November 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,  
Reviewer: Savina Uzunow, Clearing and Grading

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

Authority: Bellevue City Code 9.18  
Reviewer: Kevin LeClair, Land Use

**4. Maintenance Assurance Device:** In order to ensure the required landscape restoration successfully establishes on the slope, a maintenance assurance device in an amount equal to 100% of the cost of labor and materials for the landscape installation shall be held for a period of three years from the date of successful installation. The maintenance assurance device will be released to the applicant upon receipt of documentation of reporting successful establishment in compliance with the performance standards stated in condition of approval #5 below.

Authority: Land Use Code 20.25H.210  
Reviewer: Kevin LeClair, Land Use

**5. Landscape Restoration Monitoring and Reporting:** In order to ensure the required landscape restoration successfully establishes on the slope, the landscape shall meet the following performance standards for a period of three years following installation:

Year 1: 100% survival of all installed plants  
Year 2: 95% survival of all installed plants  
Year 3: 90% survival of all installed plants

The applicant shall report annually on the survival of the installed plant materials within the month that the landscape plantings are installed.

Authority: Land Use Code 20.25H.210  
Reviewer: Kevin LeClair, Land Use



September 29, 2009  
ES-0268.04

Earth Solutions NW, LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Bank of America Home Loans  
c/o Trinity Inspection Services, LLC  
4851 LBJ Freeway, Suite 410  
Dallas, Texas 75244

Attention: Mr. Jason Schemmel

**Subject: Slope Stabilization Recommendations  
310 Parkridge Lane  
Bellevue, Washington**

Reference: C. G. Engineering  
Parkridge Lane Slope Stabilization Plans  
Sheets C1.1 through C3.2  
Dated September 22, 2009

Earth Solutions NW, LLC  
Geotechnical Assessment  
ES-0268.02, dated April 30, 2008

Dear Mr. Schemmel:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter with geotechnical recommendations for the proposed slope stabilization and storm drainage trench improvements to be located down slope of the new single-family residence currently under construction at the subject site. ESNW has also reviewed the referenced drawings prepared by C.G Engineering to confirm that the geotechnical recommendations provided in this letter have been incorporated into the plans.

### **Project History and Site Conditions**

The project was previously issued a stop-work notice by the City of Bellevue due to erosion and slope instability issues. The subject site is located off the north terminus of Parkridge Lane in Bellevue, Washington. The residence is situated on a westerly-facing slope descending to 97<sup>th</sup> Place Southeast. We understand fill was placed over the top of the descending slope as part of the initial site grading activities associated with the earlier construction activity associated with the new single-family residence. We understand the slope below the new residence was inundated with roof runoff during a December 2007 rain event. The rain event caused severe erosion including relatively deep channelization and soil migration via a debris flow.

## **Slope Stability**

~~Based on the soil conditions observed during recent site visits, the primary mode of slope instability is related to erosion within the fill soils previously placed along the slopes below the residential structure. In the current condition, we would expect further erosion and migration of the sandy fill soils to occur, especially during the rainy season. During a site visit in August 2009, a tension crack was observed between the fill slope crest and the covered patio area. In addition, Horsetail vegetation was observed along the lower flanks of the slope, suggesting perennial high moisture conditions are present in an area which corresponds to the bottom of the fill zone. In our opinion, given the conditions observed during our previous site visits, the slope is at risk of further movement and should be stabilized as soon as possible.~~

## **Summary and Opinion**

ESNW understands the primary focus of this phase of the project is to stabilize the slope and a stormwater drainage utility trench area below the structure so that the current stop work order can be lifted. Final landscape elements will be completed once the residence is complete. The referenced drawings prepared by C.G. Engineering describe the activities necessary to meet the objectives of the proposed site stabilization phase of the project. Following are geotechnical recommendations supporting the proposed activities described on the C.G. Engineering drawings.

## **Slope Stabilization**

The current stabilization plans include driven H-beams (W6x25) and lagging tiered walls. The proposed system will incorporate relatively short cantilever pile retaining walls constructed about ten feet from the western edge of the house envelope and a second wall located lower on the slope along the NGPA - No Disturbance zone of the site. Both walls will have maximum exposed heights of three feet. Total pile lengths are anticipated to be on the order of 20 feet; however longer piles may be required depending on conditions encountered during installation. Once the piles have been installed, pressure-treated timber lagging will be installed between the beams along the exposed section of wall. The driven beams combined with the short landscaping walls will enhance long term stabilization of the fill slope and reduce erosion potential along the slope face.

ESNW should observe the pile installation to confirm adequate penetration and refusal conditions and to provide supplement recommendations, if necessary.

## **Slope Regrading**

Regrading the existing slopes to provide a relatively consistent and compact slope face condition will also be incorporated into the overall stabilization efforts. The goal will be to essentially remove the areas of recent erosion and channelization and provide a stable slope surface. Silt fencing should be repaired and restored as part of the slope regrading activities.

### **Site Drainage Improvements**

~~Installing improved drainage components and tightlining all downspouts to an approved outlet~~  
below the existing slopes is proposed, and will provide enhanced stability. An interceptor or curtain drain will be installed along the top of the descending slopes. An interceptor drain detail is provided in note 2 on Sheet 3.2 of the referenced civil engineering plans. The drain system should be connected to a tightline and conveyed to an approved storm drainage discharge point.

### **Utility Trench Stabilization**

The utility trench located off the northwest corner of the new residence is currently incomplete and was affected by the rain event of December 2007. The utility trench was intended to accommodate roof stormwater from the residential structure. The drain will be completed using six-inch PVC (tightline) pipe and connected (field tapped) to an existing concrete pipe along 97<sup>th</sup> Place Southeast. The utility trench should be backfilled with two-inch minus crushed rock (or other comparable material approved by the geotechnical engineer) to reduce erosion and surface water infiltration along the trench alignment.

### **Emergency Repair Status**

The descending slope that defines the work area below the existing structure has shown susceptibility to moderate volume debris flows. A tension crack was observed near the western crest of the slope during a recent site visit attended by ESNW, the client representative, contractors and City of Bellevue staff members. Indications of potential surface seep areas were also observed near the existing silt fence during the recent site meeting.

Given the slope conditions and the presence of continued stability issues, in our opinion the slope repair activities should be given an emergency repair status so that stabilization can occur immediately or as soon as possible to help reduce further threat to public safety or private property. The rainy season will begin within approximately one month and the proposed stabilization measures should be installed prior to extended periods of wet weather. In our opinion, the risk of potential further debris flows resulting from saturated soils along the affected area will remain high until the proposed stabilization measures are in place.

In addition, the storm drain trench repairs should also be completed as soon as possible. The trench currently acts as a ditch; allowing concentrated runoff to travel towards the public right-of-way.

**Additional Recommendations**

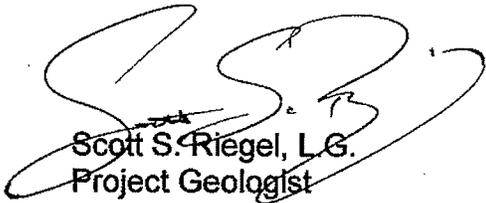
~~Once the site has been stabilized, the slope surface should be covered with jute matting, hydroseeded and covered with clear plastic. These measures will further protect the surface during the rainy season and until permanent landscaping elements can be installed.~~

ESNW should be on-site during the grading and stabilization activities to confirm project goals are achieved from a geotechnical standpoint and to provide supplement recommendations, as necessary. ESNW should also provide erosion control monitoring services during grading activities.

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

Sincerely,

**EARTH SOLUTIONS NW, LLC**



Scott S. Riegel, L.G.  
Project Geologist

Raymond A. Coglas, P.E.  
Principal

cc: C.G. Engineering  
Attention: Mr. Dennis Titus, P.E. (Email only)

**ENVIRONMENTAL CHECKLIST**

4/18/02

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.

**BACKGROUND INFORMATION**

Property Owner: **Bank of America**

Proponent: **Trinity Real Estate Solutions Inc.**

Contact Person: **Jason Schemmel**

(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: **4851 LBJ Parkway, Suite 410, Dallas TX 75244**

Phone: **972.865.0213**

**REVIEWED**

*By Kevin LeClair at 12:17 pm, Oct 06, 2009*

Proposal Title: **Park Ridge Lane Slope Stabilization**

Proposal Location: **310 Park Ridge Lane, Bellevue**

(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: **Slope stabilization, addition of retaining walls**
2. Acreage of site: **0.99 acres**
3. Number of dwelling units/buildings to be demolished: **None**
4. Number of dwelling units/buildings to be constructed: **None**
5. Square footage of buildings to be demolished: **Not applicable**
6. Square footage of buildings to be constructed: **Not applicable**
7. Quantity of earth movement (in cubic yards): **10 cy of fill; 60 cy of excavation**
8. Proposed land use: **There is an existing SFR on the property**
9. Design features, including building height, number of stories and proposed exterior materials:  
**Not applicable**
10. Other Slope stabilization is proposed to consist of soldier piles (6" by 25' i-beams) with wood lagging.

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

60 days from issuance of permit.

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

Not at this time.

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

Slope Stabilization Recommendations, November 14, 2008, Earth Solutions NW LLC  
Slope Stabilization Recommendations, September 29, 2009, Earth Solutions NW LLC

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.

Clearing & Grading Permit, Land Use Approval Permit, Residential Bldg Permit, Right of Way Use Permit, Storm Permit - applied September 29, 2009. Permit #09-126856 GH, 09-126857 LO.

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.

Clearing & Grading Permit, Land Use Approval Permit, Residential Bldg Permit, Right of Way Use Permit, Storm Permit - applied September 29, 2009

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  
Plan of existing and proposed grading  
Development plans
- Building Permit (or Design Review)  
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)? 40%

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.

Sand, gravel

**REVIEWED**

By Kevin LeClair at 12:19 pm, Oct 06, 2009

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

Tension crack was observed between the fill slope crest and the covered patio area during the geotechnical inspection September 29th caused by December 2007 rain event which included deep channelization and soil migration via a debris flow.

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

0.10 acres will be graded with 10 cy of fill and 60 cy of excavation materials.

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

Erosion has already occurred. The purpose is to stabilize the slope from further erosion.

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

No additional impervious surfaces other than existing.

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

See erosion control plan completed by CG Engineering

TESC required by Clearing and Grading Code,  
Bellevue City Code 23.76

**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.

Some dust during construction, main source of emissions expected from automobile and truck traffic during construction.

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

No.

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

Periodic watering of site to minimize dust emission during construction

**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

**REVIEWED**  
By Kevin LeClair at 12:20 pm, Oct 06, 2009

appropriate, state what stream or river it flows into.

No.

- (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.

No.

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.

**REVIEWED**

*By Kevin LeClair at 12:21 pm, Oct 06, 2009*

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.

Roof runoff and parking areas (driveway) to be connected to under pavement infiltration basins.

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

No.

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

Refer to TESC plans completed by CG Engineering.

#### 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?

See landscaping plan by Sublime Garden Design.

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:

See landscaping plan by Sublime Garden Design.

## 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:

Eagles fly and nest in the vicinity. The area is not in an eagle management area.

Birds: hawk, heron, eagle, songbirds, other: **General bird life.**

Mammals: deer, bear, elk, beaver, other: **None noted.**

Fish: bass, salmon, trout, herring, shellfish, other: **None**

- 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.

**No.**

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

**Buffers and landscaping should enhance habitat for birds.**

## 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.

**Electricity, natural gas**

- 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:

**Not applicable.**

## 7. Environmental Health

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

**No.**

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

**None expected.**

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

**None proposed.**

**REVIEWED**

**By Kevin LeClair at 12:23 pm, Oct 06, 2009**

b. Noise

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

Vehicle traffic on abutting roadways.

- (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.

Short term basis - construction equipment, personnel at work - 7 am to 5 pm  
Long term basis - None other than the usual traffic noise, neighborhood noise

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

Keep construction noise during the hours acceptable by the City ordinances.

Bellevue City Code 9.18 regulated construction related noise and the allowed hours of operation.

8. Land and Shoreline Use

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

Single family residences.

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

No.

- c. Describe any structures on the site.

Single family residence and detached garage.

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

No.

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

Residential

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

Residential

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

Not applicable.

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

No.

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

Unknown at this time.

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

None.

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

Not applicable.

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

**Project compatible with existing land use.**

## 9. Housing

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

**Not applicable. Property currently holds a single family residence.**

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

**Not applicable.**

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

**Not applicable.**

## 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? **Not applicable.**

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

**Not applicable.**

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

**Not applicable.**

The house is currently visible from the road and the road visible from the house. The proposed stabilization and revegetation plan will obscure this view of each other.

## 11. Light and Glare

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

**Not applicable.**

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

**Not applicable.**

**REVIEWED**

**By Kevin LeClair at 12:25 pm, Oct 06, 2009**

- c. What existing off-site sources of light or glare may affect your proposal?  
**Not applicable.**
- d. Proposed measures to reduce or control light or glare impacts, if any:  
**Not applicable.**

## 12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?  
**City parks less than 1 mile from the property**
- b. Would the proposed project displace any existing recreational uses? If so, describe.  
**Not applicable.**
- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:  
**Not applicable.**

## 13. Historic and Cultural Preservation

- a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.  
**No.**
- b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.  
**Not applicable.**
- c. Proposed measures to reduce or control impacts, if any:  
**Not applicable.**

## 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.  
**Bellevue Way SE, 104th Ave SE, Cedar Crest Lane, Northside Road**
- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?  
**No, approximately 1/2 mile**
- c. How many parking spaces would be completed project have? How many would the project eliminate?  
**Not applicable.**
- 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.**

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

Not applicable.

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

Not applicable.

**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.

Not applicable.

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

Not applicable.

**16. Utilities**

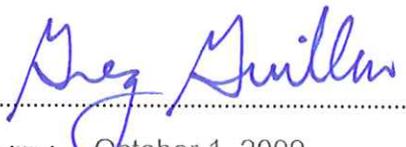
a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

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.

Not applicable.

**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..... October 1, 2009.....



Development Services  
Permit Processing (425) 452-4898

## CLEARING & GRADING PERMIT APPLICATION

Application Date:	C & G Permit #
Intake Tech:	Bldg Permit/LUX #

NOTE: Permit must be picked up within 60 days of notification that it is ready to issue, otherwise it will be cancelled.

1. Property Address 310 PARK RIDGE LANE BELLEVUE, WA 98004  
Project Name (if applicable) \_\_\_\_\_

2. Applicant JASON SCHEMME Phone (972) 865-0213  
Address 4851 LBJ FREEWAY STE 410 City DALLAS St TX Zip 75244

3. Contact Person SAME AS APPLICANT Phone ( )  
E-Mail Address jason.schemmel@trinityinspection.com FAX# ( )  
Mailing Address \_\_\_\_\_ City \_\_\_\_\_ St \_\_\_\_\_ Zip \_\_\_\_\_

4. Engineer DENNIS TITUS Phone (425) 778-8500  
Address 250 4TH AVE S City EDMONDS St WA Zip 98020

5. Contractor MASON MAWER Phone (425) 417 7019  
Address \_\_\_\_\_ City \_\_\_\_\_ St \_\_\_\_\_ Zip \_\_\_\_\_  
State Contractor's License # MAWERBL980RP Bellevue Business License # \_\_\_\_\_  
1-800-647-0982 425-452-6851

6. Legal Description SEE ATTACHED  
(If short plat, list short plat # plus lot #. If subdivision, list name, block & lot #. If unplatted, attach complete legal description.)

7. Detailed description of proposed work SLOPE STABILIZATION, ADDITION OF RETAINING WALLS, CONNECTION OF STORM DRAIN TO RIGHT OF WAY

8. Area (sq ft) of property under application 0.99 acres

9. Area (sq ft) to be cleared and/or graded 0.10 acres

10. Total cubic yards of fill (27 cubic ft = 1 cubic yard) 10

Total cubic yards of excavation (27 cubic ft = 1 cubic yard) 60  
(NOTE: cubic yards of fill and excavation are independent of each other)

11. Area (sq ft) of land to be covered by impervious surface no additional impervious surfaces

12. Identify any stream, surface water, drainage course, or wetlands on or within 200 ft of the property.

13. Land Use Approval(s) required for this application: (List if applicable to your project.)  
p Prior \_\_\_\_\_ File # \_\_\_\_\_ p In Progress \_\_\_\_\_ File # \_\_\_\_\_

BCC 23.10.033 - Agreement regarding vested rights: The filing of an application for any of the required approvals prior to the filing of a valid and complete application for a building permit shall not establish or create a vested right to proceed with construction of any proposed project

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

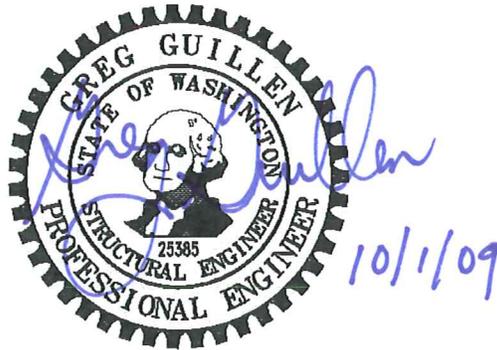
*I certify that the information on this application is true and correct and that the applicable requirements of the City of Bellevue, RCW, DOE and the State Environmental Policy Act (SEPA) will be met.*

Signature *Greg Sullivan* Date 9/29/09  
(Owner or Owners Agent) Revised 11/17/08

# Structural Calculations

FOR

Park Ridge Lane Slope Stabilization  
310 Park Ridge Lane  
Bellevue, WA



CG Engineering Project No. 09116.10

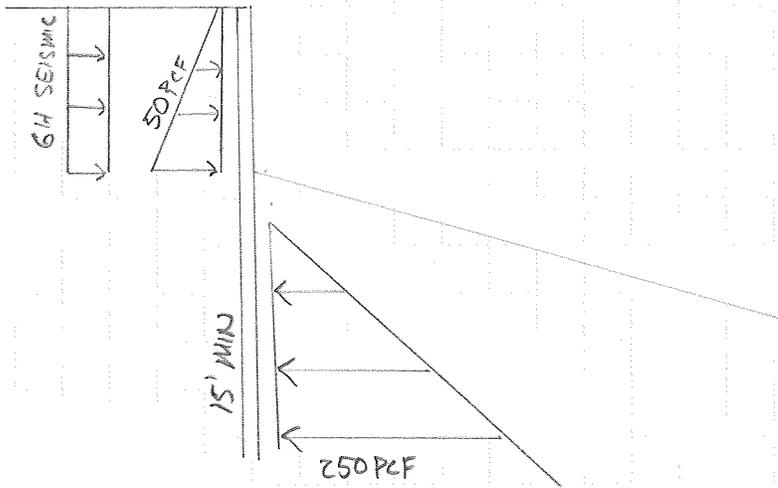
September 28, 2009



250 4<sup>th</sup> Avenue S, Suite 200  
Edmonds, WA 98020  
(425) 778-8500

# WALL DESIGN

PILE HEIGHT	" PILE SIZE	SEISMIC LOAD	MAX DEFLECTION	MIN EMBED	SPACING
4'-0"	W6x25	24 PSF	0.72"	15'-0"	6'-0"
3'-0"	W6x25	18 PSF	0.53"	15'-0"	8'-0"
2'-0"	W6x25	12 PSF	0.49"	15'-0"	8'-0"



PRESSURE DIAGRAM (PER GEOTECH)



250 4th Ave. South  
Suite 200  
Edmonds, WA 98020

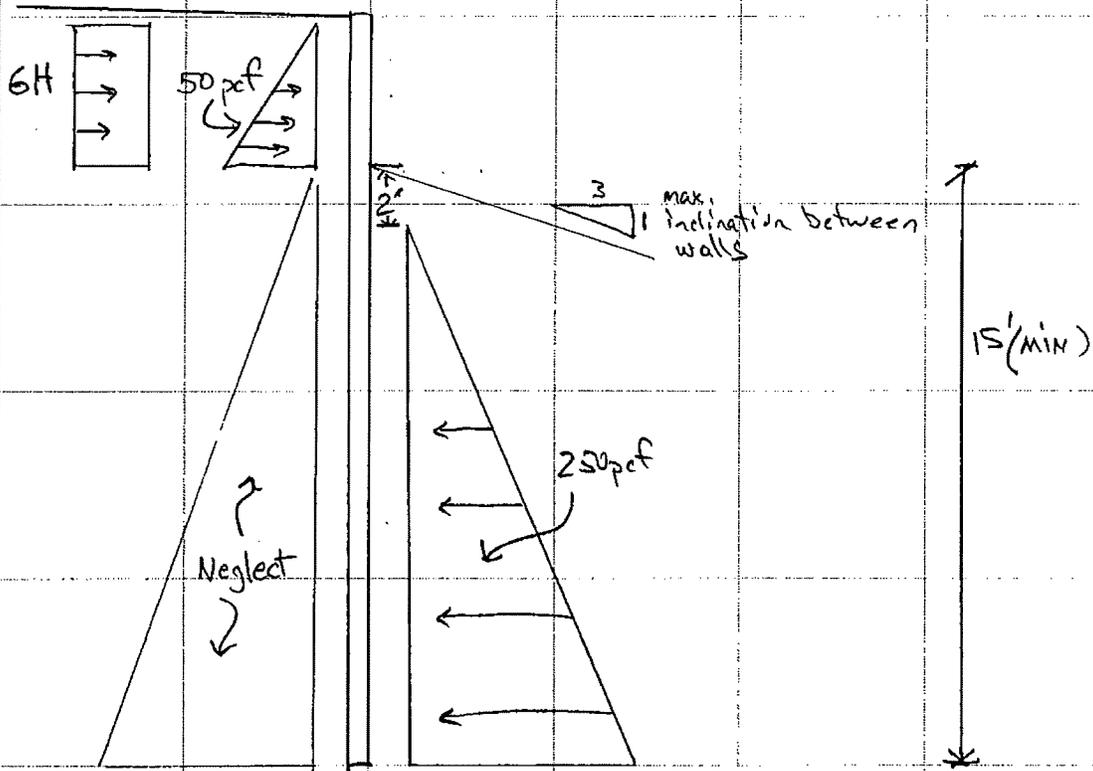
Description WALL DESIGN	By DMT	Date 9/16/09
	Checked	Date
Project FAIRBRIDGE CAME	Scale	Sheet No.
	Job No. 0911610	



# Earth Solutions NW LLC CALCULATION SHEET

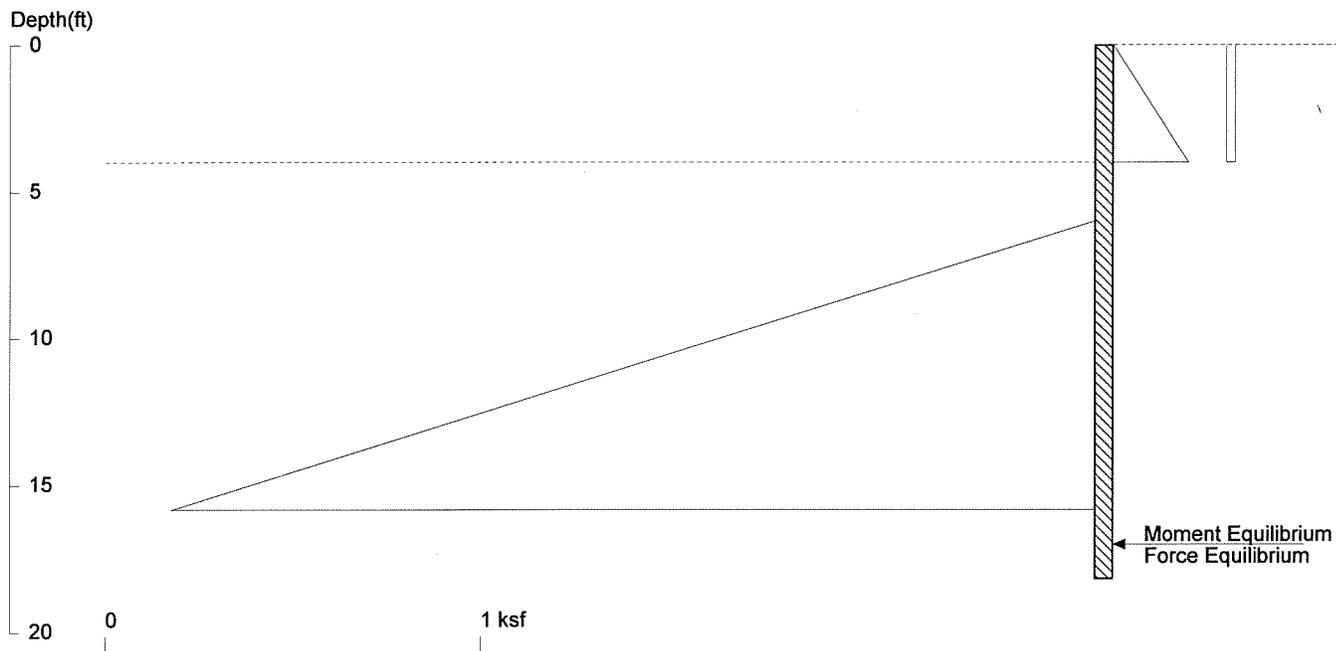
Name: Scott Riegel  
Date: 9/15/09  
Project Number: ES-0268.04  
Project Name: 310 Parkridge Lane

## Preliminary Pile Wall Design Recommendations



(NFS)

# 4'-0" Tall 6'-0" Spacing



<ShoringSuite> CIVILTECH SOFTWARE USA [www.civiltechsoftware.com](http://www.civiltechsoftware.com)

Licensed to 4324324234 3424343 Date: 9/16/2009  
 File: R:\2009 Projects\09116.10 Parkridge Lane Slope Stabilization\Engineering\4ft tall.sh8  
 UNITS: Dimension - ft; Force and Shear - kip; Pressure and Stress - ksf; Moment - kip-ft; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in.

Wall Height=4.0 Pile Diameter=0.5 Pile Spacing=6.0 Wall Type: 3. Soldier Pile, Driving

PILE LENGTH: Min. Embedment=14.19 Min. Pile Length=18.19  
 MOMENT IN PILE: Max. Moment=19.98 per Pile Spacing=6.0 at Depth=10.89

**PILE SELECTION:**

Request Min. Section Modulus = 7.3 in<sup>3</sup>/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66  
 Selected Pile, W6X25, S = 16.7 in<sup>3</sup>/pile It is greater than Request Min. Section Modulus  
 Top Deflection = 0.72(in) based on E (ksi)= 29000.00, I (in<sup>4</sup>)/pile= 53.4

**DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):**

Z1	P1	Z2	P2	Slope
0	0	4	0.200	.05
0	.024	4	0.024	

**PASSIVE PRESSURES:**

Z1	P1	Z2	P2	Slope
6.0	0.00	800.0	198.50	0.250

**ACTIVE SPACING:**

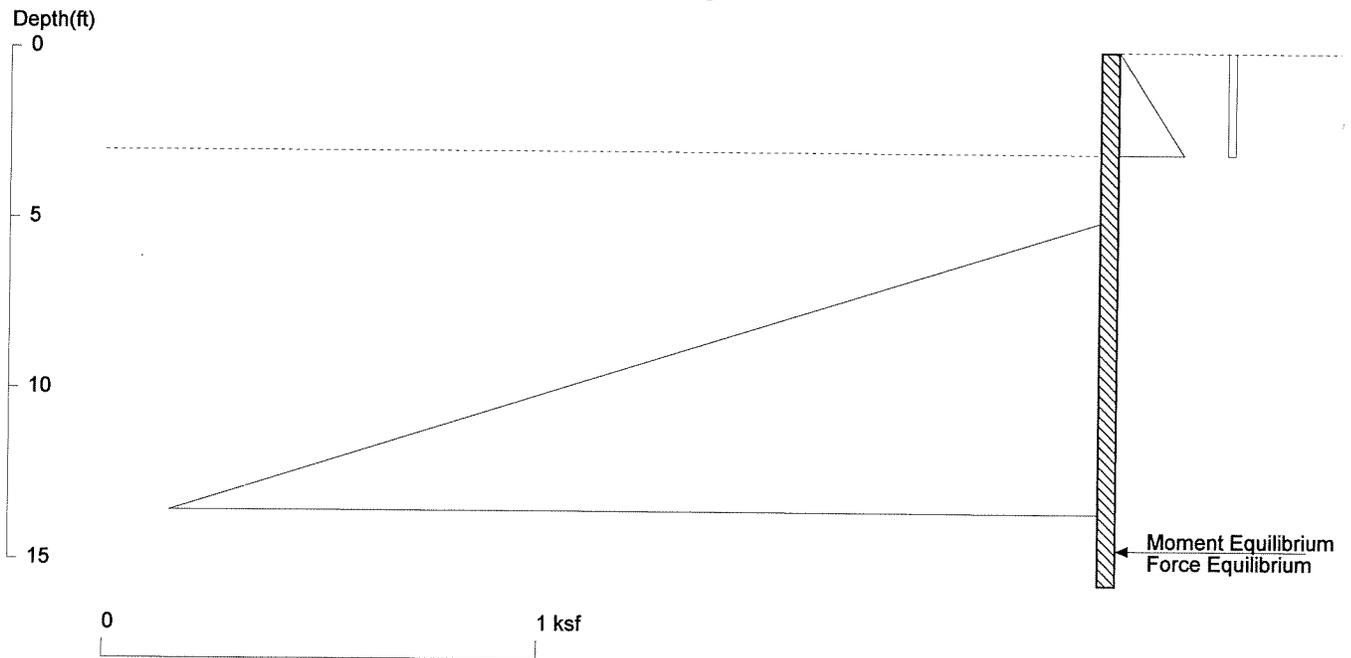
No.	Z depth	Spacing
1	0.00	6.00
2	4.00	0.50

**PASSIVE SPACING:**

No.	Z depth	Spacing
1	4.00	1.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft  
 Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in

## 3'-0" Tall 8'-0" Spacing



<ShoringSuite> CIVILTECH SOFTWARE USA [www.civiltechsoftware.com](http://www.civiltechsoftware.com)

Licensed to 4324324234 3424343 Date: 9/16/2009  
 File: R:\2009 Projects\09116.10 Parkridge Lane Slope Stabilization\Engineering\3ft tall.sh8  
 UNITS: Dimension - ft; Force and Shear - kip; Pressure and Stress - ksf; Moment - kip-ft; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in.

Wall Height=3.0 Pile Diameter=0.5 Pile Spacing=8.0 Wall Type: 3. Soldier Pile, Driving

PILE LENGTH: Min. Embedment=12.65 Min. Pile Length=15.65  
 MOMENT IN PILE: Max. Moment=13.20 per Pile Spacing=8.0 at Depth=9.23

### PILE SELECTION:

Request Min. Section Modulus = 4.8 in<sup>3</sup>/pile, F<sub>y</sub> = 50 ksi = 345 MPa, F<sub>b</sub>/F<sub>y</sub>=0.66  
 Selected Pile, W6X25, S = 16.7 in<sup>3</sup>/pile It is greater than Request Min. Section Modulus  
 Top Deflection = 0.53(in) based on E (ksi) = 29000.00, I (in<sup>4</sup>)/pile = 53.4

### DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	3	0.150	.05
0	.018	3	0.018	

### PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
5.0	0.00	800.0	198.70	0.250

### ACTIVE SPACING:

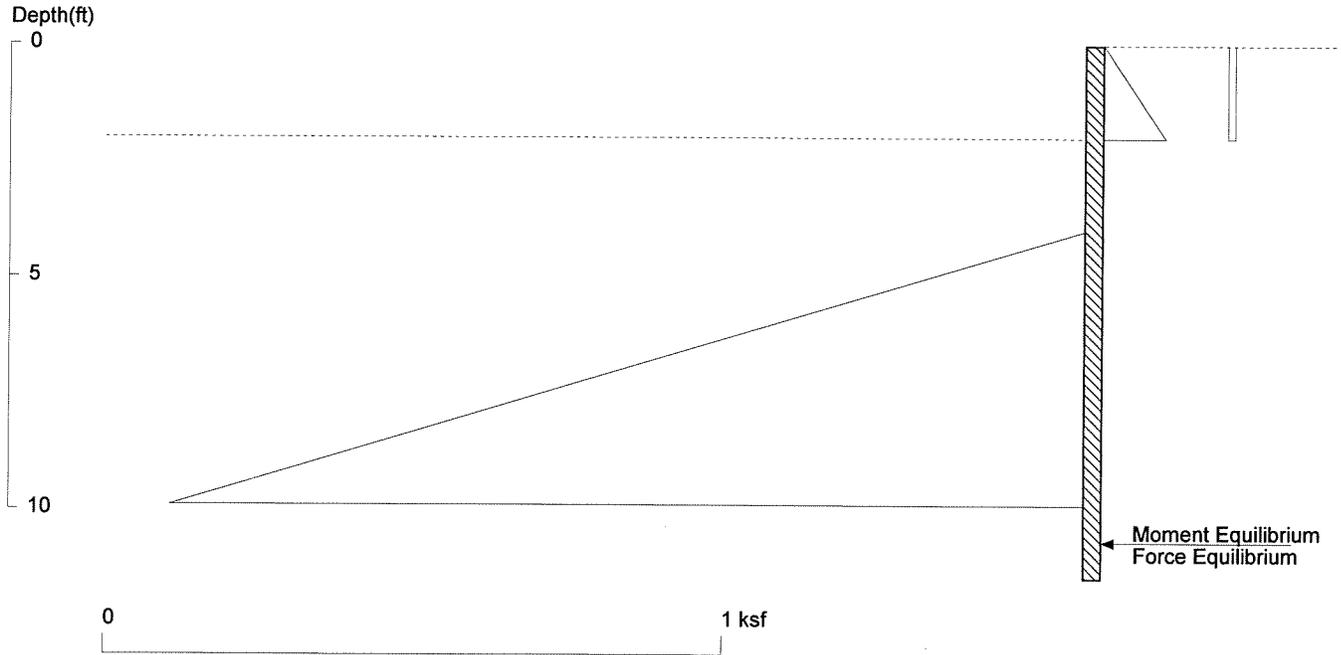
No.	Z depth	Spacing
1	0.00	8.00
2	3.00	0.50

### PASSIVE SPACING:

No.	Z depth	Spacing
1	3.00	1.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft  
 Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in

## 2'-0" Tall 8'-0" Spacing



<ShoringSuite> CIVILTECH SOFTWARE USA [www.civiltechsoftware.com](http://www.civiltechsoftware.com)

Licensed to 4324324234 3424343 Date: 9/16/2009  
 File: R:\2009 Projects\09116.10 Parkridge Lane Slope Stabilization\Engineering\2ft tall.sh8  
 UNITS: Dimension - ft; Force and Shear - kip; Pressure and Stress - ksf; Moment - kip-ft; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in.

Wall Height=2.0 Pile Diameter=0.5 Pile Spacing=8.0 Wall Type: 3. Soldier Pile, Driving

PILE LENGTH: Min. Embedment=9.48 Min. Pile Length=11.48  
 MOMENT IN PILE: Max. Moment=4.57 per Pile Spacing=8.0 at Depth=6.81

### PILE SELECTION:

Request Min. Section Modulus = 1.7 in<sup>3</sup>/pile, F<sub>y</sub> = 50 ksi = 345 MPa, F<sub>b</sub>/F<sub>y</sub>=0.66  
 Selected Pile, W6X25, S = 16.7 in<sup>3</sup>/pile It is greater than Request Min. Section Modulus  
 Top Deflection = 0.50(in) based on E (ksi)= 29000.00, I (in<sup>4</sup>)/pile= 53.4

### DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	2	0.100	.05
0	.012	2	0.012	

### PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
4.0	0.00	800.0	199.00	0.250

### ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	8.00
2	2.00	0.50

### PASSIVE SPACING:

No.	Z depth	Spacing
1	2.00	1.00

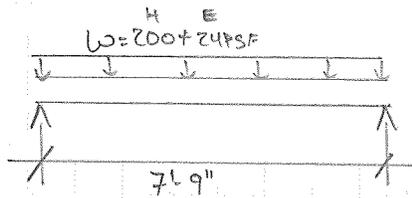
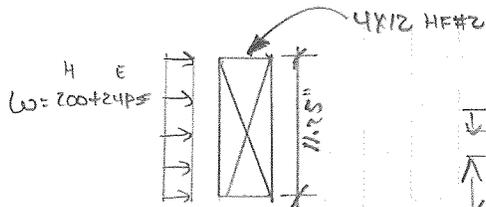
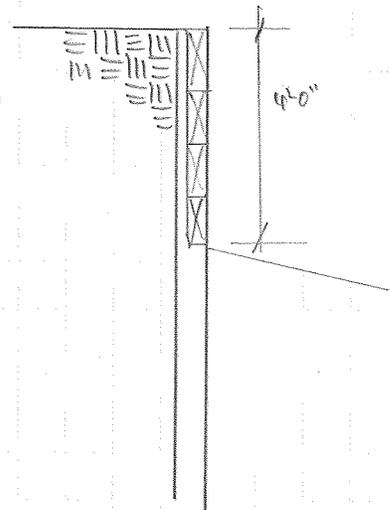
UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft  
 Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft<sup>3</sup>; Deflection - in

# LAGGING DESIGN

\* DESIGN LAGGING FOR 4'0" RETAINED SPACED AT 8'0"

$$W_H = 4'(50 \text{ PCF}) = 200 \text{ PSF}$$

$$W_E = 4(6') = 24 \text{ PSF}$$



## NDS FACTORS

LOAD CASE (1)  $\Rightarrow$  H

$$F_b = 850 \text{ psi}$$

$$C_D = 0.9$$

$$C_M = 1.0$$

$$C_F = 1.1$$

$$C_{Fu} = 1.1$$

$$C_i = 0.8$$

$$C_r = 1.15$$

$$F'_b = 850 \text{ psi} (0.9)(1.0)(1.1)(1.1)(0.8)(1.15) = 851 \text{ psi}$$

$$W = \frac{11.25}{12} (200) = 188 \text{ PCF}$$

$$M_{max} = \frac{wL^2}{8} = \frac{188(7.75)^2}{8} = 1411.5 \text{ #}\cdot\text{ft} \Rightarrow 16938 \text{ #}\cdot\text{in}$$

$$f_b = \frac{M}{S} = \frac{16938 \text{ #}\cdot\text{in}}{\frac{11.25(3.5)^2}{6}} = 737.4 \text{ psi}$$

$$F'_b > f_b \quad \text{OK}$$

LOAD CASE (2)  $\Rightarrow$  O/E + H

$$F_b = 850 \text{ psi}$$

$$C_D = 1.6$$

$$C_M = 1.0$$

$$C_F = 1.1$$

$$C_{Fu} = 1.1$$

$$C_i = 0.8$$

$$C_r = 1.15$$

$$F'_b = 850 (1.6)(1.0)(1.1)(1.1)(0.8)(1.15) = 1514 \text{ psi}$$

$$W = \frac{11.25}{12} (200 + 0.7(24)) = 203 \text{ PCF}$$

$$M_{max} = \frac{wL^2}{8} = \frac{203(7.75)^2}{8} = 1524 \text{ #}\cdot\text{ft} \Rightarrow 18289 \text{ #}\cdot\text{in}$$

$$f_b = \frac{18289}{\frac{11.25(3.5)^2}{6}} = 796 \text{ psi}$$

$$F'_b > f_b \quad \text{OK}$$



250 4th Ave. South  
Suite 200  
Edmonds, WA 98020

Description LAGGING DESIGN

By DMT

Date 9/16/09

Checked

Date

Scale

Sheet No.

Project PARKING GARAGE

Job No.

09116.10

# LAGGING CONT

## LOAD CASE ① ⇒ H

$$F_v = 150 \text{ psi}$$

$$C_D = 0.9$$

$$C_M = 0.97$$

$$C_t = 1.0$$

$$C_i = 0.8$$

$$F_v = 150 (0.9)(0.97)(0.8) = 105 \text{ psi}$$

$$V_{\max} = \frac{wL}{2} = \frac{188(7.75)}{2} = 729 \#$$

$$f_v = \frac{3V}{2bd} = \frac{3(729\#)}{2(3.5)(11.25)} = 27.8 \text{ psi}$$

$$F_v > f_v \quad \text{OK}$$

## LOAD CASE ② ⇒ 0.7E+H

$$F_v = 150 \text{ psi}$$

$$C_D = 1.6$$

$$C_M = 0.97$$

$$C_t = 1.0$$

$$C_i = 0.8$$

$$F_v = 150 (1.6)(0.97)(0.8) = 186 \text{ psi}$$

$$V_{\max} = \frac{wL}{2} = \frac{203(7.75)}{2} = 787 \#$$

$$f_v = \frac{3(787)}{2(3.5)(11.25)} = 30 \text{ psi}$$

$$F_v > f_v \quad \text{OK}$$

USE 4X12 HF #2 PT



250 4th Ave. South  
Suite 200  
Edmonds, WA 98020

Description	LAGGING CONT	By	DMT	Date	9/16/09
		Checked		Date	
		Scale		Sheet No.	
Project	PARKRIDGE LAKE	Job No.	0911610		





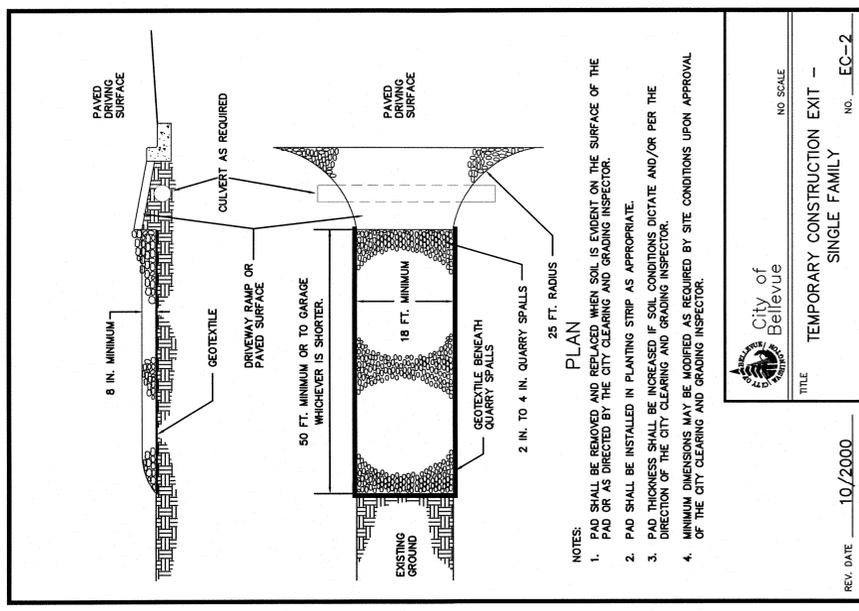
SE 1/4, NE 1/4, SECTION 6, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



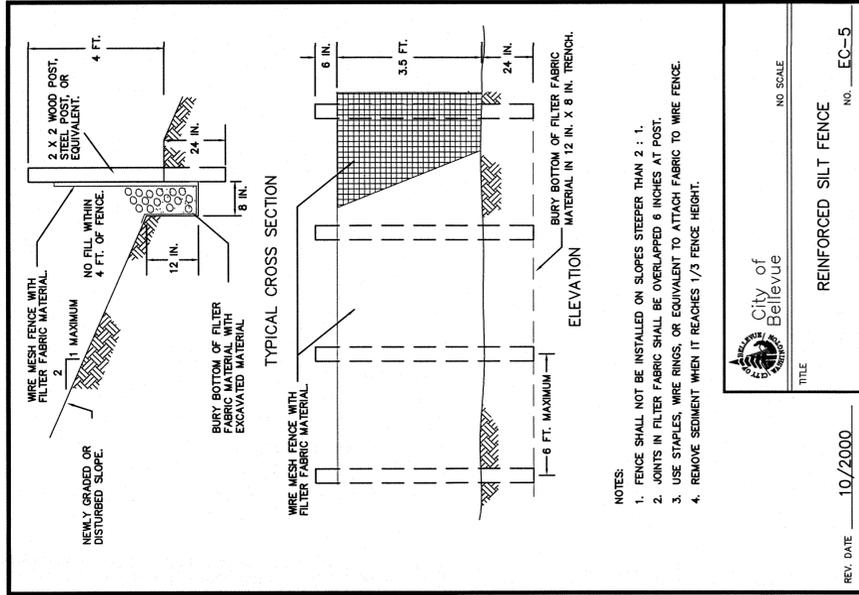
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DATE	09/28/09
DESCRIPTION	PERMIT SUBMITTAL
DESIGN:	DMT
DRAWN:	EWJ
CHECK:	GAG
JOB NO.:	09116.20
DATE:	09/22/09

PARKRIDGE LANE SLOPE STABILIZATION  
 310 PARKRIDGE LANE  
 BELLEVUE, WA 98004  
 TEMPORARY EROSION CONTROL DETAILS

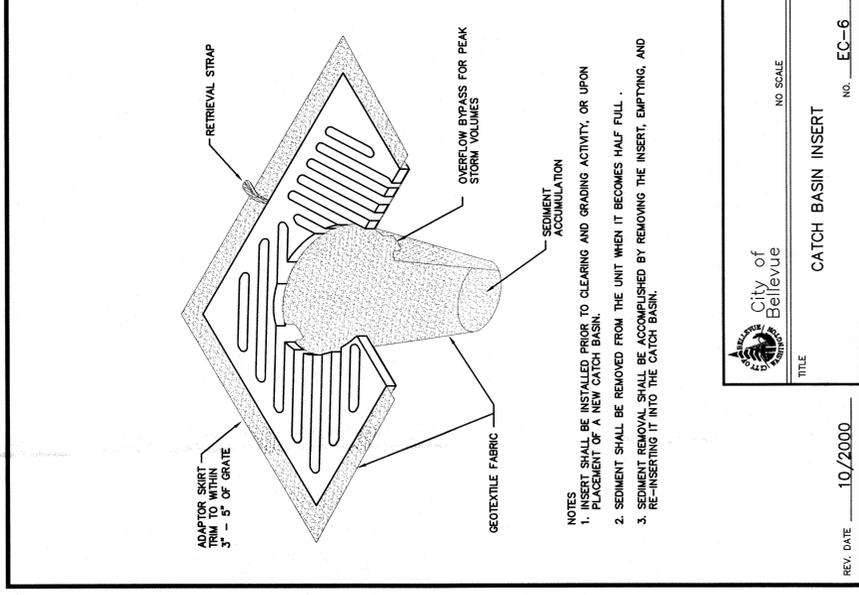
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**C2.2**



1 TEMPORARY CONSTRUCTION EXIT - SINGLE FAMILY  
 SCALE: NTS



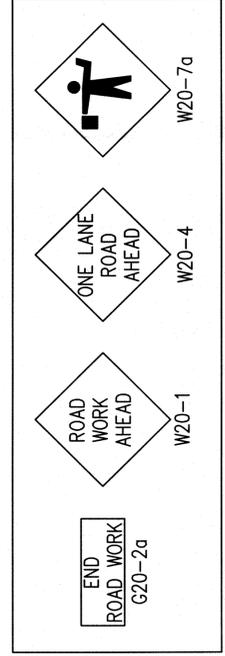
2 REINFORCED SILT FENCE  
 SCALE: NTS



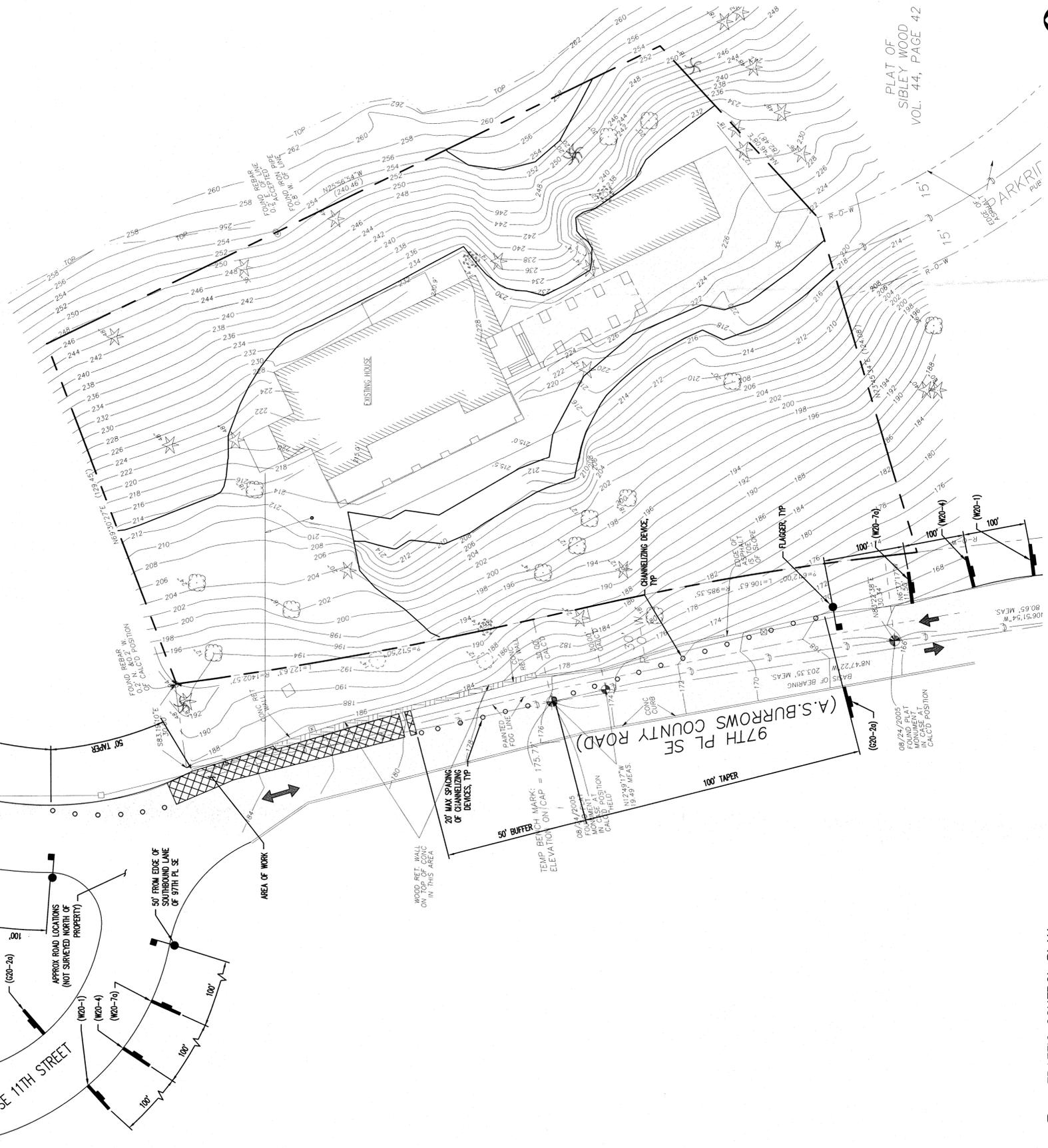
3 CATCH BASIN INLET PROTECTION INSERT  
 SCALE: NTS

THESE PLANS HAVE BEEN PREPARED FOR AGENCY REVIEW AND ARE SUBJECT TO CHANGE. DO NOT USE FOR CONSTRUCTION OR BIDDING PURPOSES WITHOUT SIGNED AGENCY APPROVAL STAMP. CALL BEFORE YOU DIG 1-800-424-5555.

SE 1/4, NE 1/4, SECTION 6, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



2 TRAFFIC CONTROL SIGNS (PER MUTCD MANUAL)  
SCALE: N/A



1 TRAFFIC CONTROL PLAN  
SCALE: 1" = 20'

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**ENGINEERING**  
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PHONE (425) 778-8500  
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MARK	DATE	DESCRIPTION
	09/28/09	PERMIT SUBMITTAL

DESIGN:	DMT
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DATE:	09/22/09

PARRIDGE LANE SLOPE STABILIZATION  
310 PARRIDGE LANE  
BELLEVUE, WA 98004

TRAFFIC CONTROL PLAN

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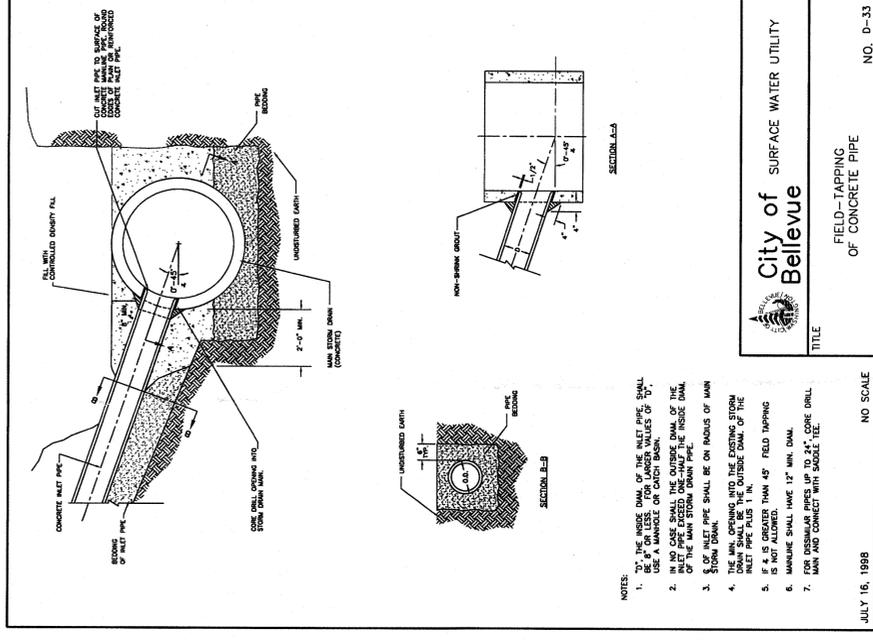
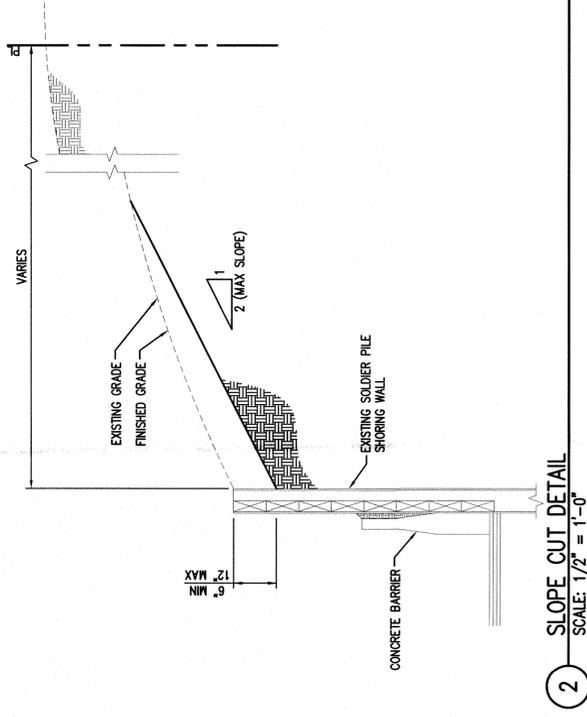


MARK	DATE	DESCRIPTION
	09/28/09	PERMIT SUBMITTAL

DESIGN: DMT  
 DRAWN: EWJ  
 CHECK: GAG  
 JOB NO: 09116.20  
 DATE: 09/22/09

PARKRIDGE LANE SLOPE STABILIZATION  
 310 PARKRIDGE LANE  
 BELLEVUE, WA 98004  
**SITE IMPROVEMENT PLAN**

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GRADING QUANTITIES	
TOTAL EXCAVATION (CUT) -	60.0 CU. YDS.
TOTAL EMBANKMENT (FILL) -	10.0 CU. YDS.
TOTAL	70.0 CU. YDS.

THE QUANTITIES SHOWN ABOVE ARE FOR THE PERMIT PROCESS ONLY. THESE VALUES ARE APPROXIMATE. DO NOT USE FOR BIDDING, PAYMENT, OR ESTIMATING PURPOSES.

LOT CALCULATIONS:	
LOT AREA:	43,212 SQ FT
PROTECTED SLOPE AREA:	23,054 SQ FT
SLOPE SETBACK AREA:	2,118 SQ FT
REVISED LOT AREA:	18,040 SQ FT
FOOTPRINT AREA (EXISTING):	6,235 SQ FT
STRUCTURE COVERAGE:	34.5%
TOTAL IMPERVIOUS AREA:	540 SQ FT

- NOTES:
1. GEOTECHNICAL ENGINEER TO FIELD, LOCATE RETAINING WALLS. THIS MAY CHANGE NUMBER OF PILES.
  2. UPPER RETAINING SHALL BE NO MORE THAN 10'-0" MAX FROM BUILDING FOOTPRINT.
  3. LOWER RETAINING WALL SHALL NOT ENCROUGH INTO STEEP SLOPE AREA.

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