

Evan Maxim  
Senior Planner, Development Services  
City of Mercer Island  
9611 SE 36<sup>th</sup> Street  
Mercer Island, WA 98040

Re: RUE CAO 15-001  
Bill Summers

Dear Evan:

This responds to Kari Sand's letter of December 26, 2017. In that letter, Ms. Sand asked Mr. Summers to address five additional issues.

First: Geotechnical / Civil (drainage engineering). Attached as Exhibit A is a letter dated January 9, 2018, from Triad, the Civil Engineer for the proposal, which also includes the Triad Downstream Analysis dated October 5, 2015.

Second: Wetland / Watercourse impacts. We are expecting shortly the response from Sewall Wetland Consulting which will address the issues raised here. Ed Sewall has been unfortunately swamped with other demands on his schedule, but assures us we will receive his report in the very near future. We are forwarding the rest of the responses to Ms. Sand's letter now, in the interest of affording you the opportunity to conduct your initial review as to geotechnical, noise, and zoning issues. We will send you the Sewall report as soon possible.

Third: Noise and Vibration. Attached as Exhibit B is a letter dated January 5, 2018, that addresses noise and vibration issues. It was prepared by William Chang, the Geotechnical Engineer for the proposal.

Fourth: Zoning Variance. Attached as Exhibit C is Mr. Summers' proposed zoning variance application and responses to the variance criteria for approval. The other elements for a complete application are available, and will be submitted when the City is prepared to deem complete the other components of the RUE application.

Fifth: Technical Corrections. We expect that the Sewall report will address the issues identified.

Thank you for your courtesy and patience. We look forward to your decision on the revised proposal.

Sincerely,

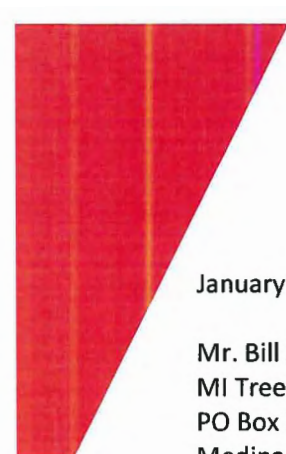
A handwritten signature in black ink, appearing to be 'G. Richard Hill', written in a cursive style.

G. Richard Hill

Enclosures

cc: Scott Greenberg  
Kari Sand  
Adam Rosenberg  
Bill Summers

# EXHIBIT A-1



January 9, 2018

Mr. Bill Summers  
MI Treehouse, LLC  
PO Box 261  
Medina, Washington 98039



RE: Response to City of Mercer Island Attorney Letter  
concerning a proposed development at 5367 East Mercer Way in Mercer Island

Dear Bill:

I am writing to provide a response to the December 26, 2017 letter to Richard Hill from Mercer Island City Attorney Kari Sand. In her letter, Kari provided a list of items that should be addressed before the City reassesses the SEPA determination and Reasonable Use Exemption for the proposed residence at 5637 East Mercer Way.

Item A of this list relates to drainage concerns associated with the downstream watercourse and recommends that an "Additional analysis... of current erosion and sedimentation within the water course, and possible impacts resulting from this project, accompanied by design changes intended to mitigate any identified impacts" be conducted. In 2015, Triad conducted an engineering study of the project's watershed, which we believe covers all of these points.

In our report titled *Mercer Island Tree House Level 1 Downstream Analysis*, dated October 15, 2015, Triad staff conducted field investigations of the site and downstream water course, analyzed a geotechnical study compiled for the site, and reviewed all information made available by the City of Mercer Island including basin studies, GIS data, records of drainage complaints and maintenance records of the downstream properties.

We encourage Kari Sand to review our report (a copy of which is enclosed) and believe that it will answer all questions she presented in 'Item A' of her letter. In short, we documented the maintenance issues at a downstream sediment pond and concluded that mitigation measures, namely flow control in the form of stormwater detention, could be implemented to reduce impacts to the downstream water course.

Properly designed flow control, as described in the King County Surface Water Design Manual, is *"intended to limit the amount of time that erosive flows are at work generating erosion and sedimentation within natural and constructed drainage systems. Such control is effective in preventing development-induced increases in natural erosion rates and reducing existing erosion rates where they may have been increased by past development of the site"*. (p. 1-40)

A hydrologic model of the proposed site which sizes a detention facility is included in our report. The model showed that a flow control facility could be implemented into the project design and could reduce flow rates and durations to pre-development/forested levels.

In conclusion we believe that properly designed and implemented stormwater mitigation measures could allow the site to be developed to provide adequate protection of the downstream watercourse.

Sincerely,



Triad, a Division of David Evans and Associates  
Adam Stricker, PE



1/9/2018

# EXHIBIT A-2

# Mercer Island Treehouse

## LEVEL 1 DOWNSTREAM ANALYSIS

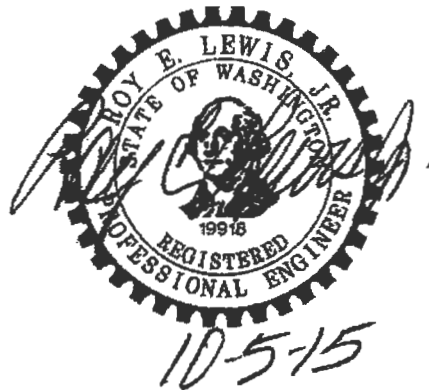
City of Mercer Island, Washington

Prepared For:  
Mr. Bill Summers  
MI Treehouse, LLC  
PO Box 261  
Medina, Washington 98039

Issued: June 23, 2015  
Revised: October 5, 2015

Prepared By:  
Adam Stricker, EIT

Reviewed By:  
Roy E. Lewis Jr., PE



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## **Supplemental Information**

### **Appendix A**

Mercer Island Stormwater Conveyance Inventory Exhibit with Project Tributary Area  
Downstream Flowpath and Glenhome Pond Photos  
King County iMap Exhibit Showing Contours  
Mercer Island Landslide Hazard Assessment Map  
Mercer Island Erosion Hazard Assessment Map  
Mercer Island Seismic Hazard Assessment Map

### **Appendix B**

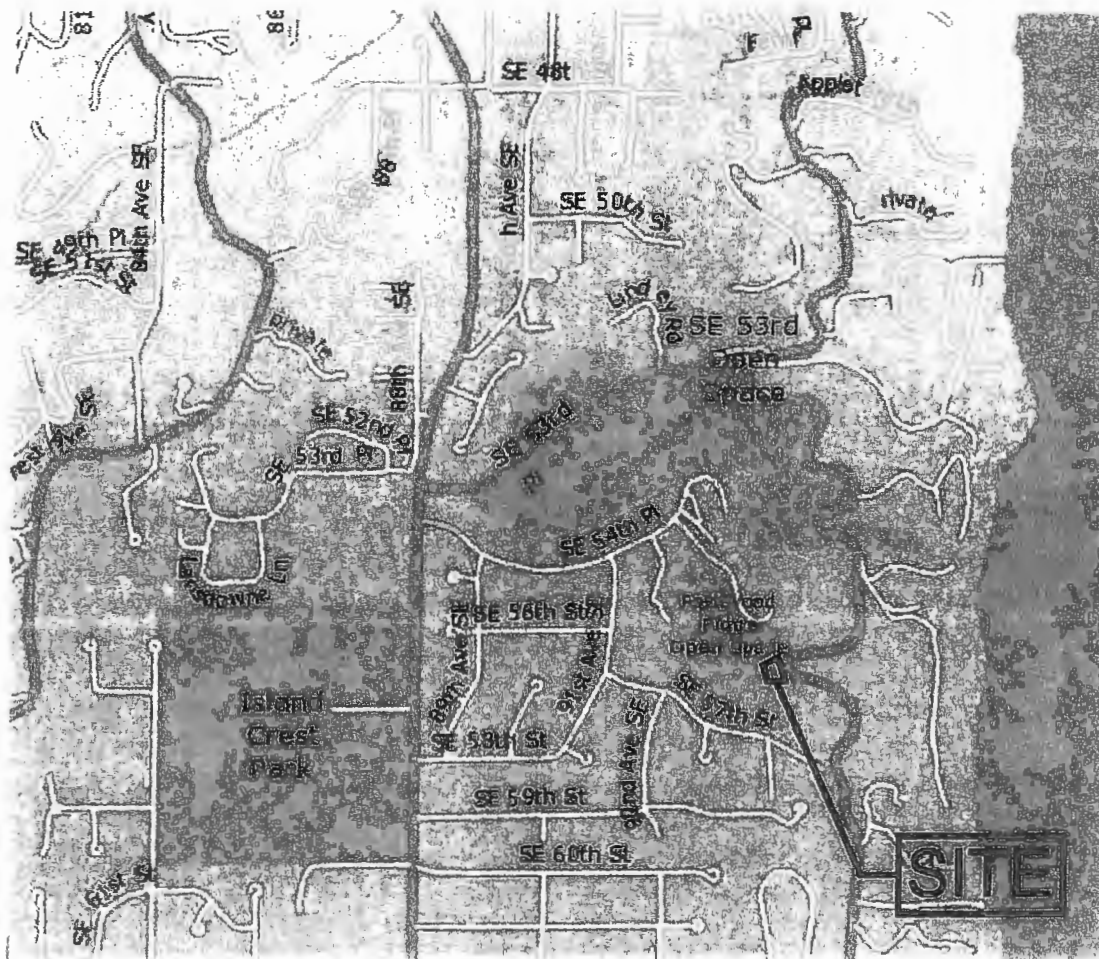
Drainage Complaints Map  
Mercer Island Drainage Complaint Log  
Schedule B Culvert As-Built by City of Mercer Island, dated July 30, 2012

### **Appendix C**

Conceptual Site Plan prepared by CHS Engineer, LLC. Dated 11-14  
*Parkwood Trail and Subbasin 45B Watercourse Stabilization Project (WD 526C)*  
WWHM Modeling Output for Conceptual Detention Sizing

# 1 PROJECT OVERVIEW

The Mercer Island Treehouse project proposes to construct a single family residence on a 37,554 square foot lot. The project is located at 5637 East Mercer Way in Mercer Island Washington.



**VICINITY MAP**  
(by King County iMap)

The lot is currently undeveloped and completely forested except for a concrete driveway and a short quarry spall access road. TRIAD staff made a visit to the site on June 19, 2015 to investigate the site's existing condition and downstream flow path. The information gained from the site visit supplements information acquired from the City of Mercer Island website

and GIS system, the King County website and site specific studies conducted by others. A wetland investigation was conducted by Sewall Wetland Consulting, Inc. and is summarized in their report titled *5637 Mercer Way – Revised Critical Areas Report* dated March 5, 2015. A geotechnical analysis of the site was conducted by GEO Group Northwest, Inc. The findings of this analysis are summarized in their report titled *Geotechnical Engineering Study Proposed Residence* dated March 12, 2015.

This report intends to summarize the information gathered to describe the onsite and downstream drainage conditions for the Mercer Island Treehouse project and will satisfy the Level 1 Downstream Analysis requirements as described in the 2009 King County Surface Water Design Manual (KCSWDM). This report will also provide design recommendations for the proposed development meant to mitigate for the observed onsite and downstream drainage issues.

### **1.1 Existing Site Conditions**

The proposed development will occur on a 37,554 square foot lot which is currently undeveloped. In the existing condition the site is densely vegetated with a mature understory of bushes and ferns. There are several large evergreen and deciduous trees on the site. The lot has been previously platted and is a part of the Greg Newitt Short Plat. There is an existing single family residence on the parcel directly to the south of the site. This house (5645 East Mercer Way) is accessed by a shared concrete paved driveway that crosses the project's parcel. There is a short length of rip-rapped covered ground, similar to a construction entrance that extends into the site approximately 10 feet. The majority of the site is covered by steep slopes ranging from 10-40%. An area of level (<10% slopes) ground can be found near the existing shared driveway.

### **1.2 Developed Condition**

This description of proposed development is based on a conceptual site plan prepared by CHS Engineer, LLC. dated 11-14. This plan is attached to Appendix C of this report for reference. The proposed development includes a single family residence with a raised deck with an

approximate footprint of 2,800 square feet. A concrete driveway that connects to existing shared driveway is also proposed. In total the proposed development will add approximately 4,200 square feet of new impervious surfaces. There is minimal landscaping proposed around the new residence with most of the site proposed to be left in the pre-project, forested condition. Several rockeries or retaining walls will be required to achieve the desired final grades. Grading will be primarily cut with minimal imported fill anticipated.

## **2 Downstream Analysis**

### **2.1 Task 1, Study Area Definition and Maps**

This site drains to Lake Washington. The study area for this project includes the entire upstream and downstream tributary basin. The ultimate outfall for the site's tributary basin at Lake Washington has an approximate tributary area of 16.3 acres.

The Mercer Island GIS system provides a schematic description of the stormwater conveyance system downstream of the project. A printout of the Mercer Island stormwater conveyance inventory relating to this project is attached to Appendix A. This map has been annotated to show approximate upstream and downstream tributary areas.

### **2.2 Task 2, Resource Review**

The following resources were reviewed for assisting with the offsite analysis:

#### **2.2.1 Geotechnical Engineering Study**

A geotechnical analysis of the site was performed by GEO Group Northwest, Inc. and is summarized in their report titled *Geotechnical Engineering Study Proposed Residence*, dated March 12, 2015. The geotechnical investigation included two boring investigations along with laboratory testing on soil samples taken from these borings and engineering design recommendations for the proposed residential construction. The boring logs found that the site is primarily underlain by outwash soils to a depth of 14-17 feet with denser till deposits below the outwash layer. Groundwater was observed near the surface of the borings and saturated soils were documented to depths of 20 feet. Groundwater seepage was noted at the base of the onsite steep slope areas. The report noted that the upper layers of outwash are susceptible to liquefaction. The report concluded that construction of a foundation on piles was feasible and that grading should be kept to a minimum to avoid impacting steep slopes.

### 2.2.2 Wetland Report

A wetland investigation of the site was conducted by Sewall Wetland Consulting, Inc. (Sewall) and is summarized in their report titled *5637 Mercer Way – Revised Critical Areas Report* dated March 5, 2015. This report identified an onsite wetlands and an onsite stream: ‘Wetland A’ which is a Category III wetland occurs over the north portion of the site. Wetland A was delineated by Sewall in 2004 and has a 50-foot buffer. This study also identified an onsite stream (referred to as Stream A) as listed by the City of Mercer Island to be a Type 2 watercourse and noted that it was a non-fish bearing stream with a 50-foot buffer. Proposed development would occur within the buffers of Wetland A and Stream A.

### 2.2.3 City of Mercer Island GIS Maps:

Online maps available from the City of Mercer Island website were analyzed, these maps are attached to the Appendix A.

**Seismic Hazard Assessment Map:** This map shows the site to be within a known or suspected seismic hazard area. A point indicating a “Miscellaneous Ground Effect of the 2001 Nisqually Earthquake” is shown near East Mercer Way to the north of the site.

**Erosion Hazard Assessment Map:** The project parcel is shown to be in a known or suspect Erosion hazard area, this map also shows the site in an area of high infiltration potential.

**Landslide Hazards Assessment Map:** The project parcel is shown to be in a known or suspect Landslide hazard area and also in a “Landslide and Mass Wasting Deposits; subaerial and subaqueous” area.

A “Geologic contact of coarse-grained deposits over fine-grained deposits where slopes  $\geq$  15%” delineation line runs to the east of the site through the downstream ravine to the east of the site. The site is also shown to be within an “Area where water less than 10 feet below ground surface based on limited data set”.

This map shows one identified landslide location in the stream channel uphill of the site and five identified landslide locations downstream of the site.

Two “Areas of Rapid Stream Incision(vi)” points are located upstream of the site; one of these points appears to be identifying the onsite stream channel, the other point identifies a stream channel in the Parkwood open space, which is tributary to the onsite stream channel (Stream A). Another point is located in the Stream A channel downstream of the site, in the ravine to the east of East Mercer Way. This map also identifies a scarp directly uphill of the site and along the ravine downstream of the site, east of East Mercer Way.

**Geologic Map of Mercer Island:** This map shows the general soil classifications for Mercer Island. Data regarding on-site soils should be superseded by the geotechnical investigation of the site performed by GEO Group Northwest, Inc. This map shows the downstream soils to be various types of Pre-Olympia type outwash deposits, transitioning to Lake Deposits near the shore of Lake Washington.

#### **King County iMap**

The King County iMap system includes contours and elevation data. These contours were analyzed in combination with schematic storm drainage infrastructure information obtained from the City of Mercer Island to determine the general upstream and downstream tributary basin as well as the approximate slopes of the watershed, where more specific elevation information was not available. A King County iMap Exhibit Showing Contours for the site is attached to Appendix.

#### **2.2.4 Drainage Complaints**

A public records request was submitted to the City of Mercer Island on June 11, 2015 requesting a record of drainage complaints for the area surrounding the site. The public records request yielded 35 records which included drainage complaints and maintenance logs. These records were filed by street address. There were records for 8 separate addresses in the vicinity

of the site. These addresses are shown on the attached Drainage Complaints Exhibit. A summary of the drainage records are given below:

**Drainage Complaint #1 (5/12/1998)**

This complaint reported flooding of a yard during heavy rain. This complaint is outside of the project's tributary area and appears to be unrelated to the proposed development.

**Drainage Complaint #2 (10/6/1998)**

This complaint was a maintenance request by a resident for a roadside drainage. Maintenance was performed – debris were cleared, and this complaint was closed. This complaint appears to be outside of the project's tributary area and unrelated to the proposed development.

**Drainage Complaint #3 5632 E Mercer Way (10/5/2009 - 3/31/2015)**

This address is directly downstream of the project site along the stream which collects runoff from the project site. The address has 13 complaints on record.

Five of these complaints, between October 2009 and April 2014 are reports of a catch basin being clogged. Although not explicitly stated, the catch basin is likely the outlet of the small sediment pond (the Glenhome Pond) that collects Stream A, before the stream is conveyed to the Lake. On April 22, 2014 the outlet structure to the sediment pond was modified. The previously installed 6" diameter vertical standpipe was replaced with a 12" standpipe. This modification was intended to prevent fouling of the pond outlet by debris.

The other complaints were related to the removal of silt and sediment from the pond. Silt removal occurred 4 times between March 2014 and March 2015. The maintenance crew reported that an estimated 20 cubic yards of sediment was removed on March 31, 2015.

**Drainage Complaint #4 5642 E Mercer Way (10/15/1998 – 11/16/2010)**



This address had 6 records between October 1998 and November 2006. All of the records were maintenance logs on the Glenhome Pond. Maintenance included the removal of sediment and debris from the Glenhome Pond.

**Drainage Complaint #5 5646 E Mercer Way (3/24/1997)**

This complaint reported land movement along the south side of East Mercer Way. This would correspond to the hillside to the north of the project site. Although the complaint reported that the slope had dropped 8-10 inches and looked to be endangering East Mercer Way, the staff report noted “There’s a little sluffing, nothing to worry about.” No other actions were required/taken besides the inspection of the site by city staff.

**Drainage Complaint #6 and 7: 5655 & 5565 E Mercer Way (9/2004 – 7/2014)**

These drainage complaints detail the maintenance of a sediment pond near these two addresses. Sediment from this pond was removed 7 times in this time period. One of the records from September of 2007 indicate that the pond was removed, however there are subsequent records of pond maintenance. A maintenance note from July of 2014 indicates that this pond is upstream of the Glenhome neighborhood, but it is unclear if flows from this pond eventually reach the Glenhome Pond.

**Drainage Complaint #8: 9208 SE 57<sup>th</sup> Place (6/5/2012)**

This complaint reported a failing catch basin that was scheduled to be replaced in 2012. This drainage complaint appears to be out of the Project’s tributary basin and unrelated to the proposed development.

**2.3 Task 3, Field Inspection**

Staff from Triad performed a field visit on June 15, 2015 to inspect the site as well as the relevant drainage features upstream and downstream of the site. The weather was sunny during the site visit with sparse rainfall in the week leading up to the visit. A small amount of runoff was observed in the onsite stream and drainage systems during the site visit. The field

inspection began with a visual inspection of the site noting topographical features and likely drainage paths. The site visits, along with the aforementioned resources were used to perform the following analysis of the project's drainage basin.

See the downstream drainage maps located in Appendix A for maps of the downstream study area.

### **2.3.1 Onsite Basins**

The project site is located within a ravine and receives stormwater flows from upstream areas. To determine the extent of the project's tributary basin, a topographical map obtained from the King County iMap program was analyzed, along with drainage infrastructure information obtained from the City of Mercer Island GIS database. The upstream edge of the project's tributary basin is well defined as a ridge that runs along Parkwood Ridge Road to the north of the site, 91<sup>st</sup> Avenue SE to the west of the site and SE 57<sup>th</sup> Street to the south of the site. In addition to this area, portions of SE 56<sup>th</sup> Street and SE 54<sup>th</sup> Street and adjacent lots drain to catch basins that discharge into the Parkwood Ridge Open Space. The upstream tributary basin is shown on the Upstream Drainage exhibit attached to the end of this section.

It was found that approximately 8.0 acres are tributary to the site. The majority of the upstream tributary area consists of undeveloped, forested hillside. Roadways and about 15 lots developed with single family residences are also upstream of the site. The upstream tributary area drains to a natural watercourse which runs through the project parcel. This watercourse was referred to as 'Stream A' in the Sewall Wetland Report.

Stream A is a natural stream which runs west to east across the northern portion of the project site. The main stream channels varies in width, depth and slope but, based on visual inspection and analysis of a site topographical survey, appears to be 10 feet wide and 5 feet deep in the portions that crosses the project site. The channel has steep side slopes, in the order of 1:1 in some portions. The stream channel is vegetated by a mature understory of ferns, and shrubs

and several large evergreen and deciduous trees. The stream channel has an approximate slope of 10% in the portion that crosses the site.

A planset entitled *Parkwood Trail and Subbasin 45B Watercourse Stabilization Project (WD 526C)* was obtained from the City of Mercer Island. A bid set of these plans are attached to Appendix C of this report. City staff have indicated that the project has been completed. The plans show stream channel stabilization measures to be installed within Stream A beginning at East Mercer way and continuing 400 feet upstream. The improvements include the installation of logs and natural debris, minor grading, the installation of a rockery and replanting of the stream channel side slopes. A sewer line was also installed within the stream channel, upstream of the project site. These improvements cover the portions of Stream A that pass through the project's parcel, as well as a portion of the channel upstream of the site.

During the site visit, the vegetation in the stream channel appeared to be well established. Many of the installed logs and the rockery were overgrown, indicating that the plantings conducted during the project had become established. The stream channel near the site displayed minimal visual signs of erosion. A pedestrian trail which runs parallel to the stream channel to the north of the project parcel appeared to be in good shape and showed no sign of sluffing towards the stream. The improvements to the stream channel appear to have been successful in limiting the erosion problems within the improved section of Stream A. It is likely that the noted erosion problems come from the unimproved sections of Stream A, downstream of the site.



Photo: Stream A observed from the pedestrian trail, approximately 50-feet west of East Mercer Way. Note the established vegetation on the stream bank.

Stream A appears to have formed a fork and a side channel that runs through the site parallel to the main channel. The side channel is shallower and weakly defined as compared to the main channel. The side channel forks to the south of the main channel and then rejoins the main channel as both channels combine within a closed depression at the edge of East Mercer Way.

A Type-2 catch basin with a beehive overflow grate collects Stream A within this depression and conveys the stream under East Mercer Way via a 16-inch HPDE pipe. This system discharges to the continuing stream channel to the east of East Mercer Way. An As-built drawing obtained from the City of Mercer Island titled *Schedule 'B' Culvert dated July 30, 2012* shows this system and is attached to Appendix B.

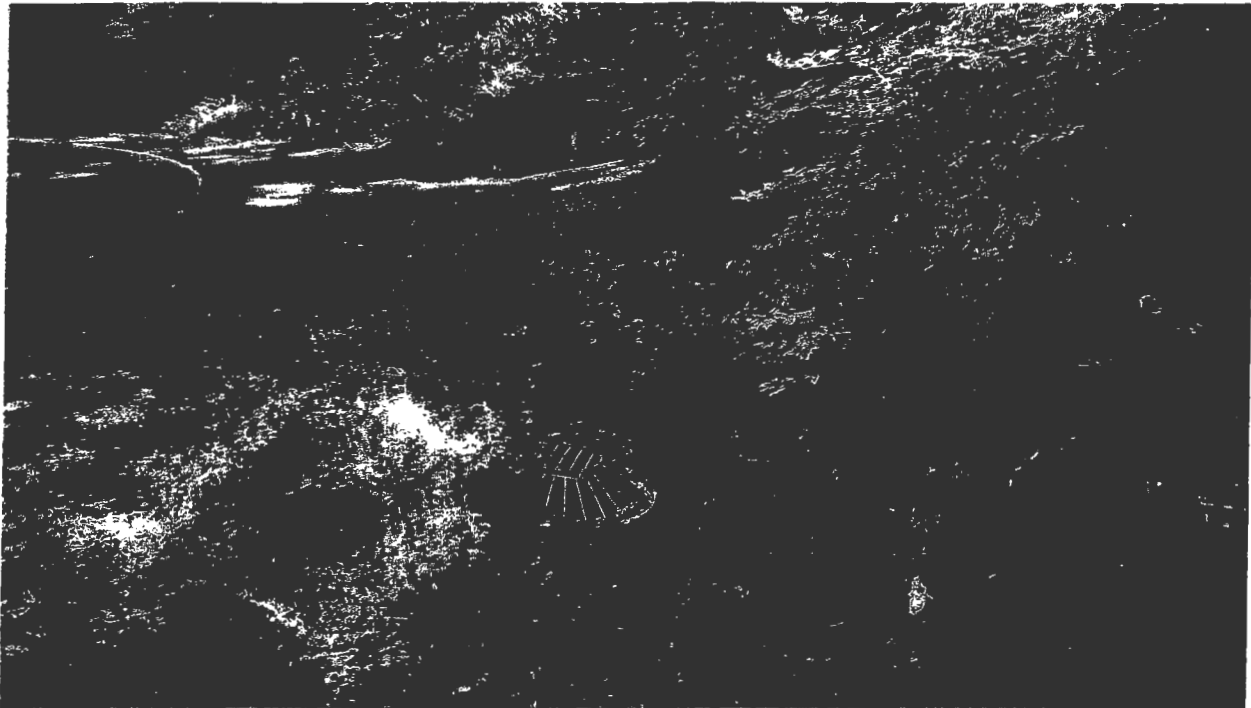


Photo: Type-2 catchbasin with beehive grate overflow conveys Stream A across and beneath East Mercer Way.

### 2.3.2 Downstream Basin

Flows leave the project site via the catch basin and culvert described above. Flows are discharged from this pipe into a natural stream channel which flows down a steep ravine. This stream channel and ravine are both densely vegetated by low lying plants as well as large trees. At this point the stream is flowing on private property (Parcel # 1924059343). The stream channel flattens and transitions from a densely vegetated natural channel to a landscaped, straight and flat, maintained channel section approximately 500 feet east of East Mercer Way. The channel at this point is approximately 10 feet wide and 4 feet deep with side slopes of approximately 2:1. The channel side is covered with landscaping bark and has been sparsely planted with ornamental plants. Photos of this channel and of the Glenhome Pond, taken from Google Streetview, are attached to Appendix A.

An area to the south of the project site drains to the project's downstream basin. This area contains portions of 92nd Avenue south of SE 57<sup>th</sup> Street, SE 57<sup>th</sup> Street, 93<sup>rd</sup> Place SE and

surrounding lots. This area drains to a natural stream course which is shown as entering a stormwater conveyance system within East Mercer Way to the south of the project. This conveyance system outfalls to Stream A, downstream of the project site, at the ravine due east of East Mercer Way. This basin drains an area of approximately 5.5 acres in size. Although this basin is partially at elevations higher than the project site, it is considered a downstream basin due to the fact that no stormwater from this basin enters the project site and rather connects to drainage basin downstream of the project site.

This channel section flows between two residences until it terminates in a manmade closed depression. This closed depression, referred to as the 'Glenhome Pond', is a circular pond, approximately 20 feet in diameter and approximately 4 feet deep. This pond is located to the west of a concrete paved private shared driveway and can be accessed for maintenance by a short length of gravel access road. The Glenhome Pond is drained via a catch basin with a beehive overflow grate located within the west edge of the pond. Flows from the Glenhome Pond leave through this catch basin and are piped under two residential driveways before emerging as a drainage ditch that outfalls to Lake Washington.

## **2.4 Task 4, Drainage System and Problem Description**

The site is within an area where seismic, landslide and erosion hazard areas have been documented. There are steep slopes upstream and downstream of the sites which, in combination with the surficial outwash-type soils have contributed to erosion problems downstream of the project. The Glenhome Pond, which receives all runoff flows from the project site and upstream areas, has a history of filling with sediment and requires frequent maintenance. This sediment collection within the Glenhome Pond indicates that sediment from the upstream ravine is being eroded and transported downstream. This erosion may lead to Stream A incising a deeper ravine possibly causing settlement and slope stability issues.

The documented drainage complaints for the Glenhome Pond deal mainly with erosion and maintenance issues; no flooding problems were reported for the Glenhome Pond or for any of the downstream conveyance systems. This suggests that the downstream conveyance systems are adequately sized. The scale of the proposed project's improvements is not anticipated to impact the capacity of these systems.

## **2.5 Task 5, Mitigation of Existing and Potential Problems**

Although this project proposes a minimal area of new impervious surfaces, providing flow control should reduce the impact to the downstream watercourse. Flow control is intended to “minimize the creation and aggravation of many types of downstream drainage problems” including the sedimentation problems observed downstream of the project. Level 2 flow control is a standard where the flow rates and flow durations from a developed site are released at rates which mimic a forested land use. Per the KCSWDM:

*“The Level 2 flow control standard assuming historic site conditions is intended to limit the amount of time that erosive flows are at work generating erosion and sedimentation within natural and constructed drainage systems. Such control is effective in preventing development-induced increases in natural erosion rates and reducing existing erosion rates where they may have been increased by past development of the site “. (p. 1-40)*

Preliminary detention modeling performed by the Western Washington Hydraulic Model Version 3 (WWHM) was performed based on a proposed impervious footprint of 5,000 square foot. The model showed that a live storage volume of approximately 1,300 cubic feet would be required to provide level 2 flow control (matching developed discharge durations to predeveloped durations for the range of predeveloped discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow). The WWHM model outputs are attached to Appendix C.



## APPENDIX A

Mercer Island Stormwater Conveyance Inventory Exhibit with Project Tributary Area

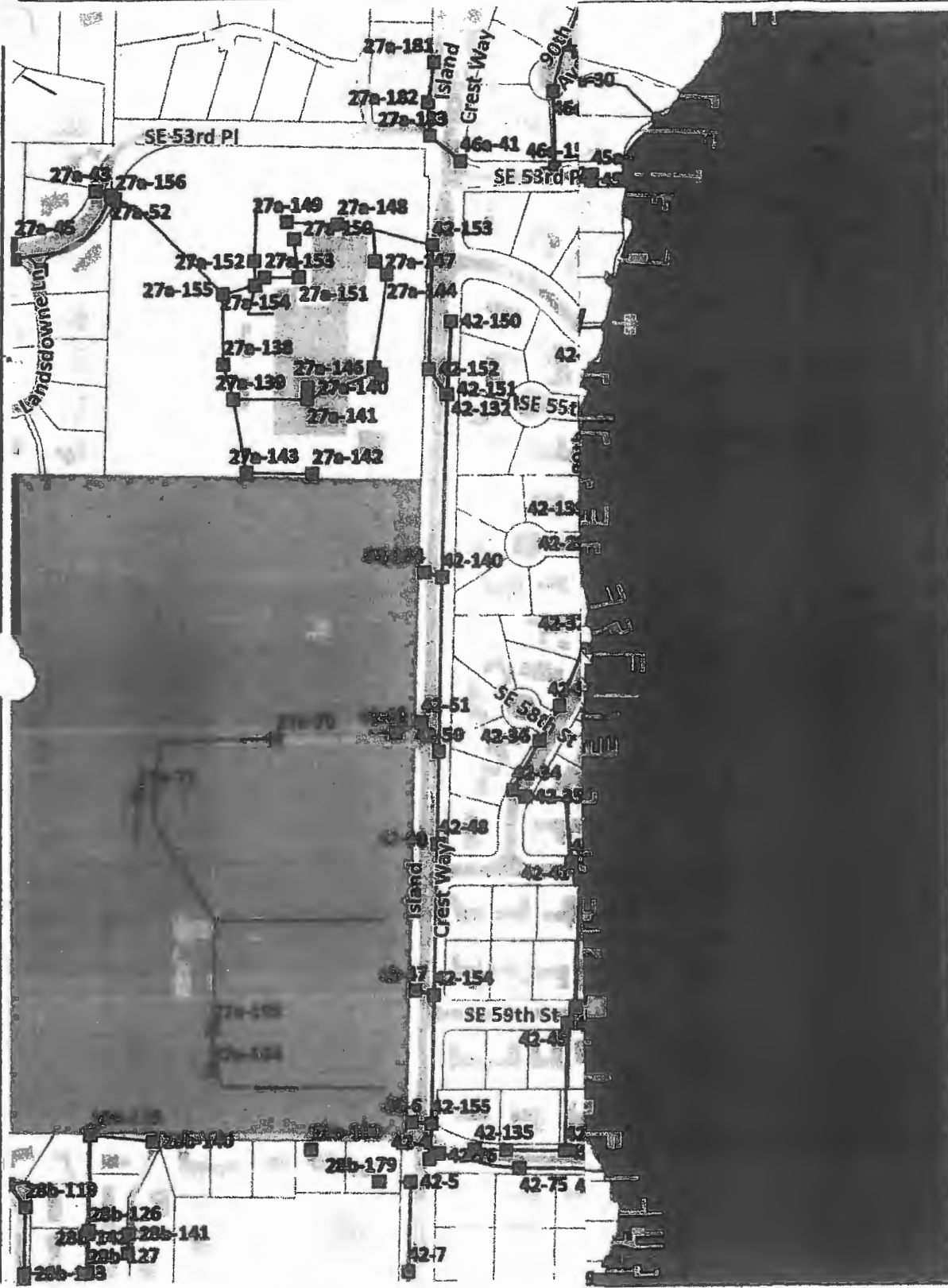
Downstream Flowpath and Glenhome Pond Photos

King County iMap Exhibit Showing Contours

Mercer Island Landslide Hazard Assessment Map

Mercer Island Erosion Hazard Assessment Map

Mercer Island Seismic Hazard Assessment Map



- Legend**
- Storm Catchbasin
  - Storm Main
    - Other
    - Culvert
    - - - Ditch
    - Pipe
    - Watercourse
  - Storm Main - Private
  - Storm Discharge Point
  - Bridge
  - ▣ Paved Road
  - ▭ Streets
  - ▭ Building
  - ▭ Ownership Parcels
  - ▭ Docks
  - ▭ Parks
  - ▭ King\_co\_ Streets
  - ▭ Water

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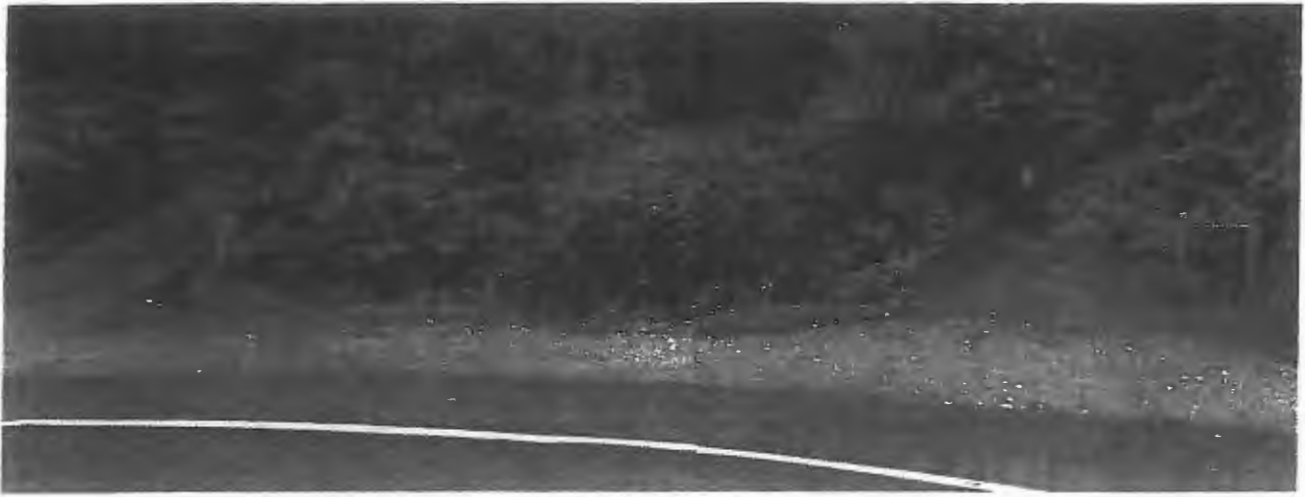
by the City of Mercer Island and are intended to be a general maps are not an accepted legal instrument for describing, descriptions for property concerns or boundaries. The City with respect to the accuracy or currency of these data sets, sized dimensions, or agreement with official sources such as key, or mapped locations of features

**Notes**

## Downstream Photos



From the MI Treehouse Site, to Lake Washington



**The Shared Driveway to the Left  
The Regional Trail to the Right**



**The Glenhome Sediment Pond**



**Downstream of the Glenhome Sediment Pond, to Lake Washington**

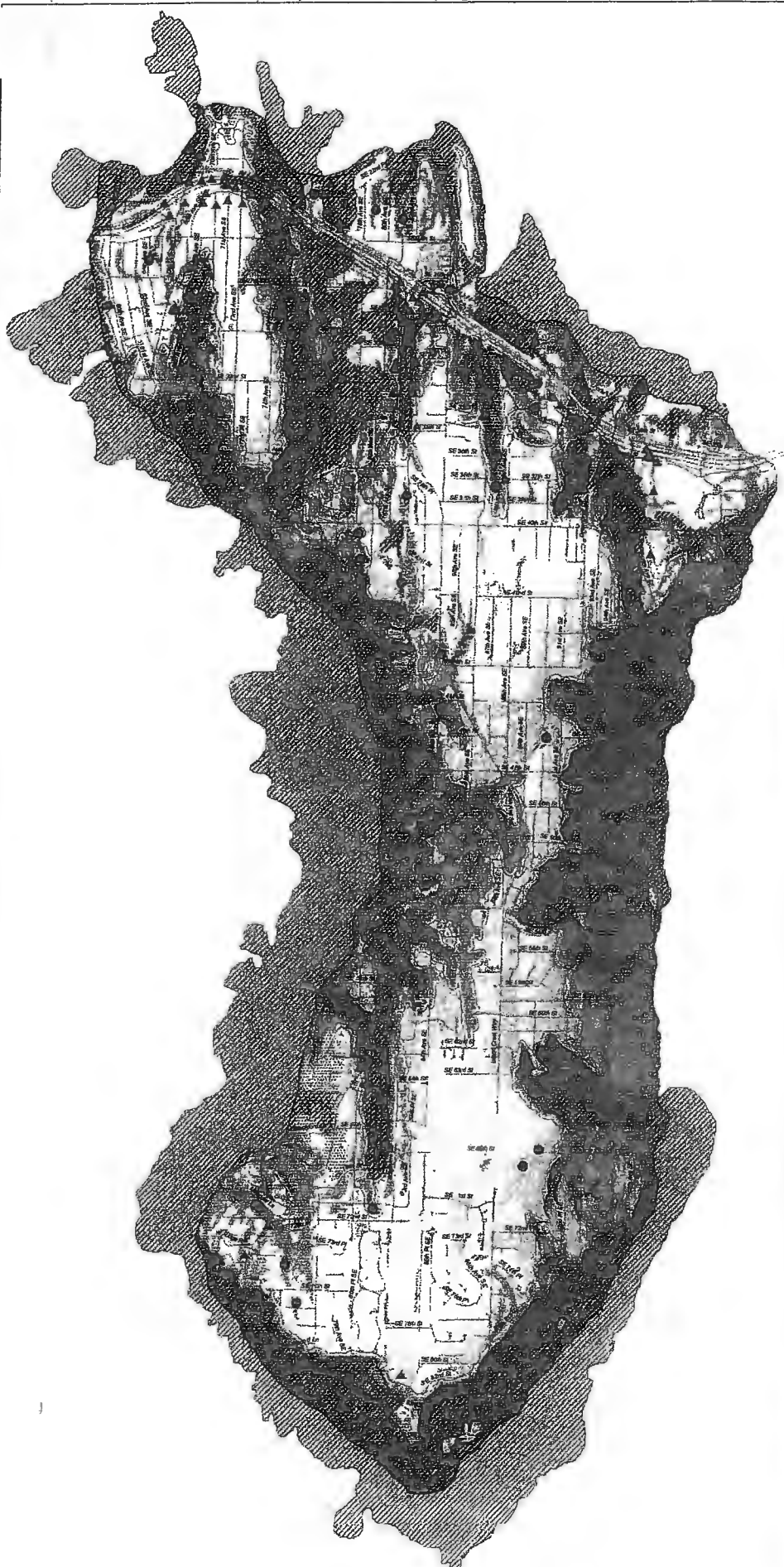
**(Images acquired from © Google and Google Street View)**





# Mercer Island Landslide Hazard Assessment

by Kathy G. Troost & Aaron P. Wisner  
April 2008



**LANDSLIDE HAZARD AREAS**  
(WAC 365-190-080 4d and MICC 19.16.010)

Landslide hazard areas include areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors.

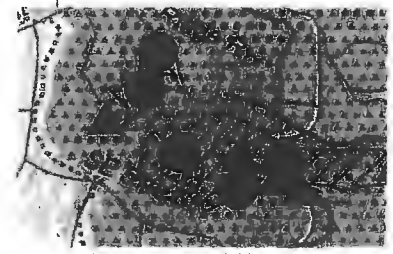
- Areas susceptible to landsliding on Mercer Island include:
- Areas of historic failure or that have been documented on published maps; See mapped known landslides below;
  - Slopes steeper than 15%, intersecting a geologic contact of relatively permeable deposits over relatively impermeable deposits, and with springs or groundwater seepage; See mapped potential slide areas below;
  - Areas that have shown movement during the Holocene epoch (last 10,000 years) or which are covered by Holocene-age mass wasting deposits; See mapped known landslides below;
  - Slopes parallel or sub-parallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials; None identified on map, but may be locally present;
  - Slopes having gradients steeper than 80% subject to rockfall during seismic shaking; See slope classification below;
  - Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action; See mapped erosion locations below;
  - Areas that show evidence of, or are at risk from snow avalanche; None identified on Mercer Island;
  - Areas located in a canyon or on an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding; None identified on Mercer Island;
  - Any areas with a slope of 40% or steeper and with a vertical relief of ten or more feet except where composed of consolidated rock; See slope classification below.

Landslide hazard areas include the following mapped areas:

- Landslide Hazard Area (Known or Suspect)
- Landslide Hazard Assessment Setback

For all other areas hazard is unknown or unquantified

- Supplemental Data**
- |  |   |  |
|--|---|--|
| <b>Known Landslides (i,ii)</b>             | # | Identified Landslide Location  |
|  |   | Scarp  |
|  |   | Landslide and Mass Wasting Deposits; subaerial and subaqueous  |
| <b>Slope (v)</b>                           |   | Slope 80% and higher   |
| <b>Class (ix)</b>                          |   | Slope 40-79%   |
|  |   | Slope 15% and higher, and  |
| <b>Potential Slide Area (ii)</b>           |   | Geologic contact of coarse-grained deposits over fine-grained deposits where slope >= 15%, and                               |
|  |   | Area where water less than 10 feet below ground surface based on limited data set (other areas of shallow water present), or |
|  |   | Spring Locations, or   |
|  |   | Spring lines.  |
| <b>Areas of Rapid Stream Incision (vi)</b> |   | Areas of moderate to rapid stream incision/erosion; may result in unstable slopes and/or stream banks                        |



Enlargement of Site

**GENERAL NOTES FOR GEOLOGICAL HAZARDS MAPS**

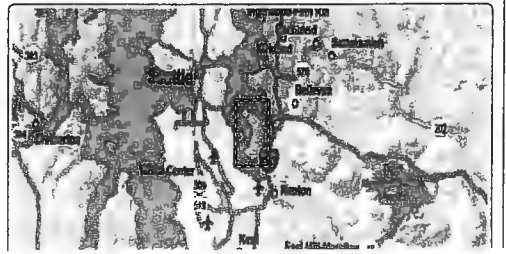
This map is one of a suite of revised Geological Hazard Maps for the City of Mercer Island. This suite includes maps showing Seismic Hazards, Landslide Hazards, and Erosion Hazards.

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The City of Mercer Island is using guidance provided by the State of Washington regarding the definition of geologically hazardous areas in accordance with WAC 365-190-080 and the Growth Management Act. "Geologically hazardous areas", by State definition, "include areas susceptible to erosion, sliding, earthquakes, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in areas of significant hazard."

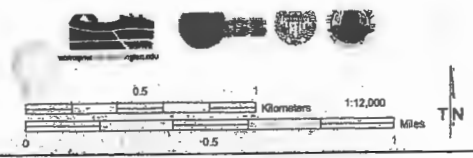
This new set of maps represents an update of the 2002 Geologic Hazard Map Series and is based on a review of Best Available Science for the Seattle Fault and related events, a new Geological Map of Mercer Island by Troost and Wisner (2008), and a geologic database of Mercer Island compiled by GeoMapNW at the University of Washington. Information about data used for the maps, references and data limitations are included in an associated "Read Me" document. The digital version of these maps is accompanied by a meta data file containing pertinent information about map construction. These data and maps are available on the City of Mercer Island website.





# Mercer Island Erosion Hazard Assessment

by Kathy G. Trost and Aaron P. Wisler  
April 2009



## EROSION HAZARD AREAS (MICC 19.16.010)

Erosion hazard areas include those areas greater than 15% slope and subject to a severe risk of erosion due to wind, rain, water, slope and other natural agents including those soil types and/or areas identified by the U.S. Department of Agriculture's Natural Resource Conservation Service as having a "severe" or "very severe" rill and inter-rill erosion hazard.

Another factor in evaluating erosion potential is infiltration potential. If sandy material is present at the ground surface, rain water can infiltrate and loosen material for removal by erosion. Therefore the areas of sandy material have also been added to this hazard map for consideration along with the slope and erodible soils subclass.

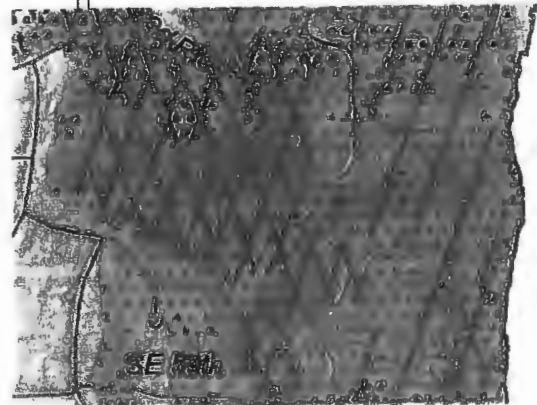
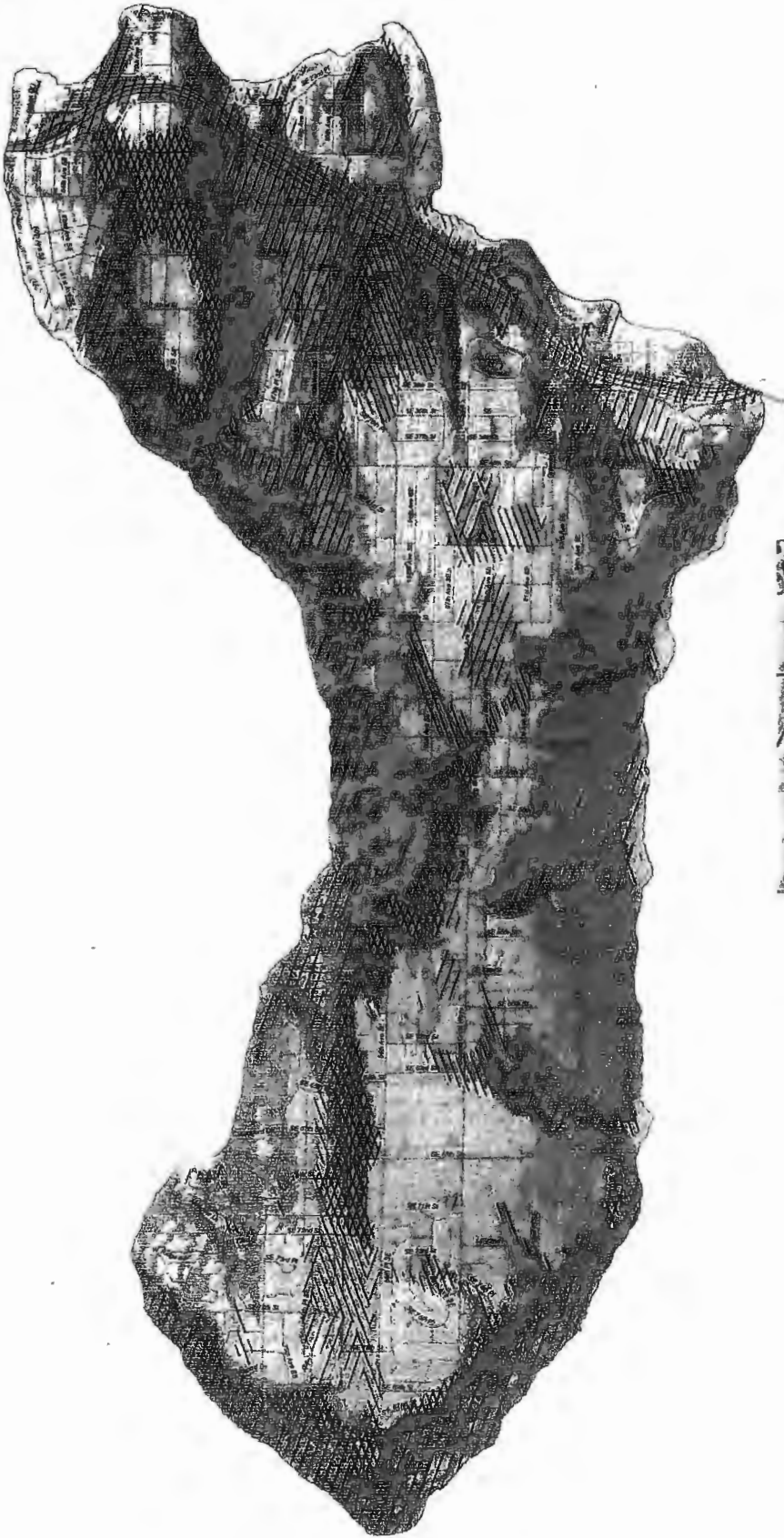
Contributing factors not shown on the map include rainfall, areas of shallow groundwater, ground cover, wind, impervious surfaces, and changes to the ground surface. These factors and all the categories shown on the map should be used together to assess erosion potential. Individual areas less than 0.3 acres in size have been excluded.

Erosion Hazard Erosion Hazard Area (Known or Suspect)

For all other areas, hazard is unknown or unquantified

### Supplemental Data

- High - Coarse-grained deposits; e.g. gravel and clean sand
- Medium - Silty, sandy deposits
- Mixed - Interbedded or mixed fine and coarse-grained deposits
- Slope 80+%
- Slope 40-79%
- Slope 15-38%



Blow up of site

## GENERAL NOTES FOR GEOLOGICAL HAZARDS MAPS

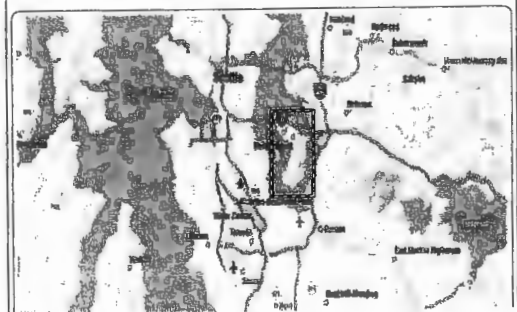
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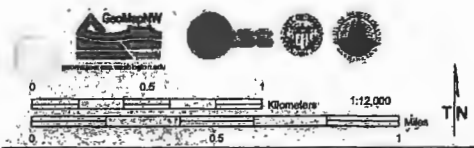
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# Mercer Island Seismic Hazard Assessment

by Kathy G. Troost & Aaron P. Wisner  
April 2009



## SEISMIC HAZARD AREAS (MICC 19.16.010)

Seismic Hazard areas are those areas subject to severe risk of damage as a result of earthquakes - induced ground shaking, slope failure, settlement, soil liquefaction or surface faulting.

**Seismic Hazard** Seismic Hazard Area (Known or Suspected)

For all other areas risk is unknown or limited to ground shaking

### Supplemental Data

Potential for seismically induced ground failures including settlement, cracking, lateral spreading, liquefaction due to ground shaking. Seismically hazardous areas include the following:

**Seismically Hazardous Areas**

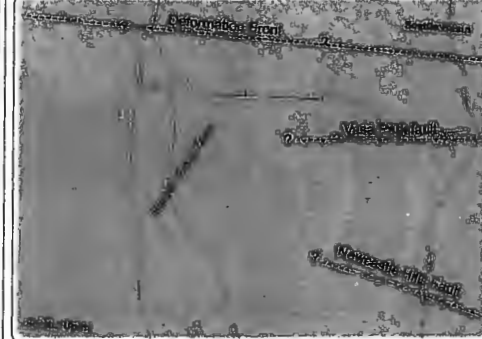
- High Potential for seismically induced ground failures (Poorly consolidated, see notes below)
- Moderate Potential for seismically induced ground failures (Moderately consolidated, see notes below)

Scarp  
 Landslide and Mass Wastage Deposits (subaerial & subaqueous)  
 Modified land

**Documented Earthquake Ground Effects**

- Miscellaneous Ground Effects of the 2001 Nisqually Earthquake (Approx. Area)
- Ground Settlement from the 1965 Earthquake (Approx. Area)
- Miscellaneous Ground Effects of the 1949 Earthquake (Approx. Area)

## ACTIVE FAULTS



Mercer Island falls within the Seattle fault zone and at least two strands of the Seattle fault cross the island. No direct evidence of surface fault rupture has yet been documented for Mercer Island (Troost and Wisner, 2006).

The Seattle Fault Zone is the area where several parallel strands of the Seattle fault have either broken the ground surface or caused deformation of geologic materials. Earthquakes of magnitude M7 or greater have occurred on some of these fault strands within the Holocene (last 10,000 years) and will likely occur again (Blakey, et al., 2002; Sherrod 2002, 2005). The Seattle Fault Zone is one of several active crustal faults zones in the Puget Lowland currently undergoing research.

On Mercer Island, evidence for movement along these fault strands consists of exposures of deformed sedimentary strata and geophysical images of folded and faulted strata (Troost and Wisner 2006; Stephenson et al., 2007). Elsewhere in the Puget Sound lowland, evidence for movement on the fault strands consists of uplifted beach deposits, down-dropped tidal marshes, offset strata, fault scarps, and deformation such as sheared and tightly folded strata. Evidence of the Seattle fault zone in the subsurface consists of aeromagnetic, gravimetric, and seismic reflection anomalies (Libery and Pratt, 2008).

East of Mercer Island, the Vasa Park fault and Newcastle Hills fault each have surface expression in the form of fault scarps and subsurface expression in the form of magnetic and seismic linear anomalies (Libery and Pratt, 2008; Sherrod, 2002). The magnetic and seismic anomalies may be continuous with similar features to the west of Lake Washington, but those continuities are not firmly established (Libery and Pratt, 2008). The locations of these faults are not well defined on Mercer Island (Pratt, 2008, pers. comm.)

The Deformation Front is an east-west-trending, convex-upward fold in geologic strata, where those strata dip over the northern-most thrust fault in the Seattle Fault Zone. North of the Deformation Front to the Seattle Basin, where strata lie nearly flat; south of the Deformation Front the strata dip down toward the north beneath the Seattle Uplift (Pratt, 2009). The location of the Deformation Front was moved northward from previous interpretations (Brocher, et al., 2004) following detailed evaluation of seismic lines by Pratt (2009).

### Notes: Degree of consolidation

Geologic materials were assessed then classified as either strongly, moderately, or poorly consolidated. Degree of consolidation is a direct translation of geologic unit based on geologic history and predominant lithology. Because considerable variability exists within each geologic unit, more detailed analysis is needed for site-specific evaluations or to evaluate the degree of consolidation at a larger scale than provided. Slope and degree of saturation also affect the degree of consolidation, but have not been factored into this map. This qualitative assessment should be used to evaluate and understand the character of the island as a whole. These data should not be used for purposes of site-specific land-use planning or site-specific geologic evaluations. The classification shown on the map does not account for the built environment and impervious surface.

## GENERAL NOTES FOR GEOLOGICAL HAZARDS MAPS

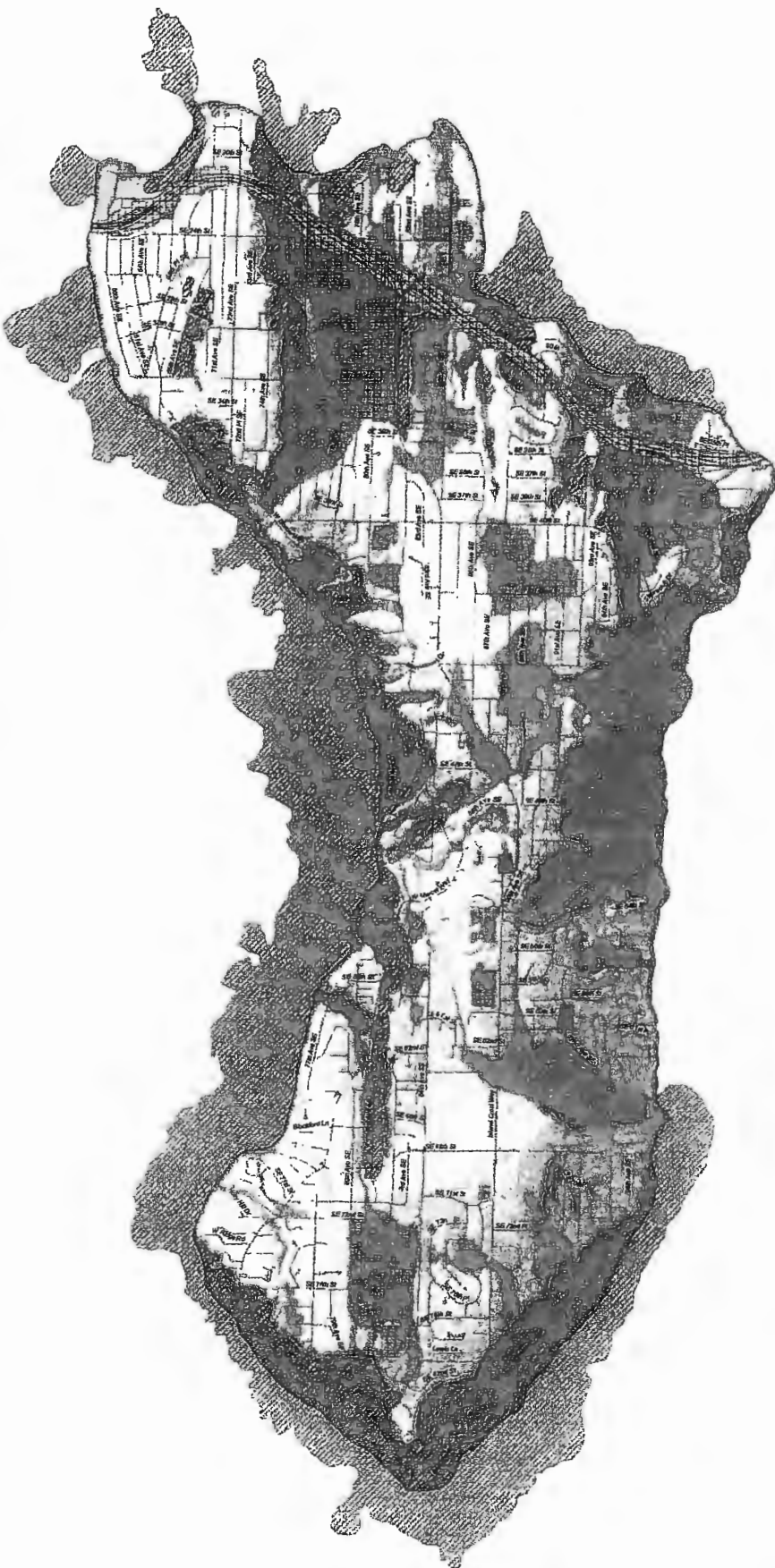
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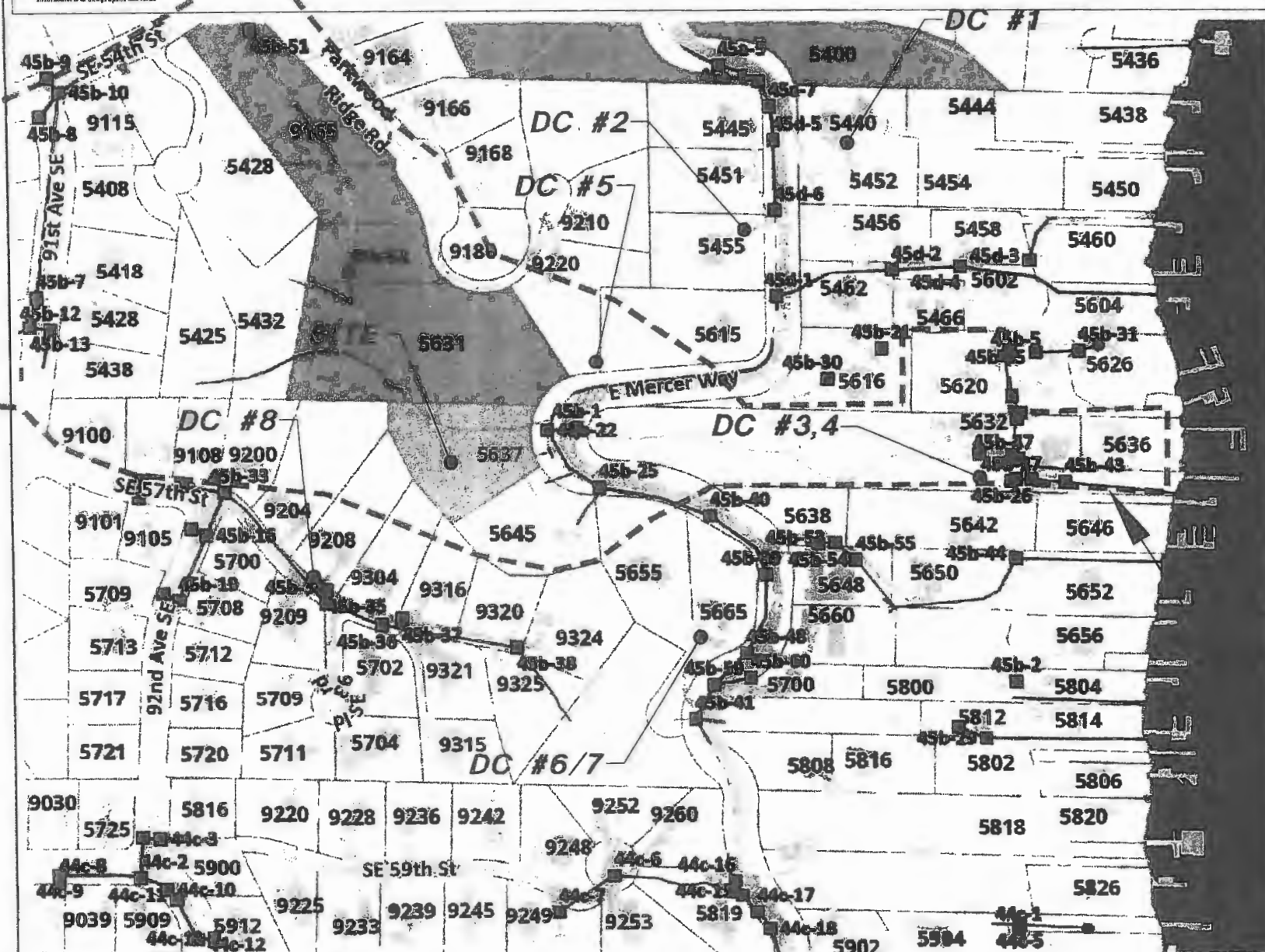
## APPENDIX B

Drainage Complaints Map

Mercer Island Drainage Complaint Log

Schedule B Culvert As-Built by City of Mercer Island, dated July 30, 2012

# Drainage Complaint Locations



- ### Legend
- Storm Catchbasin
  - Storm Main
  - Other
  - Culvert
  - Ditch
  - Pipe
  - Watercourse
  - Storm Main - Private
  - Storm Discharge Point
  - Bridge
  - Paved Road
  - Streets
  - SideWalk
  - Paved Driveway
  - Paved Parking Area
  - Address
  - Building
  - Ownership Parcels
  - Docks
  - Parks
  - King\_co\_ Streets
  - Water

**APPROXIMATE  
BASIN LINE**

1:3,055



Disclaimer: These maps were developed by the City of Mercer Island and are intended to be a general purpose digital reference tool. These maps are not an accepted legal instrument for describing, establishing, recording or maintaining descriptions for property concerns or boundaries. The City makes no representation or warranty with respect to the accuracy or currency of these data sets, especially in regard to lapsing of surveyed dimensions, or agreement with official sources such as records of survey, or mapped locations of features.

### Notes



# Work Order

6/16/2015

RE 2565.1

|  |  |               |                   |
|--|--|---------------|-------------------|
| Location :   | 5440 E<br>MERCER WAY   | Address       | Permit :          |
| Equipment :  |  | Requester :   | JUDD JERRY        |
| Serial # :   |  | Contact :     | City Employee     |
| PM Number :  |  | Phone :       |                   |
| Request :  | DRAINAGE CONTROL<br>GRAVEL NEEDED NEAR MAIL BOXES, WATER GOING OVER BANK INTO BACK YARD. |               |                   |
| Status :   | COMP   | Open Date :   | 5/12/1998         |
| Priority :   | 3  | Comp Date :   | 5/12/1998         |
| Assigned :   | Jolene Judd  | Target Date : |                   |
| Procedure :  | DRAIN C  |               |                   |
| Craft :  | UTIL   |               |                   |
| Team :   | UTIL   |               |                   |
| Actuals  | Hours (1.5)  | \$39.12       | Materials \$25.42 |
|  |  |               | Tools \$0.00      |
|  |  |               | Service \$0.00    |
|  |  |               | Total \$64.54     |
| Labour   |  |               |                   |
| Employee   | Craft  | Description   | Hours             |
| JUDJ   |  |               | 1                 |
| ROCB   |  |               | 0.5               |
| Materials  |  |               |                   |
| Item #   | Description  | Unit          | Qty               |
|  | TRUCK #259   |               | 1                 |
|  | 5/8-0 GRAVEL \$16.83/YRD. USED 1/2.  |               | 1                 |
|  |  |               | \$/Unit           |
|  |  |               | \$17.00           |
|  |  |               | \$8.42            |
|  |  |               | Total \$          |
|  |  |               | \$17.00           |
|  |  |               | \$8.42            |
|  |  |               | \$8.42            |
| Comp Remark:   |  |               |                   |
| WORK COMPLETE - NO FURTHER ACTION REQUIRED                             |  |               |                   |
| GRAVELED IN FRONT OF MAIL BOXES TO PREVENT WASH OUT DURING HEAVY RAIN. |  |               |                   |
| <input checked="" type="checkbox"/> Complete                           | EQ Meter:  | By: JUDJ      | Date: 5/12/1998   |
|  |  |               | Hours: 1.5        |



# Work Order

 6/16/2015  
 RE 2948.1

|             |                      |             |                  |
|-------------|----------------------|-------------|------------------|
| Location :  | 5440 E<br>MERCER WAY | Address     | Permit :         |
| Equipment : |                      | Requester : | RICHARD N ELKINS |
| Serial # :  |                      | Contact :   | RICHARD N ELKINS |
| PM Number : |                      | Phone :     |                  |

Request : DRAINAGE CONTROL  
 ASPHALT WON'T DRAIN RUNOFF PROPERLY, STORM WATER FLOWING INTO YARD NEAR  
 MAILBOXES FOR GLENN HOME SUBDIVISION.  
 ASSESSED - ASPHALT HAS HIGH SPOT, NEEDS TO CHANNEL WATER AWAY FROM  
 RESIDENCE  
 PER JUDD 10/6 - DSG NEEDS TO REVIEW PROBLEM.

|            |             |               |            |             |         |
|------------|-------------|---------------|------------|-------------|---------|
| Status :   | COMP        | Open Date :   | 9/29/1998  | Procedure : | DRAIN C |
| Priority : | 3           | Comp Date :   | 10/19/1998 | Craft :     |         |
| Assigned : | Jolene Judd | Target Date : |            | Team :      | UTIL    |

Actuals Hours (7.5) \$187.88 Materials \$172.94 Tools \$0.00 Service \$0.00 Total \$360.82

|          |                  | Labour      |      |         |          | Materials |       |  |  |
|----------|------------------|-------------|------|---------|----------|-----------|-------|--|--|
| Employee | Craft            | Description | Unit | Qty     | \$/Unit  | Total \$  | Hours |  |  |
| FELJ     |                  |             |      | 2       | \$31.22  | \$62.44   | 0.5   |  |  |
| JUDJ     |                  |             |      | 3       | \$17.00  | \$51.00   | 3     |  |  |
| MAUW     |                  |             |      | 3       | \$17.00  | \$51.00   | 0.5   |  |  |
| ROCB     |                  |             |      | 1       | \$8.50   | \$8.50    | 3     |  |  |
| WILB     |                  |             |      |         |          |           | 0.5   |  |  |
| Item #   | Description      | Unit        | Qty  | \$/Unit | Total \$ |           |       |  |  |
|          | HOT MIX          |             | 2    | \$31.22 | \$62.44  |           |       |  |  |
|          | TRUCK #259       |             | 3    | \$17.00 | \$51.00  |           |       |  |  |
|          | DUMP TRUCK #236  |             | 3    | \$17.00 | \$51.00  |           |       |  |  |
|          | SERVICE VAN #188 |             | 1    | \$8.50  | \$8.50   |           |       |  |  |

Comp Remark:  
 WORK COMPLETE - NO FURTHER ACTION REQUIRED  
 INSTALLED THICKENED EDGE & BERM IN FRONT OF GELNN HOME MAIL BOXES.

|  |           |          |                  |            |
|--|-----------|----------|------------------|------------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: JUDJ | Date: 10/19/1998 | Hours: 7.5 |
|--|-----------|----------|------------------|------------|

DC 2



# Work Order

6/16/2015  
RE 2967.1

|             |                      |             |                      |
|-------------|----------------------|-------------|----------------------|
| Location :  | 5455 E<br>MERCER WAY | Address     | Permit :             |
| Equipment : |                      | Requester : | DARRELL P<br>JOHNSON |
| Serial # :  |                      | Contact :   | JOANNE               |
| PM Number : |                      | Phone :     |                      |

Request : DRAINAGE CONTROL  
STORM DRAIN DITCH IN FRONT OF RESIDENCE NEEDS CLEANING

|            |            |               |           |             |         |
|------------|------------|---------------|-----------|-------------|---------|
| Status :   | COMP       | Open Date :   | 9/29/1998 | Procedure : | DRAIN C |
| Priority : | 3          | Comp Date :   | 10/6/1998 | Craft :     |         |
| Assigned : | Brian Rock | Target Date : |           | Team :      | UTIL    |

Actuals Hours (3) \$77.77 Materials \$71.00 Tools \$0.00 Service \$0.00 Total \$148.77

|          |                 | Labour      |     |         |          |
|----------|-----------------|-------------|-----|---------|----------|
| Employee | Craft           | Description |     |         | Hours    |
| JUDJ     |                 |             |     |         | 1        |
| ROCB     |                 |             |     |         | 1        |
| SEGJ     |                 |             |     |         | 1        |
|          |                 | Materials   |     |         |          |
| Item #   | Description     | Unit        | Qty | \$/Unit | Total \$ |
|          | DUMP TRUCK #246 |             | 1   | \$17.00 | \$17.00  |
|          | BACKHOE #187    |             | 1   | \$50.00 | \$50.00  |
|          | PICKUP #251     |             | 1   | \$4.00  | \$4.00   |

Comp Remark:  
WORK COMPLETE - NO FURTHER ACTION REQUIRED  
CLEANED UP DEBRIS IN DITCH.

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 10/6/1998 | Hours: 3 |
|--|-----------|----------|-----------------|----------|

DC 2



# Work Order

6/16/2015  
RE 3739.1

Location : 5455 E Address Permit :  
MERCER WAY  
Equipment : RD-RO Roadways Requester : DARRELL P JOHNSON  
Serial # : Contact : DARRELL P JOHNSON  
PM Number : Phone :

Request : PATCH TEMPORARY  
PLEASE FIX POTHOLE IN ROW, NEAR DRIVEWAY APRON. ALSO PLEASE ASSESS SUNKEN ASPHALT ON EAST SIDE.

|                 |                      |                    |
|-----------------|----------------------|--------------------|
| Status : COMP   | Open Date : 7/1/1999 | Procedure : PATEMP |
| Priority : 4    | Comp Date : 9/1/1999 | Craft :            |
| Assigned : MANJ | Target Date :        | Team : ROW         |

Comp Remark:  
WORK COMPLETE - NO FURTHER ACTION REQUIRED COMPLETED PRIOR.

|  |           |          |                |          |
|--|-----------|----------|----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: MANJ | Date: 9/1/1999 | Hours: 0 |
|--|-----------|----------|----------------|----------|



DC 2



# Work Order

6/16/2015  
REQ R-2878

Location : 5455 E Address  
MERCER WAY

Permit :

Equipment :

Requester : DARRELL P  
JOHNSON

Serial # :

Contact : DARRELL P  
JOHNSON

PM Number :

Phone : 232-3119

Request : Drainage Ditch Maint - SD  
FLOODING IN BACK YARD, ANYTHING WE CAN DO?

Status : COMP

Open Date : 2/8/1996

Procedure : DRAIN

Priority : 2

Comp Date : 2/15/1996

Craft :

Assigned : Jolene Judd

Target Date :

Team : UTIL

Comp Remark:

Complete

EQ Meter:

By: JUDJ

Date: 2/15/1996

Hours: 0

DC 3



# Work Order

6/16/2015  
RE 023334

|             |                      |                             |                          |
|-------------|----------------------|-----------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                 |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Terry Winkel |
| Serial # :  |                      |                             | Contact : Alisa London   |
| PM Number : |                      |                             | Phone : 232-8955         |

|           |   |  |  |
|-----------|---|--|--|
| Request : | DRAINAGE ASSESS/INSPECT<br>C/B needs silt removal |  |  |
|-----------|---|--|--|

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 9/21/2009 | Procedure : | DRAINC     |
| Priority : | 3          | Comp Date :   | 10/5/2009 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

Actuals                      Hours (4) \$191.14    Materials \$0.00    Tools \$90.40    Service \$0.00    Total \$281.54

|           |                                  | Labour         |  |      |     |         |          |
|-----------|----------------------------------|----------------|--|------|-----|---------|----------|
| Employee  | Craft                            | Description    |  |      |     |         | Hours    |
| CLIC      | TM                               | Curtis Clifton |  |      |     |         | 2        |
| ROCB      | GN                               | Brian Rock     |  |      |     |         | 2        |
|           |                                  | Tools          |  | Unit | Qty | \$/Unit | Total \$ |
| Equipment | Description                      |                |  |      |     |         |          |
| FL-0246   | Dump Truck Frtlnr 7 YD           |                |  |      | 2   | \$25.50 | \$51.00  |
| FL-0305   | Backhoe/Loader John Deere #310SE |                |  |      | 2   | \$19.70 | \$39.40  |

Comp Remark:  
WORK COMPLETED

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 10/5/2009 | Hours: 4 |
|--|-----------|----------|-----------------|----------|



DC 3

# Work Order

6/16/2015  
RE 023821

|             |                      |                             |                          |
|-------------|----------------------|-----------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                 |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Terry Winkel |
| Serial # :  |                      |                             | Contact : Alissa London  |
| PM Number : |                      |                             | Phone : 2-8955/683-0655  |

|           |  |  |  |
|-----------|--|--|--|
| Request : | <b>DRAINAGE ASSESS/INSPECT</b><br>Customer says the catch basin appears to be leaking, it's not flowing as usual. Please call 1st for additional info. |  |  |
|-----------|--|--|--|

|            |            |               |            |             |            |
|------------|------------|---------------|------------|-------------|------------|
| Status :   | COMP       | Open Date :   | 11/30/2009 | Procedure : | DRAINING   |
| Priority : | 3          | Comp Date :   | 12/11/2009 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |            | Team :      | ROW        |

Actuals                                  Hours (0.5) \$25.52    Materials \$0.00    Tools \$8.25    Service \$0.00    Total \$33.77

| Labour    |                      |             |     |         |          |  |
|-----------|----------------------|-------------|-----|---------|----------|--|
| Employee  | Craft                | Description |     |         | Hours    |  |
| ROCB      | GN                   | Brian Rock  |     |         | 0.5      |  |
| Tools     |                      |             |     |         |          |  |
| Equipment | Description          | Unit        | Qty | \$/Unit | Total \$ |  |
| FL-0359   | Pickup Ford F150 4x4 |             | 0.5 | \$16.50 | \$8.25   |  |

|              |                       |
|--------------|-----------------------|
| Comp Remark: | <b>WORK COMPLETED</b> |
|--------------|-----------------------|

|  |           |          |                  |            |
|--|-----------|----------|------------------|------------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 12/11/2009 | Hours: 0.5 |
|--|-----------|----------|------------------|------------|



# Work Order

6/16/2015  
RE 027228

|             |                      |                             |                          |
|-------------|----------------------|-----------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                 |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Terry Winkel |
| Serial # :  |                      |                             | Contact : Alissa London  |
| PM Number : |                      |                             | Phone : 2-8955/683-0655  |

Request : DRAINAGE ASSESS/INSPECT  
Customer says the catch basin appears to be full of silt, not flowing as usual.

|            |                |               |            |             |             |
|------------|----------------|---------------|------------|-------------|-------------|
| Status :   | COMP           | Open Date :   | 12/17/2010 | Procedure : | DRAINING    |
| Priority : | 3              | Comp Date :   | 12/21/2010 | Craft :     | Team Member |
| Assigned : | Curtis Clifton | Target Date : |            | Team :      | ROW         |

Actuals                      Hours (1) \$45.19    Materials \$0.00    Tools \$16.50    Service \$0.00    Total \$61.69

|           |                    | Labour         |  |      |     |         |          |
|-----------|--------------------|----------------|--|------|-----|---------|----------|
| Employee  | Craft              | Description    |  |      |     |         | Hours    |
| CLIC      | TM                 | Curtis Clifton |  |      |     |         | 1        |
|           |                    | Tools          |  | Unit | Qty | \$/Unit | Total \$ |
| Equipment | Description        |                |  |      |     |         |          |
| FL-0402   | Truck Ford F350 1T |                |  |      | 1   | \$16.50 | \$16.50  |

Comp Remark:  
**WORK COMPLETED**  
Broke up the obstruction in the stand pipe and we will be out to clean the pond in the next couple of days.

|  |           |          |                  |          |
|--|-----------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: CLIC | Date: 12/21/2010 | Hours: 1 |
|--|-----------|----------|------------------|----------|



# Work Order

6/16/2015  
RE 028183

|             |                      |                          |                          |
|-------------|----------------------|--------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                  | Permit :                 |
| Equipment : | SD-CB                | Storm System Catch Basin | Requester : Terry Winkel |
| Serial # :  |                      |                          | Contact : Alyssa London  |
| PM Number : |                      |                          | Phone : 232-8955         |

Request : **CLEAN/CLEAR**  
 Customer says catch basin needs cleaned.  
 Customer also said the gravel area in the right-of-way is breaking down near the catch basin because of the big truck parking there to clean the catch basins. Customers wondering what can be done to protect against that.

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 4/19/2011 | Procedure : | CLNCLR     |
| Priority : | 4          | Comp Date :   | 4/21/2011 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

|                |           |         |           |        |       |         |         |        |       |         |
|----------------|-----------|---------|-----------|--------|-------|---------|---------|--------|-------|---------|
| <b>Actuals</b> | Hours (1) | \$52.99 | Materials | \$0.00 | Tools | \$16.50 | Service | \$0.00 | Total | \$69.49 |
|----------------|-----------|---------|-----------|--------|-------|---------|---------|--------|-------|---------|

| Employee  | Craft                | Description | Labour | Hours   |          |
|-----------|----------------------|-------------|--------|---------|----------|
| ROCB      | GN                   | Brian Rock  |        | 1       |          |
|           |                      |             | Tools  |         |          |
| Equipment | Description          | Unit        | Qty    | \$/Unit | Total \$ |
| FL-0359   | Pickup Ford F150 4x4 |             | 1      | \$16.50 | \$16.50  |

Comp Remark:  
 WORK COMPLETED-Inlet pipe was plugged so water was going in the trash rack. Cleared pipe of debris with rod.

|   |           |          |                 |          |
|---|-----------|----------|-----------------|----------|
| <input checked="checked" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 4/21/2011 | Hours: 1 |
|---|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 036457

|             |                      |                             |                          |
|-------------|----------------------|-----------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                 |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Asea Sandine |
| Serial # :  |                      |                             | Contact : LISA LONDON    |
| PM Number : |                      |                             | Phone : 206-683-0655     |

|           |  |
|-----------|--|
| Request : | DRAINAGE ASSESS/INSPECT<br>CB THAT CATCHES WATER FROM EMW TO THE LAKE IS FULL OF WATER AND NEEDS TO BE<br>CLEARED. CALLER SUSPECTS A CLOG. |
|-----------|--|

|            |              |               |          |             |            |
|------------|--------------|---------------|----------|-------------|------------|
| Status :   | COMP         | Open Date :   | 1/7/2014 | Procedure : | DRAIN C    |
| Priority : | 4            | Comp Date :   | 1/8/2014 | Craft :     | Technician |
| Assigned : | CHRIS KELLEY | Target Date : |          | Team :      | CRT        |

|         |           |         |           |        |       |        |         |        |       |         |
|---------|-----------|---------|-----------|--------|-------|--------|---------|--------|-------|---------|
| Actuals | Hours (1) | \$40.07 | Materials | \$0.00 | Tools | \$0.00 | Service | \$0.00 | Total | \$40.07 |
|---------|-----------|---------|-----------|--------|-------|--------|---------|--------|-------|---------|

| Labour   |       |              |       |
|----------|-------|--------------|-------|
| Employee | Craft | Description  | Hours |
| KELC     | TC    | CHRIS KELLEY | 1     |

|              |  |
|--------------|--|
| Comp Remark: | WORK COMPLETED<br>Cleared debris from the trash rack and water is now flowing properly |
|--------------|--|

|  |           |          |                |          |
|--|-----------|----------|----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: KELC | Date: 1/8/2014 | Hours: 1 |
|--|-----------|----------|----------------|----------|



# Work Order

6/16/2015  
RE 037032

|             |                      |                             |                          |
|-------------|----------------------|-----------------------------|--------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                 |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Asea Sandine |
| Serial # :  |                      |                             | Contact : WILLARD SAMMS  |
| PM Number : |                      |                             | Phone : 206-236-1564     |

**Request :** DRAINAGE ASSESS/INSPECT

CALLER REPORTS MUD AND SILT IN THE POND AT LOCATION. CALLER RESIDES AT 5634 EMW. HE SAID NORMALLY THE CITY IS DOWN TO CLEAN THE POND. HOWEVER, IT HAS NOT BEEN CLEANED OUT THIS YEAR AT ALL.  
CONTACT ADVISED IF IT IS NOT CLEANED OUT WITHIN THE NEXT WEEK HE WILL CONTACT COUNCIL

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 3/18/2014 | Procedure : | DRAIN C    |
| Priority : | 4          | Comp Date :   | 3/28/2014 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

**Actuals**                                  Hours (9) \$401.40    Materials \$0.00    Tools \$219.37    Service \$0.00    Total \$620.77

| Labour   |       |                  |       |
|----------|-------|------------------|-------|
| Employee | Craft | Description      | Hours |
| HARV     | TM    | Brian Hartvigson | 3     |
| LUNM     | TM    | Mark Lund        | 3     |
| ROCB     | GN    | Brian Rock       | 3     |

| Tools     |                                    |      |     |         |          |
|-----------|------------------------------------|------|-----|---------|----------|
| Equipment | Description                        | Unit | Qty | \$/Unit | Total \$ |
| FL-0305   | Backhoe/Loader John Deere #310SE   |      | 3   | \$19.70 | \$59.10  |
| FL-0456   | 2013 5 YRD DUMP INTERNATIONAL 7400 |      | 3   | \$25.50 | \$83.77  |
| FL-0457   | 2013 5yrd INT'L DUMP               |      | 3   | \$25.50 | \$76.50  |

**Comp Remark:**  
WORK COMPLETED

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 3/28/2014 | Hours: 9 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 037241

|             |                      |                             |                           |
|-------------|----------------------|-----------------------------|---------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                  |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Bill Sansbury |
| Serial # :  |                      |                             | Contact :                 |
| PM Number : |                      |                             | Phone :                   |

|   |            |               |           |
|---|------------|---------------|-----------|
| Request : DRAINAGE ASSESS/INSPECT-replace 6" inlet pipe with 12" pipe |            |               |           |
| Status :  | COMP       | Open Date :   | 4/21/2014 |
| Priority :  | 4          | Comp Date :   | 4/22/2014 |
| Assigned :  | Brian Rock | Target Date : |           |
| Procedure :   |            | DRAINC        |           |
| Craft :   |            | Generalist    |           |
| Team :  |            | ROW           |           |

**Actuals**                      Hours (8) \$365.08    Materials \$93.58    Tools \$180.80    Service \$0.00    Total \$639.46

| Labour      |                                  |                 |     |         |          |  |
|-------------|----------------------------------|-----------------|-----|---------|----------|--|
| Employee    | Craft                            | Description     |     |         | Hours    |  |
| ANDR        | TM                               | Rodney Anderson |     |         | 4        |  |
| ROCB        | GN                               | Brian Rock      |     |         | 4        |  |
| Materials   |                                  |                 |     |         |          |  |
| Item #      | Description                      | Unit            | Qty | \$/Unit | Total \$ |  |
| COUPLING    | 12" CI X CI COUPLING FERNCO      | EA              | 1   | \$34.42 | \$37.69  |  |
| GR-CON-9163 | CONCRETE, JETSET                 | EA              | 1   | \$18.20 | \$19.93  |  |
| MJ KIT      | 12" MJ ACCESSORIES KIT           | EA              | 1   | \$32.84 | \$35.96  |  |
| Tools       |                                  |                 |     |         |          |  |
| Equipment   | Description                      | Unit            | Qty | \$/Unit | Total \$ |  |
| FL-0305     | Backhoe/Loader John Deere #310SE |                 | 4   | \$19.70 | \$78.80  |  |
| FL-0457     | 2013 5yrd INT'L DUMP             |                 | 4   | \$25.50 | \$102.00 |  |

Comp Remark:  
WORK COMPLETED-replaced damaged 6" pvc stand pipe with 12" ductile iron pipe

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 4/22/2014 | Hours: 8 |
|--|-----------|----------|-----------------|----------|





# Work Order

6/16/2015  
RE 037272

|             |            |                             |                          |
|-------------|------------|-----------------------------|--------------------------|
| Location :  | 5632 E     | Address                     | Permit :                 |
|             | MERCER WAY |                             |                          |
| Equipment : | SD-DD      | Storm System Drainage Ditch | Requester : Asea Sandine |
| Serial # :  |            |                             | Contact :                |
| PM Number : |            |                             | Phone : 206-232-8955     |

Request : DRAINAGE ASSESS/INSPECT  
LARGER CB JUST INSTALLED IS CLOGGED.

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 4/24/2014 | Procedure : | DRAINING   |
| Priority : | 4          | Comp Date :   | 5/8/2014  | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

Actuals Hours (2) \$85.06 Materials \$0.00 Tools \$16.50 Service \$0.00 Total \$101.56

|           |                      | Labour           |  |      |     |         |          |
|-----------|----------------------|------------------|--|------|-----|---------|----------|
| Employee  | Craft                | Description      |  | Unit | Qty | \$/Unit | Total \$ |
| ANDR      | TM                   | Rodney Anderson  |  |      | 1   |         |          |
| HARV      | TM                   | Brian Hartvigson |  |      | 1   |         |          |
|           |                      | Tools            |  |      |     |         |          |
| Equipment | Description          |                  |  | Unit | Qty | \$/Unit | Total \$ |
| FL-0359   | Pickup Ford F150 4x4 |                  |  |      | 1   | \$16.50 | \$16.50  |

Comp Remark:  
WORK COMPLETED-unclogged inlet pipe

|  |           |          |                |          |
|--|-----------|----------|----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 5/8/2014 | Hours: 2 |
|--|-----------|----------|----------------|----------|



# Work Order

6/16/2015  
RE 037664

|             |                      |                             |                           |
|-------------|----------------------|-----------------------------|---------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :                  |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Bill Sansbury |
| Serial # :  |                      |                             | Contact :                 |
| PM Number : |                      |                             | Phone :                   |

|           |   |  |  |
|-----------|---|--|--|
| Request : | DRAINAGE ASSESS/INSPECT-dig silt from Glenhome pond |  |  |
|-----------|---|--|--|

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 4/18/2014 | Procedure : | DRAIN C    |
| Priority : | 4          | Comp Date :   | 6/18/2014 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

Actuals Hours (6) \$283.92 Materials \$0.00 Tools \$135.60 Service \$0.00 Total \$419.52

|           |                                  | Labour          |     |         |          |  |  |  |
|-----------|----------------------------------|-----------------|-----|---------|----------|--|--|--|
| Employee  | Craft                            | Description     |     |         | Hours    |  |  |  |
| ANDR      | TM                               | Rodney Anderson |     |         | 3        |  |  |  |
| ROCB      | GN                               | Brian Rock      |     |         | 3        |  |  |  |
|           |                                  | Tools           |     |         |          |  |  |  |
| Equipment | Description                      | Unit            | Qty | \$/Unit | Total \$ |  |  |  |
| FL-0305   | Backhoe/Loader John Deere #310SE |                 | 3   | \$19.70 | \$59.10  |  |  |  |
| FL-0457   | 2013 5yrd INT'L DUMP             |                 | 3   | \$25.50 | \$76.50  |  |  |  |

Comp Remark:  
WORK COMPLETED-Removed 8 yrds silt

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 6/18/2014 | Hours: 6 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 038395

|             |            |                             |                           |
|-------------|------------|-----------------------------|---------------------------|
| Location :  | 5632 E     | Address                     | Permit :                  |
|             | MERCER WAY |                             |                           |
| Equipment : | SD-DD      | Storm System Drainage Ditch | Requester : Bill Sansbury |
| Serial # :  |            |                             | Contact :                 |
| PM Number : |            |                             | Phone :                   |

|           |   |  |  |
|-----------|---|--|--|
| Request : | DRAINAGE ASSESS/INSPECT-dig silt out of Glenhome pond |  |  |
|-----------|---|--|--|

|            |            |               |            |             |            |
|------------|------------|---------------|------------|-------------|------------|
| Status :   | COMP       | Open Date :   | 10/1/2014  | Procedure : | DRAIN C    |
| Priority : | 4          | Comp Date :   | 10/14/2014 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |            | Team :      | ROW        |

|         |           |          |           |        |       |         |         |        |       |          |
|---------|-----------|----------|-----------|--------|-------|---------|---------|--------|-------|----------|
| Actuals | Hours (4) | \$189.28 | Materials | \$0.00 | Tools | \$90.40 | Service | \$0.00 | Total | \$279.68 |
|---------|-----------|----------|-----------|--------|-------|---------|---------|--------|-------|----------|

| Labour   |       |                 |       |
|----------|-------|-----------------|-------|
| Employee | Craft | Description     | Hours |
| ANDR     | TM    | Rodney Anderson | 2     |
| ROCB     | GN    | Brian Rock      | 2     |

| Tools     |                                    |      |     |         |          |
|-----------|------------------------------------|------|-----|---------|----------|
| Equipment | Description                        | Unit | Qty | \$/Unit | Total \$ |
| FL-0305   | Backhoe/Loader John Deere #310SE   |      | 2   | \$19.70 | \$39.40  |
| FL-0456   | 2013 5 YRD DUMP INTERNATIONAL 7400 |      | 2   | \$25.50 | \$51.00  |

|              |  |
|--------------|--|
| Comp Remark: | WORK COMPLETED-removed approx. 10 yds silt |
|--------------|--|

|  |           |          |                  |          |
|--|-----------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 10/14/2014 | Hours: 4 |
|--|-----------|----------|------------------|----------|



Work Order

6/16/2015  
RE 038396

|                   |                             |                           |
|-------------------|-----------------------------|---------------------------|
| Location : 5632 E | Address                     | Permit :                  |
| MERCER WAY        |                             |                           |
| Equipment : SD-DD | Storm System Drainage Ditch | Requester : Bill Sansbury |
| Serial # :        |                             | Contact :                 |
| PM Number :       |                             | Phone :                   |

|   |                       |                     |  |
|---|-----------------------|---------------------|--|
| Request : DRAINAGE ASSESS/INSPECT-dig silt out of Glenhome pond |                       |                     |  |
| Status : COMP   | Open Date : 10/1/2014 | Procedure : DRAIN C |  |
| Priority : 4  | Comp Date : 10/1/2014 | Craft : Generalist  |  |
| Assigned : Brian Rock   | Target Date :         | Team : ROW          |  |

**Actuals** Hours (4) \$202.16 Materials \$0.00 Tools \$90.40 Service \$0.00 Total \$292.56

|           |                                    | Labour      |     |         |          |  |  |
|-----------|------------------------------------|-------------|-----|---------|----------|--|--|
| Employee  | Craft                              | Description |     | Hours   |          |  |  |
| ROCB      | GN                                 | Brian Rock  |     | 2       |          |  |  |
| ROCB      | GN                                 | Brian Rock  |     | 2       |          |  |  |
|           |                                    | Tools       |     |         |          |  |  |
| Equipment | Description                        | Unit        | Qty | \$/Unit | Total \$ |  |  |
| FL-0305   | Backhoe/Loader John Deere #310SE   |             | 2   | \$19.70 | \$39.40  |  |  |
| FL-0456   | 2013 5 YRD DUMP INTERNATIONAL 7400 |             | 2   | \$25.50 | \$51.00  |  |  |

Comp Remark:  
 WORK COMPLETED-removed apprx. 10 yds of silt from pond

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 10/1/2014 | Hours: 4 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 039653

|             |                      |                             |                        |
|-------------|----------------------|-----------------------------|------------------------|
| Location :  | 5632 E<br>MERCER WAY | Address                     | Permit :               |
| Equipment : | SD-DD                | Storm System Drainage Ditch | Requester : Brian Rock |
| Serial # :  |                      |                             | Contact :              |
| PM Number : |                      |                             | Phone :                |

|            |   |               |            |
|------------|---|---------------|------------|
| Request :  | DRAINAGE ASSESS/INSPECT-clean silt pond |               |            |
| Status :   | COMP                                    | Open Date :   | 3/31/2015  |
| Priority : | 4                                       | Comp Date :   | 3/31/2015  |
| Assigned : | Brian Rock                              | Target Date : |            |
|            |   | Procedure :   | DRAINING   |
|            |   | Craft :       | Generalist |
|            |   | Team :        | ROW        |

Actuals    Hours (5) \$236.60    Materials \$0.00    Tools \$113.00    Service \$0.00    Total \$349.60

|          |       | Labour                           |  |  |      | Tools |         |          |  |
|----------|-------|----------------------------------|--|--|------|-------|---------|----------|--|
| Employee | Craft | Description                      |  |  | Unit | Qty   | \$/Unit | Total \$ |  |
| LUNM     | TM    | Mark Lund                        |  |  |      | 2.5   |         |          |  |
| ROCB     | GN    | Brian Rock                       |  |  |      | 2.5   |         |          |  |
| FL-0305  |       | Backhoe/Loader John Deere #310SE |  |  |      | 2.5   | \$19.70 | \$49.25  |  |
| FL-0437  |       | Dump Truck International         |  |  |      | 2.5   | \$25.50 | \$63.75  |  |

Comp Remark:  
WORK COMPLETED-removed approx. 12yrd silt

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 3/31/2015 | Hours: 5 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 039654

Location : 5632 E Address Permit :  
MERCER WAY  
Equipment : Requester : Brian Hartvigson  
Serial # : Contact :  
PM Number : Phone :

Request : CLEAN/CLEAR. Remove sediment from the Glenhome retention pond.

|                      |                       |                     |
|----------------------|-----------------------|---------------------|
| Status : COMP        | Open Date : 3/31/2015 | Procedure : CLNCLR  |
| Priority : 4         | Comp Date : 3/31/2015 | Craft : Team Member |
| Assigned : Mark Lund | Target Date :         | Team : ROW          |

Actuals Hours (6) \$283.92 Materials \$0.00 Tools \$148.48 Service \$0.00 Total \$432.40

| Labour    |                                  |             |     |         |          |  |
|-----------|----------------------------------|-------------|-----|---------|----------|--|
| Employee  | Craft                            | Description |     |         | Hours    |  |
| LUNM      | TM                               | Mark Lund   |     |         | 3        |  |
| ROCB      | GN                               | Brian Rock  |     |         | 3        |  |
| Tools     |                                  |             |     |         |          |  |
| Equipment | Description                      | Unit        | Qty | \$/Unit | Total \$ |  |
| FL-0305   | Backhoe/Loader John Deere #310SE |             | 3   | \$19.70 | \$64.71  |  |
| FL-0437   | Dump Truck International         |             | 3   | \$25.50 | \$83.77  |  |

Comp Remark:  
WORK COMPLETED. We removed an estimated 20 yds of sediment at the Glenhome retention pond.

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: LUNM | Date: 3/31/2015 | Hours: 6 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 002630

|             |                      |                           |                         |
|-------------|----------------------|---------------------------|-------------------------|
| Location :  | 5642 E<br>MERCER WAY | Address                   | Permit :                |
| Equipment : | SD-NP                | Storm System Natural Pond | Requester : Jolene Judd |
| Serial # :  |                      |                           | Contact : BLOHM RALPH W |
| PM Number : |                      |                           | Phone :                 |

|            |                  |               |           |
|------------|------------------|---------------|-----------|
| Request :  | DRAINAGE CONTROL |               |           |
| Status :   | COMP             | Open Date :   | 4/14/2003 |
| Priority : | 4                | Comp Date :   | 4/17/2003 |
| Assigned : | Jolene Judd      | Target Date : | 5/15/2003 |
|            |                  | Procedure :   | DRAIN     |
|            |                  | Craft :       |           |
|            |                  | Team :        | UTIL      |

**Actuals** Hours (1) \$39.35 Materials \$4.35 Tools \$0.00 Service \$0.00 Total \$43.70

| Labour    |             |             |  |      |       |         |          |
|-----------|-------------|-------------|--|------|-------|---------|----------|
| Employee  | Craft       | Description |  |      | Hours |         |          |
| JUDJ      | GN          | Jerry Judd  |  |      | 1     |         |          |
| Materials |             |             |  |      |       |         |          |
| Item #    | Description |             |  | Unit | Qty   | \$/Unit | Total \$ |
| 275       |             |             |  |      | 1     | \$4.00  | \$4.35   |

Comp Remark:  
WORK COMPLETED pond was not full..could wait to be cleaned

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 4/17/2003 | Hours: 1 |
|--|-------------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 003587

|             |                      |                             |                         |
|-------------|----------------------|-----------------------------|-------------------------|
| Location :  | 5642 E<br>MERCER WAY | Address                     | Permit :                |
| Equipment : | SD-DF-RP             | Storm System Retention Pond | Requester :             |
| Serial # :  |                      |                             | Contact : BLOHM RALPH W |
| PM Number : |                      |                             | Phone :                 |

|           |                  |
|-----------|------------------|
| Request : | DRAINAGE CONTROL |
|-----------|------------------|

|            |             |               |           |             |          |
|------------|-------------|---------------|-----------|-------------|----------|
| Status :   | COMP        | Open Date :   | 6/19/2003 | Procedure : | DRAINING |
| Priority : | 4           | Comp Date :   | 6/19/2003 | Craft :     |          |
| Assigned : | Jolene Judd | Target Date : | 6/26/2003 | Team :      | UTIL     |

|         |           |          |           |          |       |        |         |        |       |          |
|---------|-----------|----------|-----------|----------|-------|--------|---------|--------|-------|----------|
| Actuals | Hours (4) | \$146.68 | Materials | \$158.84 | Tools | \$0.00 | Service | \$0.00 | Total | \$305.52 |
|---------|-----------|----------|-----------|----------|-------|--------|---------|--------|-------|----------|

|          |             | Labour      |      |      |         |          |          |
|----------|-------------|-------------|------|------|---------|----------|----------|
| Employee | Craft       | Description |      | Unit | Qty     | \$/Unit  | Total \$ |
| JUDJ     | GN          | Jerry Judd  |      |      | 2       |          |          |
| MAUW     |             | Wade Mauhl  |      |      | 2       |          |          |
|          |             | Materials   |      |      |         |          |          |
| Item #   | Description |             | Unit | Qty  | \$/Unit | Total \$ |          |
| 236      |             |             |      | 2    | \$19.00 | \$41.34  |          |
| 305      |             |             |      | 2    | \$54.00 | \$117.50 |          |

|              |  |
|--------------|--|
| Comp Remark: | WORK COMPLETED cleaned out settling pond at glenn home |
|--------------|--|

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 6/19/2003 | Hours: 4 |
|--|-------------|----------|-----------------|----------|





# Work Order

6/16/2015  
REQ 004896

|             |                      |             |               |
|-------------|----------------------|-------------|---------------|
| Location :  | 5642 E<br>MERCER WAY | Address     | Permit :      |
| Equipment : |                      | Requester : | Jolene Judd   |
| Serial # :  |                      | Contact :   | BLOHM RALPH W |
| PM Number : |                      | Phone :     |               |

|  |             |               |            |
|--|-------------|---------------|------------|
| Request : DRAINAGE CONTROL settling pond |             |               |            |
| Status :                                 | COMP        | Open Date :   | 12/4/2003  |
| Priority :                               | 4           | Comp Date :   | 12/18/2003 |
| Assigned :                               | Jolene Judd | Target Date : | 12/18/2003 |
|  |             | Procedure :   | DRAIN C    |
|  |             | Craft :       |            |
|  |             | Team :        | UTIL       |

Actuals Hours (4) \$146.68 Materials \$158.84 Tools \$0.00 Service \$0.00 Total \$305.52

| Employee |  | Craft       | Description | Labour |      | Hours |         |          |
|----------|--|-------------|-------------|--------|------|-------|---------|----------|
| JUDJ     |  | GN          | Jerry Judd  |        |      | 2     |         |          |
| MAUW     |  |             | Wade Mauhl  |        |      | 2     |         |          |
| Item #   |  | Description | Materials   |        | Unit | Qty   | \$/Unit | Total \$ |
| 305      |  |             |             |        |      | 2     | \$54.00 | \$117.50 |
| 308      |  |             |             |        |      | 2     | \$19.00 | \$41.34  |

Comp Remark:  
WORK COMPLETED dug out the settling pond at glenn home.

|  |             |          |                  |          |
|--|-------------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 12/18/2003 | Hours: 4 |
|--|-------------|----------|------------------|----------|



# Work Order

6/16/2015  
RE 007608

|             |                      |             |               |
|-------------|----------------------|-------------|---------------|
| Location :  | 5642 E<br>MERCER WAY | Address     | Permit :      |
| Equipment : |                      | Requester : | Jolene Judd   |
| Serial # :  |                      | Contact :   | BLOHM RALPH W |
| PM Number : |                      | Phone :     |               |

|            |                            |               |            |
|------------|----------------------------|---------------|------------|
| Request :  | CLEAN/CLEAR settling ponds |               |            |
| Status :   | COMP                       | Open Date :   | 10/1/2002  |
| Priority : | 4                          | Comp Date :   | 11/17/2004 |
| Assigned : | Wade Mauhl                 | Target Date : |            |
|            |                            | Procedure :   | CLNCLR     |
|            |                            | Craft :       |            |
|            |                            | Team :        | UTIL       |

Actuals                      Hours (6) \$121.02    Materials \$219.00    Tools \$0.00    Service \$0.00    Total \$340.02

| Labour   |       |             |       |
|----------|-------|-------------|-------|
| Employee | Craft | Description | Hours |
| JUDJ     | GN    | Jerry Judd  | 3     |
| MAUW     | TM    | Wade Mauhl  | 3     |

| Materials |                       |      |     |         |          |
|-----------|-----------------------|------|-----|---------|----------|
| Item #    | Description           | Unit | Qty | \$/Unit | Total \$ |
| 236       | 236 dump truck        | HR   | 3   | \$19.00 | \$57.00  |
| 305       | 305 john deer backhoe | HR   | 3   | \$54.00 | \$162.00 |

Comp Remark:  
WORK COMPLETED cleaned settling ponds 8 to 10 yards of material

|  |             |          |                  |          |
|--|-------------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: MAUW | Date: 11/17/2004 | Hours: 6 |
|--|-------------|----------|------------------|----------|



# Work Order

6/16/2015  
RO 013545

Location : 5642 E Address Permit :  
MERCER WAY  
Equipment : SD-DF-RP Storm System Retention Pond Requester : Jolene Judd  
Serial # : Contact : BLOHM RALPH W  
PM Number : Phone :

|                                   |                          |                   |  |
|-----------------------------------|--------------------------|-------------------|--|
| Request : DRAINAGE ASSESS/INSPECT |                          |                   |  |
| Status : COMP                     | Open Date : 11/16/2006   | Procedure : DRAIN |  |
| Priority : 4                      | Comp Date : 11/16/2006   | Craft : UTIL      |  |
| Assigned : Jolene Judd            | Target Date : 11/16/2006 | Team :            |  |

Actuals Hours (4) \$156.06 Materials \$0.00 Tools \$98.36 Service \$0.00 Total \$254.42

| Labour    |                                  |             |      |     |         |          |
|-----------|----------------------------------|-------------|------|-----|---------|----------|
| Employee  | Craft                            | Description |      |     |         | Hours    |
| JUDJ      | GN                               | Jerry Judd  |      |     |         | 2        |
| MAUW      |                                  | Wade Mauhl  |      |     |         | 2        |
| Tools     |                                  |             |      |     |         |          |
| Equipment | Description                      |             | Unit | Qty | \$/Unit | Total \$ |
| FL-0236   | Dump Truck Frtltr 7 YD           |             |      | 2   | \$25.50 | \$55.49  |
| FL-0305   | Backhoe/Loader John Deere #310SE |             |      | 2   | \$19.70 | \$42.87  |

Comp Remark:  
WORK COMPLETED cleaned settling pond.10 yds. of material

|  |             |          |                  |          |
|--|-------------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 11/16/2006 | Hours: 4 |
|--|-------------|----------|------------------|----------|



# Work Order

6/16/2015  
RE 2999.1

|             |                      |             |               |
|-------------|----------------------|-------------|---------------|
| Location :  | 5642 E<br>MERCER WAY | Address     | Permit :      |
| Equipment : |                      | Requester : | JUDD JERRY    |
| Serial # :  |                      | Contact :   | City Employee |
| PM Number : |                      | Phone :     |               |

|           |   |  |  |
|-----------|---|--|--|
| Request : | DRAINAGE CONTROL<br>DIG OUT SETTLING POND |  |  |
|-----------|---|--|--|

|            |             |               |            |             |          |
|------------|-------------|---------------|------------|-------------|----------|
| Status :   | COMP        | Open Date :   | 10/15/1998 | Procedure : | DRAINING |
| Priority : | 3           | Comp Date :   | 10/15/1998 | Craft :     |          |
| Assigned : | Jolene Judd | Target Date : |            | Team :      | UTIL     |

Actuals                                  Hours (4) \$103.78    Materials \$134.00    Tools \$0.00    Service \$0.00    Total \$237.78

|          |                 | Labour      |  |       |     |         |          |
|----------|-----------------|-------------|--|-------|-----|---------|----------|
| Employee | Craft           | Description |  | Hours |     |         |          |
| JUDJ     |                 |             |  | 2     |     |         |          |
| ROCB     |                 |             |  | 2     |     |         |          |
|          |                 | Materials   |  | Unit  | Qty | \$/Unit | Total \$ |
| Item #   | Description     |             |  |       |     |         |          |
|          | DUMP TRUCK #236 |             |  |       | 2   | \$17.00 | \$34.00  |
|          | BACKHOE #187    |             |  |       | 2   | \$50.00 | \$100.00 |

|              |   |
|--------------|---|
| Comp Remark: | WORK COMPLETE - NO FURTHER ACTION REQUIRED<br>REMOVED SILT & DEBRIS |
|--------------|---|

|  |           |          |                  |          |
|--|-----------|----------|------------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: JUDJ | Date: 10/15/1998 | Hours: 4 |
|--|-----------|----------|------------------|----------|



# Work Order

6/16/2015  
REQ R-6419

|             |            |             |                  |
|-------------|------------|-------------|------------------|
| Location :  | 5646 E     | Address     | Permit :         |
|             | MERCER WAY |             |                  |
| Equipment : |            | Requester : | TISCORNIA JOHN F |
| Serial # :  |            | Contact :   | TISCORNIA JOHN F |
| PM Number : |            | Phone :     | 232-5449         |

Request : DRAINAGE CONTROL  
RESIDENT SAYS THAT AT THE SOUTH SIDE OF EMW AT THE 5600 BLOCK THERE APPEARS TO BE A SLIDE FORMING AS THE SIDE OF THE SLOPE HAS DROPPED 8-10". IF IT GOES IT WILL BLOCK EMW

|                         |                       |                     |
|-------------------------|-----------------------|---------------------|
| Status : COMP           | Open Date : 3/20/1997 | Procedure : DRAIN C |
| Priority : 2            | Comp Date : 3/24/1997 | Craft :             |
| Assigned : Johnny Segle | Target Date :         | Team : CRT          |

Actuals    Hours (0.5) \$12.44    Materials \$2.50    Tools \$0.00    Service \$0.00    Total \$14.94

| Employee | Craft | Description | Labour | Hours |
|----------|-------|-------------|--------|-------|
| SEGJ     |       |             |        | 0.5   |

Comp Remark:  
WORK COMPLETE - NO FURTHER ACTION REQUIRED  
THERES A LITTLE SLUFFING NOTHING TO WORRY ABOUT.

|  |           |          |                 |            |
|--|-----------|----------|-----------------|------------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: SEGJ | Date: 3/24/1997 | Hours: 0.5 |
|--|-----------|----------|-----------------|------------|



# Work Order

6/16/2015  
RE 007114

|             |                      |                             |                        |
|-------------|----------------------|-----------------------------|------------------------|
| Location :  | 5655 E<br>MERCER WAY | Address                     | Permit :               |
| Equipment : | SD-DF-RP             | Storm System Retention Pond | Requester : Wade Mauhl |
| Serial # :  |                      |                             | Contact :              |
| PM Number : |                      |                             | Phone :                |

|  |            |               |           |
|--|------------|---------------|-----------|
| Request : CLEAN/CLEAR settling pond 5565 emw |            |               |           |
| Status :                                     | COMP       | Open Date :   | 9/21/2004 |
| Priority :                                   | 4          | Comp Date :   | 9/22/2004 |
| Assigned :                                   | Wade Mauhl | Target Date : | 9/30/2005 |
|  |            | Procedure :   | CLNCLR    |
|  |            | Craft :       |           |
|  |            | Team :        | UTIL      |

Actuals Hours (4) \$150.38 Materials \$146.00 Tools \$0.00 Service \$0.00 Total \$296.38

| Labour    |                       |             |     |         |          |  |
|-----------|-----------------------|-------------|-----|---------|----------|--|
| Employee  | Craft                 | Description |     |         | Hours    |  |
| JUDJ      | GN                    | Jerry Judd  |     |         | 2        |  |
| MAUW      |                       | Wade Mauhl  |     |         | 2        |  |
| Materials |                       |             |     |         |          |  |
| Item #    | Description           | Unit        | Qty | \$/Unit | Total \$ |  |
| 236       | dump truck 236        | HR          | 2   | \$19.00 | \$38.00  |  |
| 305       | 305 john deer backhoe | HR          | 2   | \$54.00 | \$108.00 |  |

Comp Remark:  
WORK COMPLETED cleaned out settling pond dug out 12 yrds material

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: MAUW | Date: 9/22/2004 | Hours: 4 |
|--|-------------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 007609

|             |                      |             |             |
|-------------|----------------------|-------------|-------------|
| Location :  | 5655 E<br>MERCER WAY | Address     | Permit :    |
| Equipment : |                      | Requester : | Jolene Judd |
| Serial # :  |                      | Contact :   |             |
| PM Number : |                      | Phone :     |             |

|            |                             |               |           |
|------------|-----------------------------|---------------|-----------|
| Request :  | CLEAN/CLEAR SETTELING PONDS |               |           |
| Status :   | COMP                        | Open Date :   | 10/5/2004 |
| Priority : | 4                           | Comp Date :   | 10/5/2004 |
| Assigned : | Wade Mauhl                  | Target Date : |           |
|            |                             | Procedure :   | CLNCLR    |
|            |                             | Craft :       |           |
|            |                             | Team :        | UTIL      |

Actuals Hours (6) \$225.57 Materials \$224.02 Tools \$0.00 Service \$0.00 Total \$449.59

|          |                       | Labour      |     |         |          |  |  |
|----------|-----------------------|-------------|-----|---------|----------|--|--|
| Employee | Craft                 | Description |     | Hours   |          |  |  |
| JUDJ     | GN                    | Jerry Judd  |     | 3       |          |  |  |
| MAUW     |                       | Wade Mauhl  |     | 3       |          |  |  |
|          |                       | Materials   |     |         |          |  |  |
| Item #   | Description           | Unit        | Qty | \$/Unit | Total \$ |  |  |
| 236      | 236 dump truck        | HR          | 3   | \$19.00 | \$62.02  |  |  |
| 305      | 305 john deer backhoe | HR          | 3   | \$54.00 | \$162.00 |  |  |

Comp Remark:  
WORK COMPLETED dugeout setteling ponds 8 to 10 yards of material

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: MAUW | Date: 10/5/2004 | Hours: 6 |
|--|-------------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 010899

|             |                      |                             |                                 |
|-------------|----------------------|-----------------------------|---------------------------------|
| Location :  | 5655 E<br>MERCER WAY | Address                     | Permit :                        |
| Equipment : | SD-DF-RP             | Storm System Retention Pond | Requester : Jolene Judd         |
| Serial # :  |                      |                             | Contact : ANDERSON ERIK<br>B+HE |
| PM Number : |                      |                             | Phone : 223-8908                |

|            |                         |               |           |
|------------|-------------------------|---------------|-----------|
| Request :  | DRAINAGE ASSESS/INSPECT |               |           |
| Status :   | COMP                    | Open Date :   | 1/24/2006 |
| Priority : | 4                       | Comp Date :   | 1/24/2006 |
| Assigned : | Jolene Judd             | Target Date : | 1/24/2006 |
|            |                         | Procedure :   | DRAIN C   |
|            |                         | Craft :       | UTIL      |
|            |                         | Team :        |           |

Actuals                      Hours (4) \$152.26    Materials \$0.00    Tools \$158.84    Service \$0.00    Total \$311.10

|           |                                  | Labour      |     |         |          |
|-----------|----------------------------------|-------------|-----|---------|----------|
| Employee  | Craft                            | Description |     | Hours   |          |
| JUDJ      | GN                               | Jerry Judd  |     | 2       |          |
| MAUW      |                                  | Wade Mauhi  |     | 2       |          |
|           |                                  | Tools       |     |         |          |
| Equipment | Description                      | Unit        | Qty | \$/Unit | Total \$ |
| FL-0236   | Dump Truck Frtlnr                |             | 2   | \$19.00 | \$41.34  |
| FL-0305   | Backhoe/Loader John Deere #310SE |             | 2   | \$54.00 | \$117.50 |

Comp Remark:  
WORK COMPLETED dug out settling pond. Hauled out two loads of silt.

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 1/24/2006 | Hours: 4 |
|--|-------------|----------|-----------------|----------|





# Work Order

 6/16/2015  
 RO 013546

|             |                      |                             |                                 |
|-------------|----------------------|-----------------------------|---------------------------------|
| Location :  | 5655 E<br>MERCER WAY | Address                     | Permit :                        |
| Equipment : | SD-DF-RP             | Storm System Retention Pond | Requester : Jolene Judd         |
| Serial # :  |                      |                             | Contact : ANDERSON ERIK<br>B+HE |
| PM Number : |                      |                             | Phone : 223-8908                |

|   |                                  |                         |            |             |         |                  |          |          |        |       |          |
|---|----------------------------------|-------------------------|------------|-------------|---------|------------------|----------|----------|--------|-------|----------|
| Request :   |                                  | DRAINAGE ASSESS/INSPECT |            |             |         |                  |          |          |        |       |          |
| Status :  | COMP                             | Open Date :             | 11/16/2006 | Procedure : | DRAIN C |                  |          |          |        |       |          |
| Priority :  | 4                                | Comp Date :             | 11/16/2006 | Craft :     | UTIL    |                  |          |          |        |       |          |
| Assigned :  | Jolene Judd                      | Target Date :           | 11/16/2006 | Team :      | UTIL    |                  |          |          |        |       |          |
| Actuals   |                                  | Hours (4)               | \$156.06   | Materials   | \$0.00  | Tools            | \$98.36  | Service  | \$0.00 | Total | \$254.42 |
|   |                                  | Labour                  |            |             |         |                  |          |          |        |       |          |
| Employee  | Craft                            | Description             |            |             |         |                  |          | Hours    |        |       |          |
| JUDJ  | GN                               | Jerry Judd              |            |             |         |                  |          | 2        |        |       |          |
| MAUW  |                                  | Wade Mauhl              |            |             |         |                  |          | 2        |        |       |          |
|   |                                  | Tools                   |            |             |         |                  |          |          |        |       |          |
| Equipment   | Description                      |                         | Unit       | Qty         | \$/Unit |                  | Total \$ |          |        |       |          |
| FL-0236   | Dump Truck Frtlnr 7 YD           |                         |            | 2           | \$25.50 |                  | \$55.49  |          |        |       |          |
| FL-0305   | Backhoe/Loader John Deere #310SE |                         |            | 2           | \$19.70 |                  | \$42.87  |          |        |       |          |
| Comp Remark:  |                                  |                         |            |             |         |                  |          |          |        |       |          |
| WORK COMPLETED cleaned settling pond. 10yds of material |                                  |                         |            |             |         |                  |          |          |        |       |          |
| <input checked="" type="checkbox"/> Complete            |                                  | EQ Meter: 0             |            | By: JUDJ    |         | Date: 11/16/2006 |          | Hours: 4 |        |       |          |



# Work Order

6/16/2015  
RE 015607

|             |                      |   |                           |
|-------------|----------------------|---|---------------------------|
| Location :  | 5655 E<br>MERCER WAY | Address                                 | Permit :                  |
| Equipment : | SD-WQ-SP             | Storm System WQ Structure Settling Pond | Requester : Bill Sansbury |
| Serial # :  |                      |   | Contact :                 |
| PM Number : |                      |   | Phone :                   |

|           |                  |  |  |
|-----------|------------------|--|--|
| Request : | CLEAN/CLEAR pond |  |  |
|-----------|------------------|--|--|

|            |             |               |           |             |            |
|------------|-------------|---------------|-----------|-------------|------------|
| Status :   | CANC        | Open Date :   | 6/22/2007 | Procedure : | CLNCLR     |
| Priority : | 4           | Comp Date :   | 9/11/2007 | Craft :     | Generalist |
| Assigned : | Jolene Judd | Target Date : |           | Team :      | ROW        |

|              |   |  |  |  |  |
|--------------|---|--|--|--|--|
| Comp Remark: | <p><b>WORK COMPLETED</b><br/>The pond has removed by contractor working in the water course - per J Judd, 9/7/07.</p> |  |  |  |  |
|--------------|---|--|--|--|--|

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 9/11/2007 | Hours: 0 |
|--|-------------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 007152

|             |            |                           |                                 |
|-------------|------------|---------------------------|---------------------------------|
| Location :  | 5665 E     | Address                   | Permit :                        |
|             | MERCER WAY |                           |                                 |
| Equipment : | SD-NP      | Storm System Natural Pond | Requester :                     |
| Serial # :  |            |                           | Contact : STEINITZ EDGAR<br>S+G |
| PM Number : |            |                           | Phone :                         |

Request : DRAINAGE CONTROL

|            |             |               |           |             |         |
|------------|-------------|---------------|-----------|-------------|---------|
| Status :   | COMP        | Open Date :   | 9/23/2004 | Procedure : | DRAIN C |
| Priority : | 4           | Comp Date :   | 9/23/2004 | Craft :     |         |
| Assigned : | Jolene Judd | Target Date : | 9/23/2004 | Team :      | UTIL    |

Actuals Hours (4) \$150.38 Materials \$158.84 Tools \$0.00 Service \$0.00 Total \$309.22

|          |             | Labour      |      |     |         |  |          |
|----------|-------------|-------------|------|-----|---------|--|----------|
| Employee | Craft       | Description |      |     |         |  | Hours    |
| JUDJ     | GN          | Jerry Judd  |      |     |         |  | 2        |
| MAUW     |             | Wade Mauhl  |      |     |         |  | 2        |
|          |             | Materials   |      |     |         |  |          |
| Item #   | Description |             | Unit | Qty | \$/Unit |  | Total \$ |
| 236      |             |             |      | 2   | \$19.00 |  | \$41.34  |
| 305      |             |             |      | 2   | \$54.00 |  | \$117.50 |

Comp Remark:  
WORK COMPLETED cleaned out natural pond. Two loads

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 9/23/2004 | Hours: 4 |
|--|-------------|----------|-----------------|----------|



# Work Order

 6/16/2015  
 RO 014041

|             |                      |                           |                                 |
|-------------|----------------------|---------------------------|---------------------------------|
| Location :  | 5665 E<br>MERCER WAY | Address                   | Permit :                        |
| Equipment : | SD-NP                | Storm System Natural Pond | Requester : Jolene Judd         |
| Serial # :  |                      |                           | Contact : STEINITZ EDGAR<br>S+G |
| PM Number : |                      |                           | Phone :                         |

|                                   |             |               |           |
|-----------------------------------|-------------|---------------|-----------|
| Request : DRAINAGE ASSESS/INSPECT |             |               |           |
| Status :                          | COMP        | Open Date :   | 1/22/2007 |
| Priority :                        | 4           | Comp Date :   | 1/22/2007 |
| Assigned :                        | Jolene Judd | Target Date : |           |
|                                   |             | Procedure :   | DRAIN C   |
|                                   |             | Craft :       |           |
|                                   |             | Team :        | UTIL      |

|         |           |          |           |        |       |         |         |        |       |          |
|---------|-----------|----------|-----------|--------|-------|---------|---------|--------|-------|----------|
| Actuals | Hours (4) | \$162.50 | Materials | \$0.00 | Tools | \$98.36 | Service | \$0.00 | Total | \$260.86 |
|---------|-----------|----------|-----------|--------|-------|---------|---------|--------|-------|----------|

|           |       | Labour                           |  |      |     |         |          |
|-----------|-------|----------------------------------|--|------|-----|---------|----------|
| Employee  | Craft | Description                      |  | Unit | Qty | \$/Unit | Total \$ |
| JUDJ      | GN    | Jerry Judd                       |  |      | 2   |         |          |
| MAUW      |       | Wade Mauhl                       |  |      | 2   |         |          |
|           |       | Tools                            |  |      |     |         |          |
| Equipment |       | Description                      |  | Unit | Qty | \$/Unit | Total \$ |
| FL-0246   |       | Dump Truck Frtlnr 7 YD           |  |      | 2   | \$25.50 | \$55.49  |
| FL-0305   |       | Backhoe/Loader John Deere #310SE |  |      | 2   | \$19.70 | \$42.87  |

Comp Remark:

WORK COMPLETED claned setteling pond

|  |             |          |                 |          |
|--|-------------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: 0 | By: JUDJ | Date: 1/22/2007 | Hours: 4 |
|--|-------------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 037773

|             |                      |                             |                           |
|-------------|----------------------|-----------------------------|---------------------------|
| Location :  | 5665 E<br>MERCER WAY | Address                     | Permit :                  |
| Equipment : | SD-DF-RP             | Storm System Retention Pond | Requester : Bill Sansbury |
| Serial # :  |                      |                             | Contact :                 |
| PM Number : |                      |                             | Phone :                   |

**Request :** CLEAN/CLEAR Please coordinate this work. PLEASE NOTE: it is a requirement for this work to control the by-pass / de-watering pump flow as not to cause any erosion or downstream flooding and implement other BMP's to prevent downstream flooding or erosion. NOTify the citizen at Glenhome of this work.

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 7/7/2014  | Procedure : | CLNCLR     |
| Priority : | 4          | Comp Date :   | 7/22/2014 | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

**Actuals**                      Hours (2) \$101.08    Materials \$0.00    Tools \$33.00    Service \$0.00    Total \$134.08

|           |                    | Labour      |  |      |     |         |          |
|-----------|--------------------|-------------|--|------|-----|---------|----------|
| Employee  | Craft              | Description |  |      |     | Hours   |          |
| ROCB      | GN                 | Brian Rock  |  |      |     | 2       |          |
|           |                    | Tools       |  | Unit | Qty | \$/Unit | Total \$ |
| Equipment | Description        |             |  |      |     |         |          |
| FL-0459   | F250 4X4 SUPER CAB |             |  |      | 2   | \$16.50 | \$33.00  |

**Comp Remark:**  
WORK COMPLETED-had Econo-vac vector silt from pond

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 7/22/2014 | Hours: 2 |
|--|-----------|----------|-----------------|----------|



# Work Order

6/16/2015  
RE 031822

|             |                 |                             |             |
|-------------|-----------------|-----------------------------|-------------|
| Location :  | 9208 SE 57TH ST | Address                     | Permit :    |
| Equipment : | SD-DD           | Storm System Drainage Ditch | Requester : |
| Serial # :  |                 |                             | Contact :   |
| PM Number : |                 |                             | Phone :     |

|           |   |  |  |
|-----------|---|--|--|
| Request : | DRAINAGE ASSESS/INSPECT<br>DRAIN HAS FAILED AND STREET IS COLAPSING AROUND THE DRAIN. |  |  |
|-----------|---|--|--|

|            |            |               |           |             |            |
|------------|------------|---------------|-----------|-------------|------------|
| Status :   | COMP       | Open Date :   | 5/31/2012 | Procedure : | DRAINC     |
| Priority : | 4          | Comp Date :   | 6/5/2012  | Craft :     | Generalist |
| Assigned : | Brian Rock | Target Date : |           | Team :      | ROW        |

|         |           |         |           |        |       |        |         |        |       |         |
|---------|-----------|---------|-----------|--------|-------|--------|---------|--------|-------|---------|
| Actuals | Hours (1) | \$52.99 | Materials | \$0.00 | Tools | \$0.00 | Service | \$0.00 | Total | \$52.99 |
|---------|-----------|---------|-----------|--------|-------|--------|---------|--------|-------|---------|

| Labour   |       |  |       |
|----------|-------|--|-------|
| Employee | Craft | Description  | Hours |
| HARD     | TC    | CB on north side of rd is failing. a hole with brick exposed. Placed barricade on CB. The CB south side of the road needs asphalt cut out and resasphalt | 1     |

|              |   |
|--------------|---|
| Comp Remark: | WORK COMPLETED-work has been added to the project list for 2012 |
|--------------|---|

|  |           |          |                |          |
|--|-----------|----------|----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 6/5/2012 | Hours: 1 |
|--|-----------|----------|----------------|----------|



# Work Order

6/16/2015  
RE 037018

|             |                 |                             |                           |
|-------------|-----------------|-----------------------------|---------------------------|
| Location :  | 9208 SE 57TH ST | Address                     | Permit :                  |
| Equipment : | SD-DD           | Storm System Drainage Ditch | Requester : Bill Sansbury |
| Serial # :  |                 |                             | Contact : WEBER J G       |
| PM Number : |                 |                             | Phone :                   |

|   |            |               |            |
|---|------------|---------------|------------|
| Request : DRAINAGE ASSESS/INSPECT-raise and repair frame and grates |            |               |            |
| Status :  | COMP       | Open Date :   | 3/17/2014  |
| Priority :  | 4          | Comp Date :   | 3/20/2014  |
| Assigned :  | Brian Rock | Target Date : |            |
|   |            | Procedure :   | DRAIN C    |
|   |            | Craft :       | Generalist |
|   |            | Team :        | ROW        |

Actuals Hours (4) \$194.96 Materials \$230.18 Tools \$66.00 Service \$0.00 Total \$491.14

| Labour      |                              |             |     |         |          |  |
|-------------|------------------------------|-------------|-----|---------|----------|--|
| Employee    | Craft                        | Description |     |         | Hours    |  |
| ROCB        | GN                           | Brian Rock  |     |         | 4        |  |
| Materials   |                              |             |     |         |          |  |
| Item #      | Description                  | Unit        | Qty | \$/Unit | Total \$ |  |
| GR-CON-9163 | CONCRETE, JETSET             | EA          | 5   | \$18.20 | \$99.65  |  |
| GR-CON-9163 | CONCRETE, JETSET             | EA          | 4   | \$18.20 | \$79.72  |  |
| GR-CON-9163 | CONCRETE, JETSET             | EA          | 1   | \$18.20 | \$19.93  |  |
| WA-BLO-0120 | BLOCKS 2" X 4" X 8" CONCRETE | EA          | 60  | \$0.47  | \$30.88  |  |
| Tools       |                              |             |     |         |          |  |
| Equipment   | Description                  | Unit        | Qty | \$/Unit | Total \$ |  |
| FL-0459     | F250 4X4 SUPER CAB           |             | 4   | \$16.50 | \$66.00  |  |

Comp Remark:  
WORK COMPLETED

|  |           |          |                 |          |
|--|-----------|----------|-----------------|----------|
| <input checked="" type="checkbox"/> Complete | EQ Meter: | By: ROCB | Date: 3/20/2014 | Hours: 4 |
|--|-----------|----------|-----------------|----------|

## APPENDIX C

Conceptual Site Plan prepared by CHS Engineer, LLC. Dated 11-14

*Parkwood Trail and Subbasin 45B Watercourse Stabilization Project (WD 526C)*

WWHM Modeling Output for Conceptual Detention Sizing



|   |   |
|---|---|
| <b>SUMMERS DEVELOPMENT</b><br>5637 EAST MERCER WAY<br>MERCER ISLAND, WA | SHEET # 1<br>01-08-15   |
|   | <b>CHS ENGINEERS, LLC</b><br>12907 8th AVE. SUITE 101<br>BELLINGHAM, WA 98206-2600<br>TEL (425) 867-9600 - FAX (425) 937-3894<br>WWW.CHSENGINEERS.COM |
|   | DESIGN / DATE: 11-14<br>BUDGET / DATE:<br>QUANT / DATE:   |

MAY EXIST ON THE SITE. UNDERGROUND UTILITY LOCATIONS  
 REPLICATION OF THE PUBLIC RECORDS. UNDERGROUND UTILITY  
 UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES  
 BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. FIELD  
 DURING ANY CONSTRUCTION.

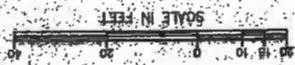
MAY EXIST ON THE SITE. UNDERGROUND UTILITY LOCATIONS  
 REPLICATION OF THE PUBLIC RECORDS. UNDERGROUND UTILITY  
 UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES  
 BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. FIELD  
 DURING ANY CONSTRUCTION.

PLANE COORDINATE SYSTEM (NORTH ZONE, NAD 83/91)  
 THIS SURVEY AND THEREFORE QUALIFIES THE MAP'S  
 CHS HAS WHOLLY RELIED ON THE MAP'S  
 THIS SURVEY AND THEREFORE QUALIFIES THE MAP'S  
 CHS HAS WHOLLY RELIED ON THE MAP'S

FIRE  
 23

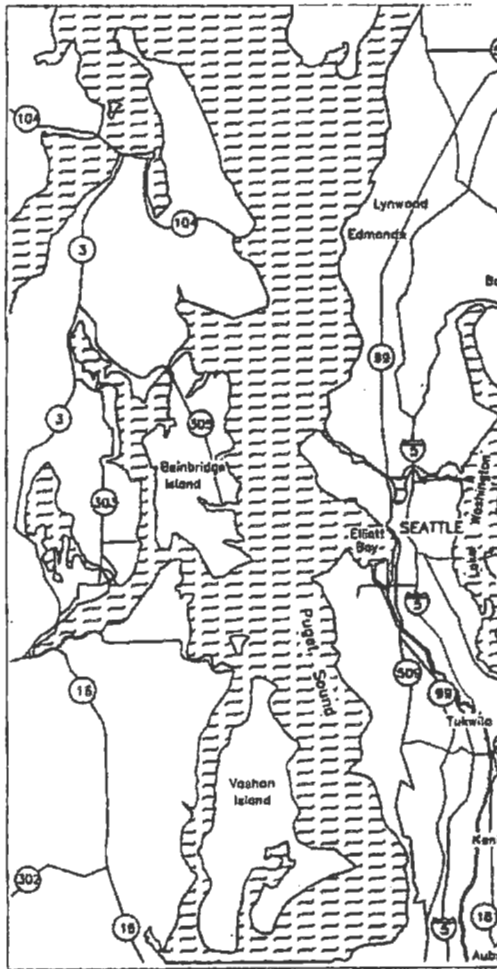
ISP NO. 77-1-010, AS RECORDED UNDER  
 RDS OF KING COUNTY, STATE OF  
 MSP NO. 77-1-010, AS RECORDED UNDER  
 RDS OF KING COUNTY, STATE OF  
 WAZ 70, UNDER FILE NUMBER  
 PAGE 81, UNDER FILE NUMBER

SCALE 1" = 20'  
 BASIS OF BEARING  
 WASHINGTON STATE PLANE COORDINATE  
 SYSTEM (NORTH ZONE, NAD 83/91)  
 VERTICAL DATUM: NAVD 88  
 CONTOUR INTERVAL = 2'



A POI

# PARIN 45B WATERCOURSE (WD 526C)



**LOCATION MAP**  
SCALE: NTS

### DRAWING INDEX

| DRAWING NAME | TITLE   |
|--------------|---|
| G-1          | TITLE SHEET   |
| G-2          | LEGEND, ABBREVIATIONS AND NOTES                       |
| C-1          | WATERCOURSE PLAN AND PROFILE - LOWER                  |
| C-2          | WATERCOURSE PLAN AND PROFILE - UPPER                  |
| C-3          | WATERCOURSE DETAILS - SHEET 1 OF 2                    |
| C-4          | WATERCOURSE DETAILS - SHEET 2 OF 2                    |
| C-5          | WATERCOURSE CROSS SECTIONS - SHEET 1 OF 2             |
| C-6          | WATERCOURSE CROSS SECTIONS - SHEET 2 OF 2             |
| L-1          | TRAIL DEVELOPMENT AND LANDSCAPE RESTORATION - SHEET 1 |
| L-2          | TRAIL DEVELOPMENT AND LANDSCAPE RESTORATION - SHEET 2 |
| L-3          | TRAIL AND LANDSCAPE DETAILS                           |

|                                     |       |     |       |
|-------------------------------------|-------|-----|-------|
| DESIGNED                            | SBS   |     |       |
| DRAWN                               | JF/PM |     |       |
| VERIFY SCALE                        |       | 0   | 6/15/ |
| BAR IS ONE INCH ON ANSI "D" DRAWING |       | REV | DATE  |
| 0 1"                                |       |     |       |

CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN  
45B WATERCOURSE STABILIZATION PROJECT

TITLE SHEET

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01026-10000 |
| SHT. OF:        | 1 11           |
| DRAWING NUMBER: | G-1            |

## GENERAL NOTES

- FIELD SURVEY AND MAPPING PERFORMED BY CHS ENGINEERS, LLC.
- APPROXIMATE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES ON THE PROJECT SITE.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL LAWS. ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UNDERGROUND UTILITIES. CALL UNDERGROUND UTILITY LOCATE SERVICE AT TELEPHONE NUMBER 1-800-424-5555 A MINIMUM OF TWO WORKING DAYS PRIOR TO ANY EXCAVATION.
- OVERHEAD ELECTRICAL POWER, TELEPHONE, CABLE TV, AND OTHER OVERHEAD LINES ARE GENERALLY NOT SHOWN. DETERMINE THE EXTENT OF HAZARDS OR IMPACTS ON CONSTRUCTION ACTIVITIES CREATED BY OVERHEAD OR UNDERGROUND ELECTRICAL POWER, TELEPHONE, CABLE TV, AND OTHER LINES IN ALL AREAS, AND FOLLOW PROCEDURES DURING CONSTRUCTION AS REQUIRED BY LAW AND REGULATIONS. TAKE WHATEVER PRECAUTIONS AND REMEDIAL MEASURES THAT MAY BE REQUIRED TO PROTECT PERSONS AND PROPERTY AND TO AVOID DISRUPTION OF SERVICE.
- MATERIALS REQUIRED FOR FILL, BACKFILL, AND OTHER WORK WILL BE SECURED BY THE CONTRACTOR FROM A SITE MEETING ALL OF THE REQUIREMENTS USED IN THE SPECIFICATIONS. THE SITE WILL MEET THE LOCAL, STATE, AND FEDERAL REGULATIONS REQUIRING HEALTH, SAFETY, AND THE PUBLIC WELFARE.
- BYPASS FLOWS DURING THE CONSTRUCTION, AND DURING THE REPLACEMENT, MODIFICATION, OR RESTORATION OF EXISTING FACILITIES.
- NO WORK SHALL COMMENCE PRIOR TO A PRE-CONSTRUCTION CONFERENCE AT THE CITY OF MERCER ISLAND.

## SURVEY INFORMATION

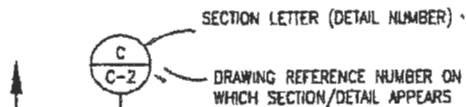
- BASIS OF BEARINGS AND BOUNDARY CONTROL: PLAT OF PARKWOOD ESTATES, V.63, PG. 86-87; PLAT OF PARKWOOD RIDGE, V.76, PG. 81-82.
- DATUM: NAVD 1929.
- BENCHMARK: MH 1071 - BRASS NAIL WITH PUNCH IN CONCRETE IN MONUMENT CASE AT INTERSECTION OF ISLAND CREST WAY AND SE 54TH STREET.
- BENCHMARK: 284-3-1 - NORTHEAST CORNER OF 4"x4" CONCRETE MONUMENT, 0.04 +/- ABOVE BRASS, IN CASE AT INTERSECTION OF SE 54TH STREET AND 91ST AVE SE., ELEV 342.56

## CONSTRUCTION NOTES

- VERIFY THE LOCATIONS, ELEVATIONS, DIAMETERS, MATERIALS, AND OTHER PARAMETERS OF EXISTING FACILITIES TO WHICH NEW FACILITIES CONNECT BEFORE ORDERING MATERIALS.
- IN-WATER WORK TO BE CONSTRUCTED DURING PERIOD IDENTIFIED IN HPA PERMIT (JUNE 16 TO SEPTEMBER 30).
- MAINTAIN A MINIMUM ONE LANE OF TRAFFIC ACCESS AT ALL TIMES ON EAST MERCER WAY THROUGH PROJECT AREA DURING CONSTRUCTION. SEE SPECIFICATIONS FOR TRAFFIC CONTROL REQUIREMENTS.
- GROUNDWATER WILL BE ENCOUNTERED DURING WORK.

## SECTION INDICATOR AND DETAIL CONVENTION

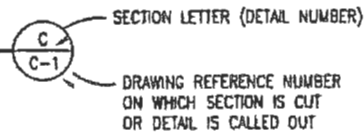
DRAWING ON WHICH SECTION IS CUT (OR DETAIL IS CALLED OUT)



DRAWING ON WHICH SECTION APPEARS (OR DETAIL)

### SECTION

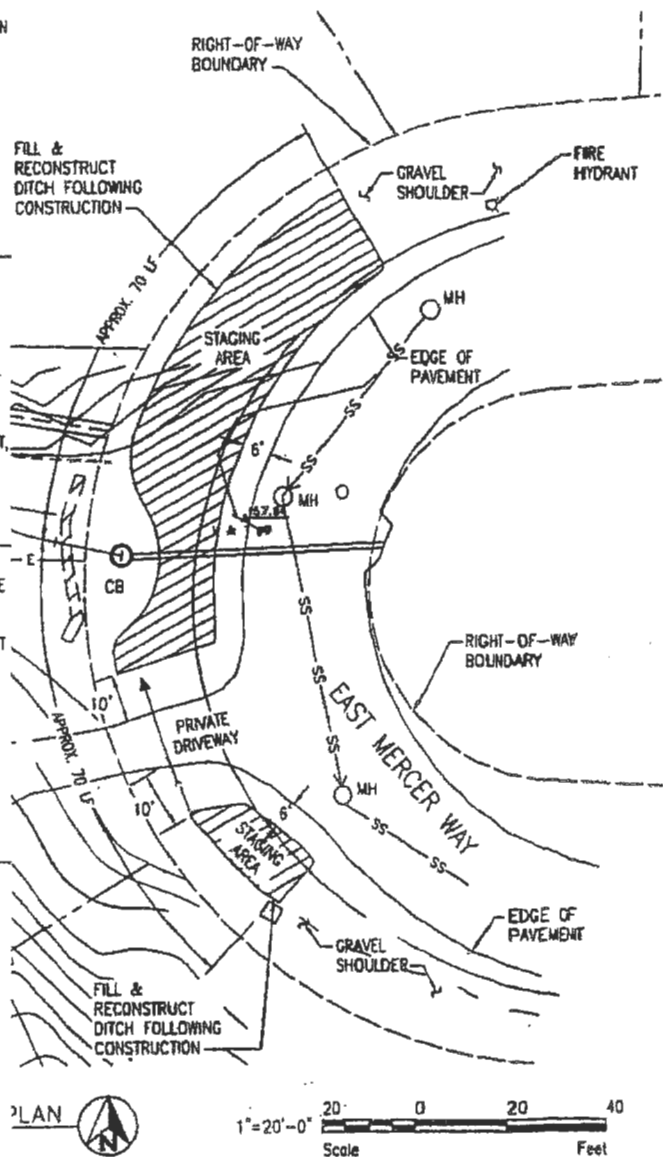
DESCRIPTION 1  
DESCRIPTION 2  
SCALE:



- PERMANENT EASEMENT
- PROPERTY BOUNDARY
- WATERCOURSE CENTERLINE
- CONSTRUCTION LIMITS
- EDGE OF FILLED CHANNEL
- WETLAND BOUNDARY
- SANITARY SEWER (EXIST)
- SANITARY SEWER (NEW)

## LEGEND

| DESCRIPTION                      | SYMBOL |
|----------------------------------|--------|
| EXISTING LOG REUSED              |        |
| CONIFEROUS TREE                  |        |
| DECIDUOUS TREE                   |        |
| LOG AND NUMBER                   |        |
| BOULDER                          |        |
| WATERCOURSE STABILIZATION LIMITS |        |
| ROOT WAD                         |        |
| WETLAND                          |        |

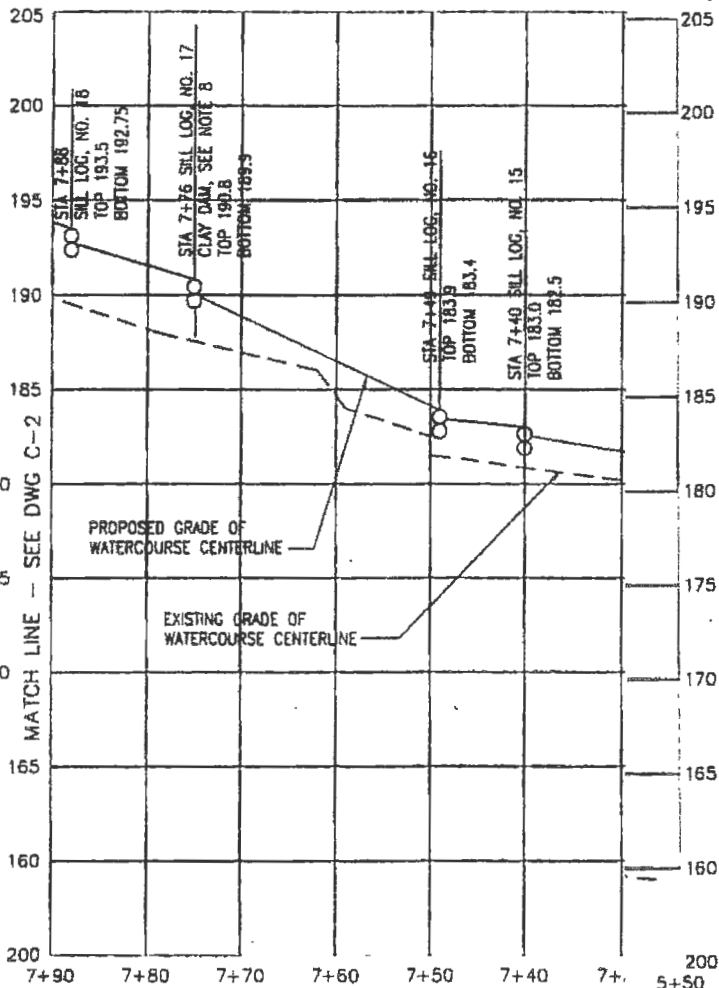
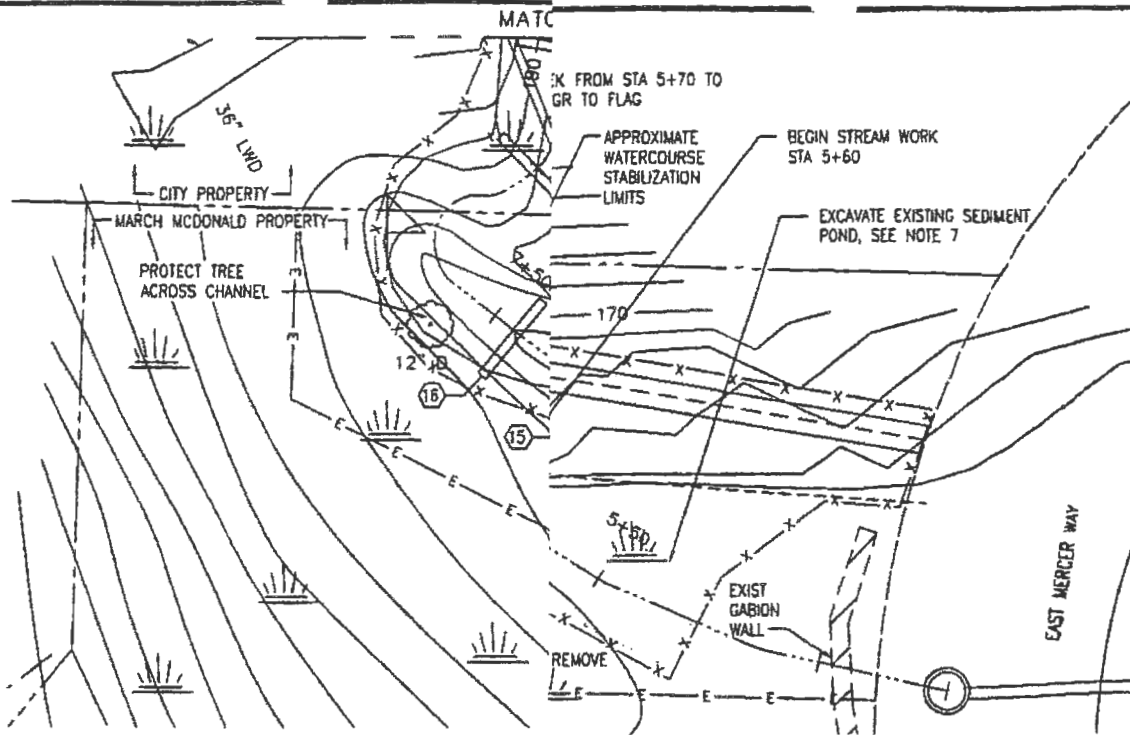


|                                     |       |         |     |
|-------------------------------------|-------|---------|-----|
| DESIGNED                            | SBS   |         |     |
| DRAWN                               | JF/PM |         |     |
| VERIFY SCALE                        |       |         |     |
| BAR IS ONE INCH ON ANSI "D" DRAWING | 0     | 6/15/07 |     |
| 0                                   | REV   | DATE    | CHI |

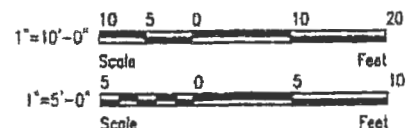
CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN  
45B WATERCOURSE STABILIZATION PROJECT

LEGEND, ABBREVIATIONS AND NOTES

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01026-10000 |
| SHT OF:         | 2 11           |
| DRAWING NUMBER: | G-2            |



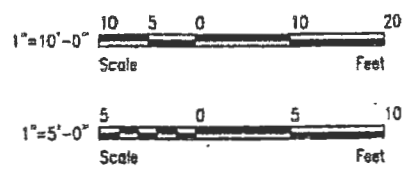
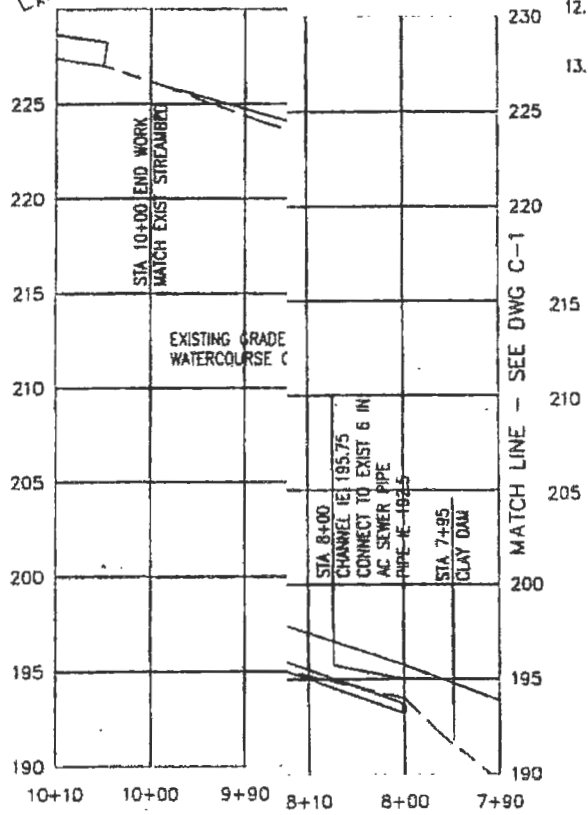
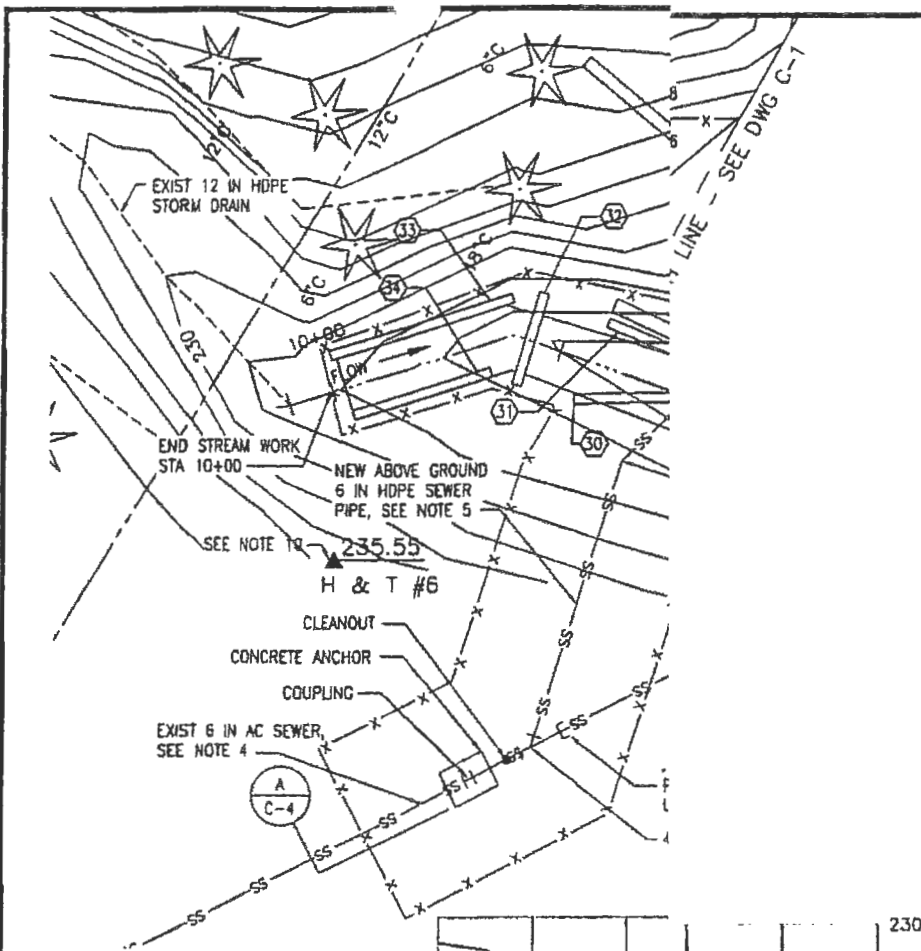
- NOTES:**
- ALL TREES TO BE PROTECTED AND REMAIN EXCEPT AS SPECIFICALLY CALLED OUT TO REMOVE.
  - EXISTING LWD (DOWNED LOGS) CAN BE REUSED. LOGS MAY BE OUTSIDE CONSTRUCTION LIMITS.
  - NO MECHANICAL EQUIPMENT ALLOWED ON WEST OR SOUTH SIDE OF WATERCOURSE
  - LOCATION OF ROCK WALL SHOWN IS APPROXIMATE AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION. FINAL LOCATION TO BE APPROVED BY ENGINEER. ROCKERY WILL BE INSTALLED AFTER EQUIPMENT IS NO LONGER NEEDED WEST OF THIS LOCATION. TEMPORARY FILL OR SUPPORT WILL BE NEEDED AT THIS LOCATION FOR UPSTREAM CONSTRUCTION.
  - CREEK FLOWS BENEATH EXIST LOGS AND TREE ROOTS HERE. REMOVE LOGS AND FILL VOID TO HEIGHT REQUIRED FOR CHANNEL RELOCATION.
  - LOCATION OF CONSTRUCTION LIMITS SHOWN IS APPROXIMATE AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
  - MAX SURFACE AREA OF SEDIMENT POND EXCAVATION IS ABOUT 100 SF. MAX DEPTH SHALL NOT EXCEED 3 FT.
  - PLACE CLAY BAGS BELOW LOGS OR INSTALL ADDITIONAL LOGS DOWN TO EXISTING STREAM BED.
  - PROTECT HUB AND TACK CONTROL POINTS.
  - EQUIPMENT WORKING IN STREAM SHALL BE NO WIDER THAN 6 FT AND LESS THAN 9,000 LBS UNLOADED. MATERIAL DELIVERY WILL BE VIA CREEKBED ONLY UPSTREAM OF STA 8+00.
  - ADDITIONAL ONSITE WOODY MATERIAL SMALLER THAN 6 IN DIAMETER WILL BE PLACED IN THE STREAM AS DIRECTED BY THE ENGINEER. PLACEMENT OF THIS MATERIAL IS INCIDENTAL.
  - CLEARED MATERIAL WILL BE DISPOSED ON CITY PROPERTY AT THIS SITE, AS DIRECTED BY ENGINEER.
  - LOG PLACEMENT AND ORIENTATION SHOWN IS APPROXIMATE. LOG LOCATIONS SHALL BE FLAGGED BY THE ENGINEER PRIOR TO PLACEMENT, THEN VERIFIED AND APPROVED BY THE ENGINEER AFTER PLACEMENT.



|   |                          |  |                                   |
|---|--------------------------|--|-----------------------------------|
| DESIGNED<br>SBS<br>DRAWN<br>JF/PM<br>VERIFY SCALE<br>BAR IS ONE INCH ON<br>ANSI "D" DRAWING<br>0 1" | 0 6/15/07<br>REV DATE CH | CITY OF MERCER ISLAND<br>PARKWOOD TRAIL AND SUBBASIN<br>45B WATERCOURSE STABILIZATION PROJECT<br>WATERCOURSE PLAN AND PROFILE<br>LOWER | PROJECT NUMBER:<br>11-01026-10000 |
|   |                          |  | SIT. OF:<br>3 11                  |
|   |                          |  | DRAWING NUMBER:<br>C-1            |
|   |                          |  |                                   |

**NOTES:**

1. ALL TREES TO BE PROTECTED AND REMAIN EXCEPT AS SPECIFICALLY CALLED OUT TO REMOVE.
2. EXISTING LWD (DOWNED LOGS) CAN BE REUSED. LOGS MAY BE OUTSIDE CONSTRUCTION LIMITS.
3. NO MECHANICAL EQUIPMENT ALLOWED ON WEST OR SOUTH SIDE OF WATERCOURSE.
4. LOCATION OF BURIED SEWER IS APPROXIMATE. CONTRACTOR TO FIELD LOCATE.
5. PIPE MIN SLOPE 2%. MINIMUM BENDING RADIUS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
6. REMOVE ALL GABIONS IN STREAM BETWEEN STA 7+50 AND 9+00. NOT ALL ARE SHOWN. REMOVE WIRE OFFSITE.
7. FINAL WATERCOURSE ALIGNMENT WILL NOT FOLLOW DIRECT SEWER ALIGNMENT AS SHOWN. WATERCOURSE ALIGNMENT SHALL BE SINUOUS TO MIMIC EXIST ALIGNMENT AND SHALL BE STAKED IN-FIELD BY ENGINEER SUBSEQUENT TO INSTALLATION OF NEW SEWER PIPE.
8. CUT AND REMOVE SNAG. LEAVE STUMP. REUSE WOOD AS DIRECTED BY ENGINEER.
9. EQUIPMENT WORKING IN STREAM SHALL BE NO WIDER THAN 6 FT AND LESS THAN 9,000 LBS UNLOADED. MATERIAL DELIVERY WILL BE VIA CREEKBED ONLY UPSTREAM OF STA 8+00.
10. PROTECT HUB & TACK CONTROL POINTS.
11. LOG PLACEMENT AND ORIENTATION SHOWN IS APPROXIMATE. LOG LOCATIONS SHALL BE FLAGGED BY THE ENGINEER PRIOR TO PLACEMENT, THEN VERIFIED AND APPROVED BY THE ENGINEER AFTER PLACEMENT.
12. CONNECT NEW 6 IN HDPE SEWER PIPE TO EXIST 6 IN AC SEWER PIPE WITH ROMAC, TYPE 501 PIPE COUPLER.
13. REMOVE 3 FT HIGH LOG WEIR.

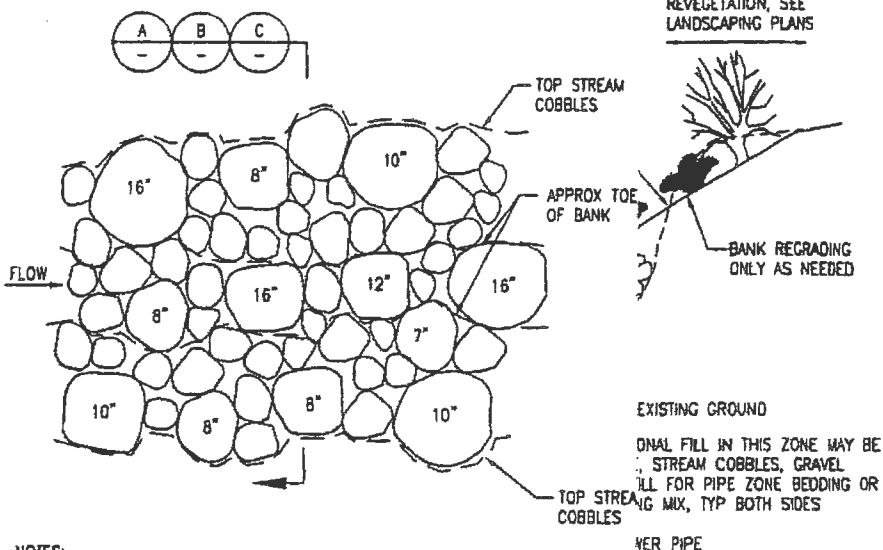


|                                     |       |         |  |
|-------------------------------------|-------|---------|--|
| DESIGNED                            | SBS   |         |  |
| DRAWN                               | JF/PM |         |  |
| VERIFY SCALE                        | 0     | 6/15/07 |  |
| BAR IS ONE INCH ON ANSI "D" DRAWING | 0     |         |  |
|                                     | REV   | DATE    |  |

CITY OF MERCER ISLAND  
 PARKWOOD TRAIL AND SUBBASIN  
 45B WATERCOURSE STABILIZATION PROJECT

**WATERCOURSE PLAN AND PROFILE**  
 UPPER

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01026-10000 |
| SHT. OF:        | 4 11           |
| DRAWING NUMBER: | C-2            |



**NOTES:**

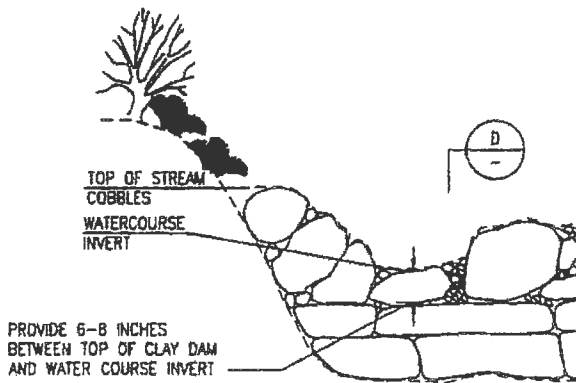
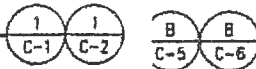
1. MATERIAL EXCAVATED FOR PIPE MAY BE REUSED FOR STREAM COBBLES OR SANDING MAX IF SPECIFICATIONS ARE MET.
2. INSTALL EROSION CONTROL MATTING IN LOCATION DIRECTED BY ENGINEER. STAKE IN ACCORDANCE WITH WSDOT STA PLAN 1-13.
3. 1' OF COVER MUST BE PROVIDED DURING CONSTRUCTION TO AVOID DAMAGE TO PIPE.

**NOTES:**

1. CONCEPTUAL DETAIL IS SHOWN IN 10 FT LENGTH. CONTRACTOR SHALL DUPLICATE CONFIGURATION TO MATCH LENGTH NEEDED.
2. INSTALL RANDOM ROCK PROTRUSION AND PLACEMENT TO PROMOTE CASCADING WATER.

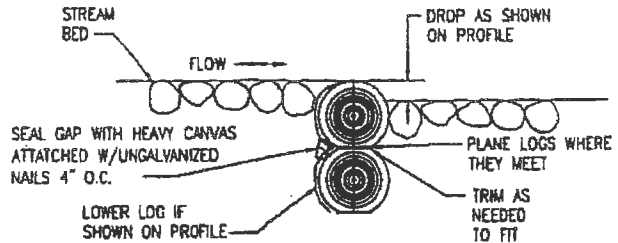
**TYPICAL PLAN OF ROCK PLACEMENT**

WATER COURSE STABILIZATION  
SCALE: NONE



**NOTES:**

1. CONSTRUCT CLAY DAMS AT LOCATIONS SHOWN IN P
2. PLACE CLAY BAGS LENGTHWISE ACROSS CHANNEL.



**TYPICAL SECTION**

CLAY DAM  
SCALE: NONE

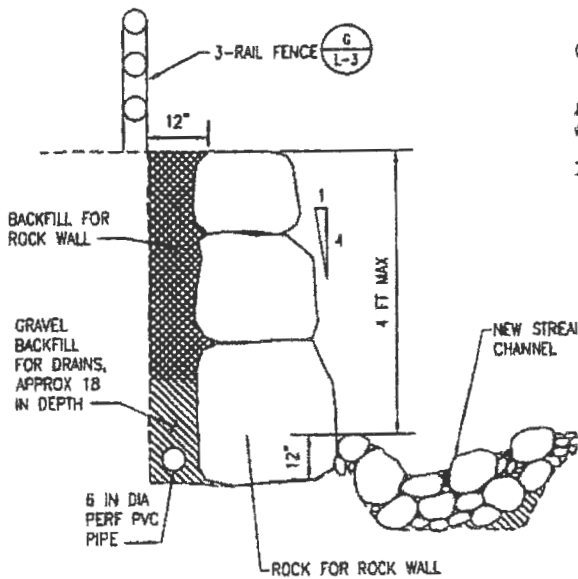
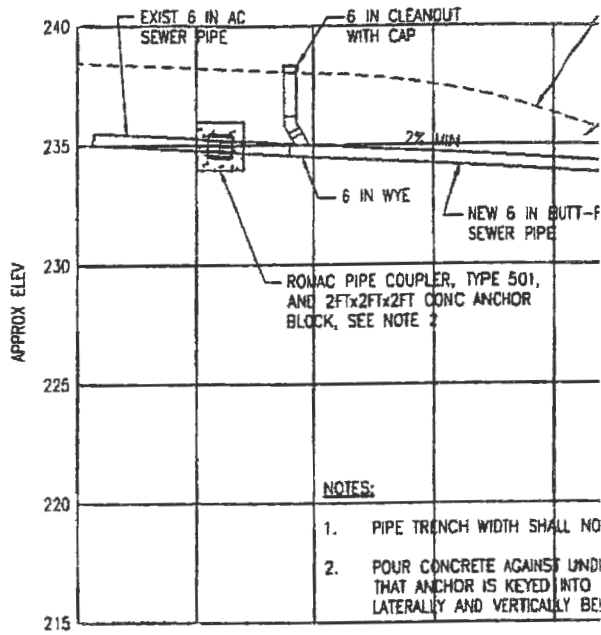


**SECTION**

SILL LOG  
SCALE: NONE



|  |              |                                     |      |  |                 |                 |     |
|--|--------------|-------------------------------------|------|--|-----------------|-----------------|-----|
|  | DESIGNED     | SBS                                 |      | CITY OF MERCER ISLAND<br>PARKWOOD TRAIL AND SUBBASIN<br>45B WATERCOURSE STABILIZATION PROJECT<br><br>WATERCOURSE DETAILS<br>SHEET 1 OF 2 | PROJECT NUMBER: | 11-01026-10000  |     |
|  | DRAWN        | JF/PM                               |      |  | SHT. OF:        | 5 11            |     |
|  | VERIFY SCALE | BAR IS ONE INCH ON ANSI "D" DRAWING | 0 1" |  | REV DATE        | DRAWING NUMBER: | C-3 |
|  |              |                                     |      |  |                 |                 |     |



**DETAIL**

ROCK WALL AT STA 6+20  
SCALE: NONE

**NOTES:**

1. ROCKERY NOT SUITABLE FOR CONSTRUCTION EQUIPMENT LOADING.

|                                     |       |        |  |
|-------------------------------------|-------|--------|--|
| DESIGNED                            | SBS   |        |  |
| DRAWN                               | JF/PM |        |  |
| VERIFY SCALE                        |       |        |  |
| BAR IS ONE INCH ON ANSI "D" DRAWING | 0     | 6/15/0 |  |
| 0                                   | REV   | DATE   |  |

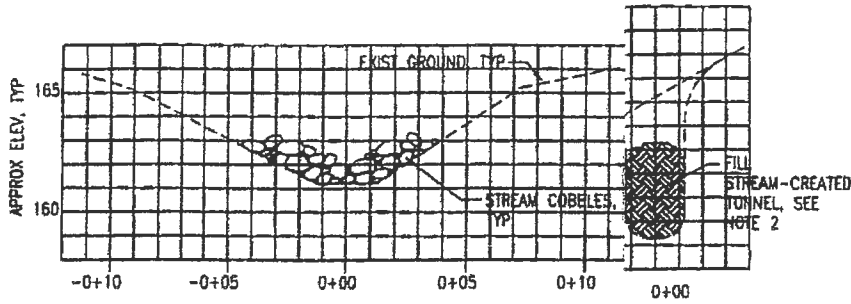
CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN  
45B WATERCOURSE STABILIZATION PROJECT

WATERCOURSE DETAILS  
SHEET 2 OF 2

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01028-10000 |
| SHT. OF:        | 8 11           |
| DRAWING NUMBER: | C-4            |

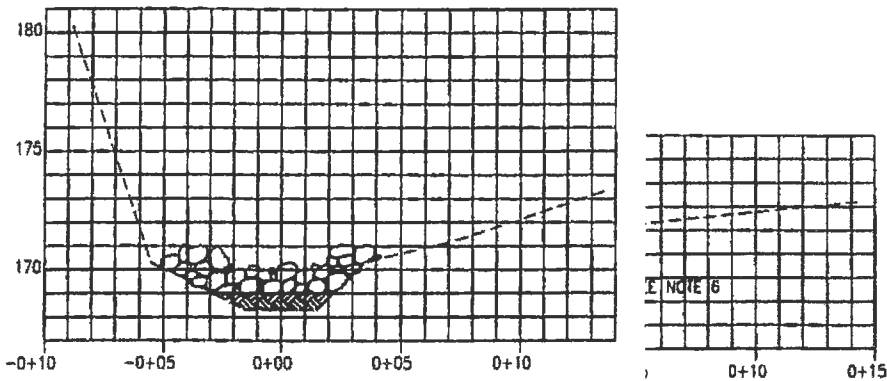
**NOTES:**

1. ELEVATIONS AND SECTIONS ARE APPROXIMATE AND BASED ON FIELD TAPE MEASUREMENTS.
2. FILL MAY BE NATIVE, STREAM COBBLES, GRAVEL BACKFILL FOR PIPE ZONE BEDDING, OR SANDING MIX.
3. SEE ALSO TYPICAL SECTIONS:  $\frac{A/B}{C-3}$
4. NEW/REUSED LWD NOT SHOWN.
5. ALL SECTIONS LOOKING DOWNSTREAM.
6. NO STREAMBED FILL REQUIRED BETWEEN STA 6+75 AND STA 7+00.



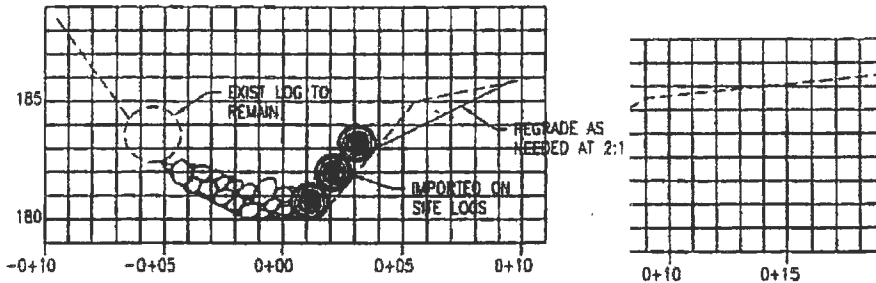
**SECTION**

CREEK STA 5+75  
SCALE: 1"=4'



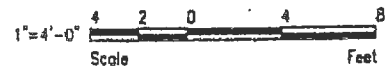
**SECTION**

CREEK STA 6+50  
SCALE: 1"=4'



**SECTION**

CREEK STA 7+25  
SCALE: 1"=4'



|              |                                     |     |         |
|--------------|-------------------------------------|-----|---------|
| DESIGNED     | SBS                                 |     |         |
| DRAWN        | JF/PM                               |     |         |
| VERIFY SCALE | BAR IS ONE INCH ON ANSI "D" DRAWING | 0   | 6/15/07 |
| 0            | 1"                                  | REV | DATE    |

CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN  
45B WATERCOURSE STABILIZATION PROJECT

WATERCOURSE CROSS SECTIONS

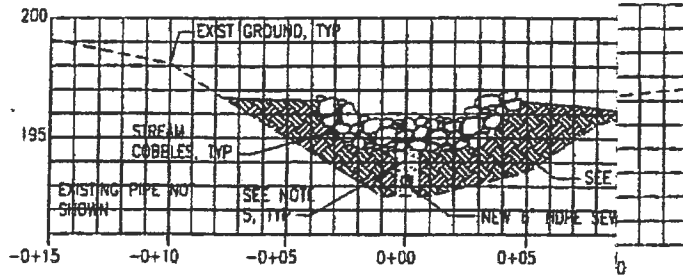
SHEET 1 OF 2

PROJECT NUMBER:  
11-01026-10000

SHT. OF:  
7 11

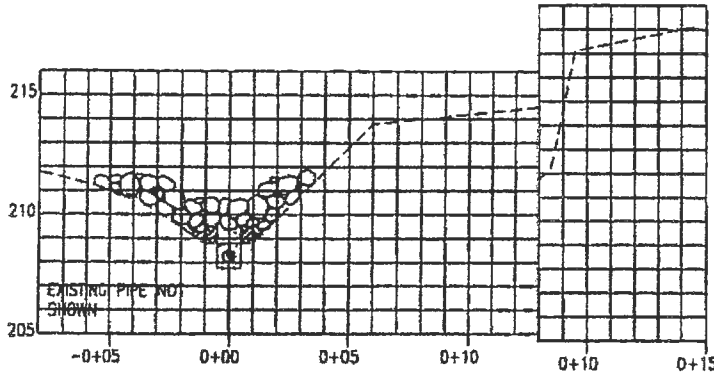
DRAWING NUMBER:  
C-5





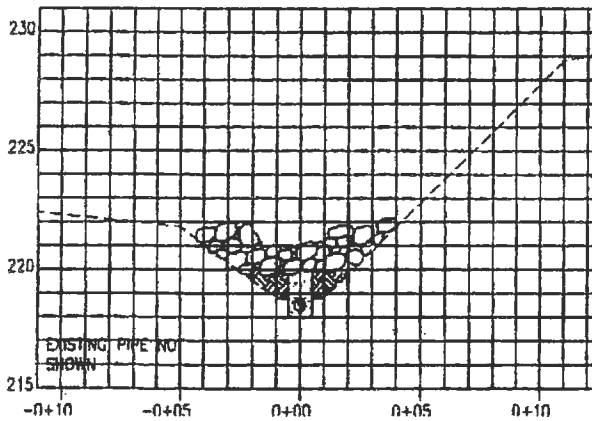
**SECTION**

CREEK STA 8+05  
SCALE: 1"=4'



**SECTION**

CREEK STA 8+75  
SCALE: 1"=4'



**SECTION**

CREEK STA 9+50  
SCALE: 1"=4'

**NOTES:**

1. ELEVATIONS AND SECTIONS ARE APPROXIMATE AND BASED ON FIELD TAPE MEASUREMENTS.
2. FILL MAY BE NATIVE, STREAM COBBLES, GRAVEL BACKFILL FOR PIPE ZONE BEDDING, OR SANDING MIX.
3. SEE ALSO TYPICAL SECTIONS:  $\frac{A/B}{C-3}$
4. NEW/REUSED LWD NOT SHOWN.
5. GRAVEL BACKFILL FOR PIPE ZONE BEDDING.
6. ALL SECTIONS LOOKING DOWNSTREAM.

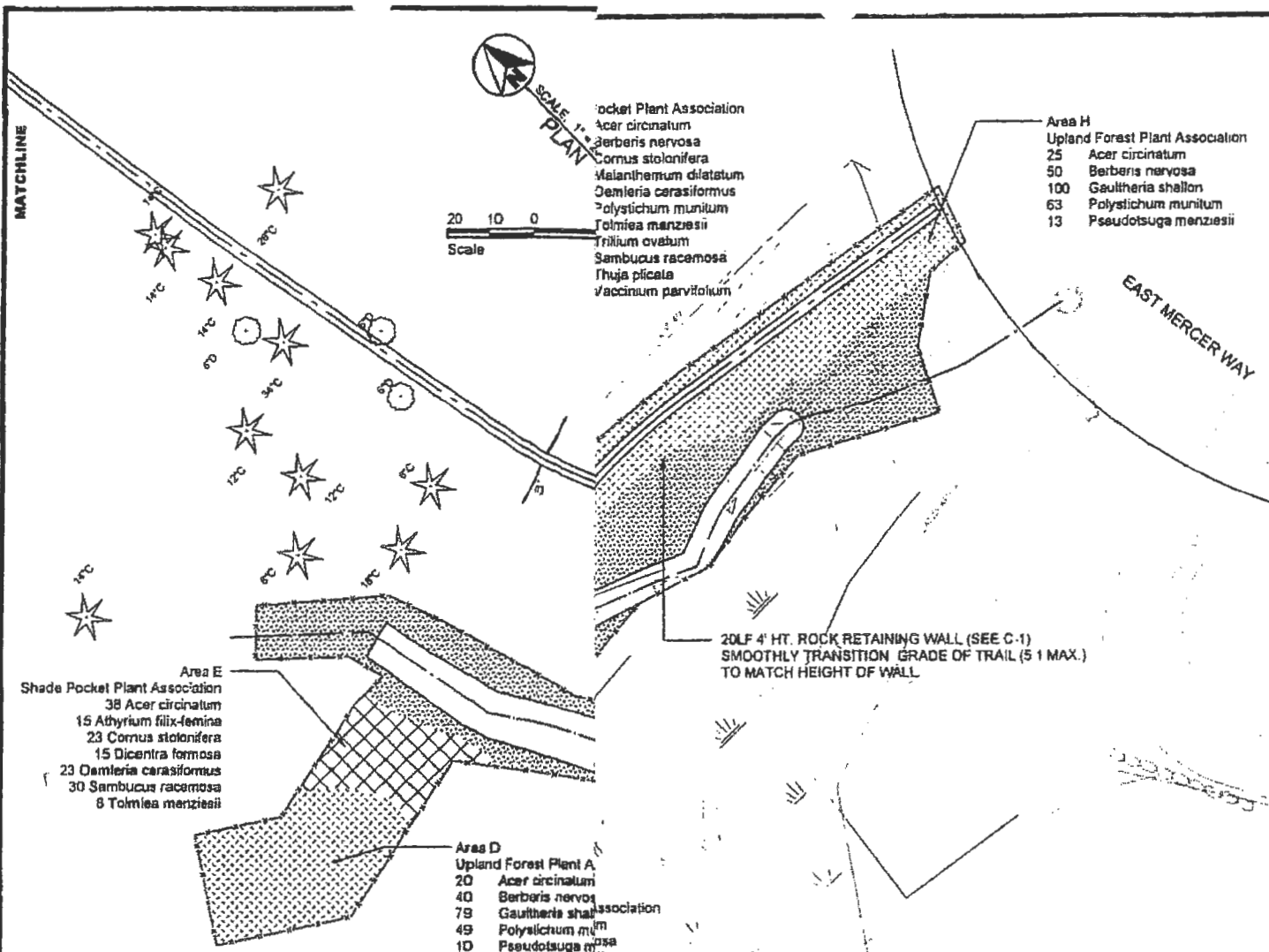


|                                     |       |         |  |
|-------------------------------------|-------|---------|--|
| DESIGNED:                           | SBS   |         |  |
| DRAWN:                              | JF/PM |         |  |
| VERIFY SCALE                        |       |         |  |
| BAR IS ONE INCH ON ANSI "D" DRAWING | 0     | 8/15/07 |  |
| 0  1"                               | REV   | DATE    |  |

CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN  
45B WATERCOURSE STABILIZATION PROJECT

WATERCOURSE CROSS SECTIONS  
SHEET 2 OF 2

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-0102B-10000 |
| SMT. OF:        | B 11           |
| DRAWING NUMBER: | C-6            |



**Clearing and Grading Standard Notes**

- All clearing and grading construction must be in accordance with City of Mercer Island and Grading Erosion Control Standard Details, Development Standards, Land Use Code, Conditions, and all other applicable codes, ordinances, and standards. The design elements reviewed according to these requirements. Any variance from adopted erosion control standards approved by the City of Mercer Island prior to construction.
- A copy of the approved plans must be on site during construction. The applicant is responsible for related permits prior to beginning construction.
- All locations of existing utilities have been established by field survey or obtained from a considered only approximate and not necessarily complete. It is the sole responsibility of the user of this plan to discover and avoid any other utilities not shown which of this plan.
- Clearing shall be limited to the area within the approved disturbance limits and trail corridor. Exposed soils must be covered at the end of each working day when working between October through September 30th exposed soils must be covered at the end of each construction week.
- To reduce the potential for erosion of exposed soils or when rainy season construction is required, Management Practices are required. Preserve natural vegetation for as long as possible, or mulch as directed by Engineer.
- Any project that is subject to rainy season restrictions will not be allowed to perform clearing or grading without approval from the PCD Director. The rainy season extends from November 1st through April 30th.

**Site Preparation Notes**

- Protection of existing improvements include: Provide, erect, and maintain barricades, as necessary to prevent damage to existing trees, planting areas, trails, or other site improvements.
- Maintain vehicular and pedestrian traffic routes.
- Do not close or obstruct streets without permission from authorities having jurisdiction.
- Verify the trees to remove and areas to be cleared.
- Tree work will conform to ANSI Z133 A300 as well as all applicable OSHA and WISHA regulations.
- Cut all trees marked with pink ribbon down to stump height of 6 inches on the uphill side. Be felled to avoid damage to desirable trees, other plants, and property.
- Dead trees and woody material within the area of work that are partially fallen and hung up, cut down sectioned and dispersed on site at least 20 feet from the trail. Slash will be cut in place in ground contact. Slash must lie in between existing native vegetation.
- Logs greater than 12 inches in diameter can be utilized in stabilization work and shall be placed in accordance with the City of Mercer Island standards.

- Upland Forest Plant Association**
- Acer circinatum
  - Berberis nervosa
  - Cornus stolonifera
  - Malanthemum dilatatum
  - Oemleria cerasiformus
  - Polystichum munium
  - Tolmiea menziesii
  - Trillium ovatum
  - Sambucus racemosa
  - Thuja plicata
  - Vaccinium parvifolium

- Area H Upland Forest Plant Association**
- 25 Acer circinatum
  - 50 Berberis nervosa
  - 100 Gaultheria shallon
  - 63 Polystichum munium
  - 13 Pseudotsuga menziesii

- Area E Shade Pocket Plant Association**
- 38 Acer circinatum
  - 15 Athyrium filix-femina
  - 23 Cornus stolonifera
  - 15 Dicentra formosa
  - 23 Oemleria cerasiformus
  - 30 Sambucus racemosa
  - 8 Tolmiea menziesii

- Area D Upland Forest Plant Association**
- 20 Acer circinatum
  - 40 Berberis nervosa
  - 79 Gaultheria shallon
  - 49 Polystichum munium
  - 10 Pseudotsuga menziesii

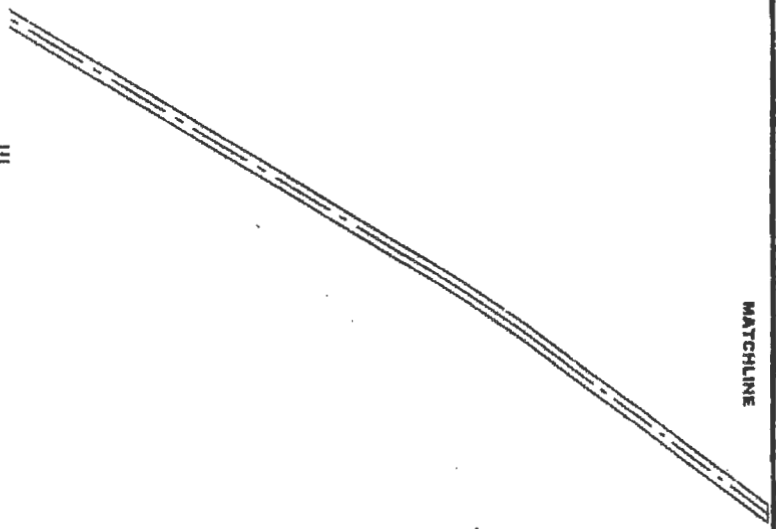
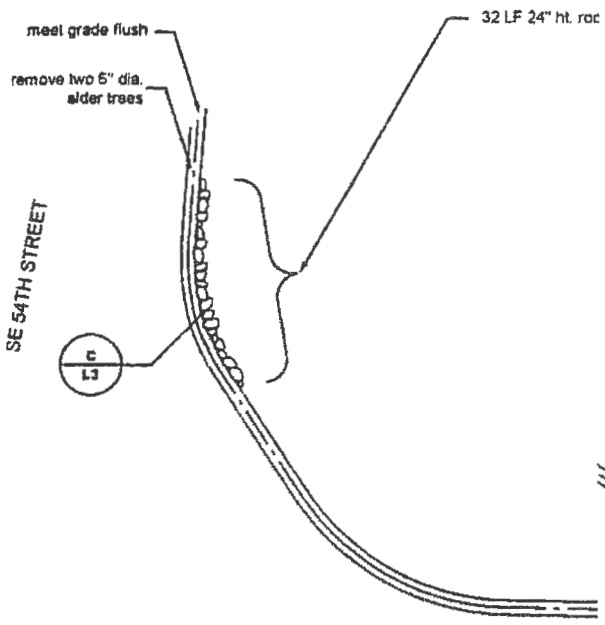
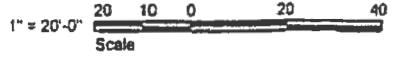
| Symbol                                  | Botanical/Comon Name                                      | Quantity  | Size      |
|---|---|-----------|-----------|
| [Pattern]                               | <b>Upland Forest Plant Association (30" O.C. Spacing)</b> |           |           |
|   | Acer circinatum / Vine Maple                              | 85        | 24" - 36" |
|   | Berberis nervosa / Oregon Grape                           | 169       | 4" pots   |
|   | Gaultheria shallon / Salal                                | 339       | 4" pots   |
|   | Polystichum munium / Sword Fern                           | 212       | 4" pots   |
|   | Pseudotsuga menziesii / Douglas Fir                       | 42        | 24" - 36" |
| [Pattern]                               | <b>Moist Pocket Plant Association (24" O.C. Spacing)</b>  |           |           |
|   | Acer circinatum / Vine Maple                              | 17        | 24" - 36" |
|   | Berberis nervosa / Oregon Grape                           | 34        | 4" pots   |
|   | Cornus stolonifera / Red Osier Dogwood                    | 68        | 1 gal.    |
|   | Malanthemum dilatatum / False Lily-of-the-valley          | 34        | 1 gal.    |
|   | Oemleria cerasiformus / Indian Plum                       | 17        | 1 gal.    |
|   | Polystichum munium / Sword Fern                           | 68        | 4" pots   |
|   | Tolmiea menziesii / Pig-a-back                            | 34        | 4" pots   |
|   | Trillium ovatum / Trillium                                | 17        | 1 gal.    |
|   | Sambucus racemosa / Red Elderberry                        | 17        | 1 gal.    |
| Thuja plicata / Western Red Cedar       | 17  | 24" - 36" |           |
| Vaccinium parvifolium / Red Huckleberry | 17  | 1 gal.    |           |
| [Pattern]                               | <b>Shade Pocket Plant Association (24" O.C. Spacing)</b>  |           |           |
|   | Acer circinatum / Vine Maple                              | 38        | 24" - 36" |
|   | Athyrium filix-femina / Lady-fern                         | 15        | 4" pots   |
|   | Cornus stolonifera / Red Osier Dogwood                    | 23        | 1 gal.    |
|   | Dicentra formosa / Pacific Bleedingheart                  | 15        | 4" pots   |
|   | Oemleria cerasiformus / Indian Plum                       | 23        | 1 gal.    |
|   | Sambucus racemosa / Red Elderberry                        | 30        | 1 gal.    |
| Tolmiea menziesii / Pig-a-back          | 8   | 1 gal.    |           |
| [Pattern]                               | <b>Streamside Plant Association (24" O.C. Spacing)</b>    |           |           |
|   | Alnus rubra / Red Alder                                   | 235       | 1 gal.    |
|   | Athyrium filix-femina / Lady-fern                         | 313       | 4" pots   |
|   | Dicentra formosa / Pacific Bleedingheart                  | 235       | 4" pots   |
|   | Lysichiton americanum / Skunk Cabbage                     | 78        | 1 gal.    |
|   | Salix lasandra / Pacific Willow                           | 470       | whips     |
|   | Thuja plicata / Western Red Cedar                         | 235       | 24" - 36" |

|          |         |
|----------|---------|
| DESIGNED |         |
| DRAWN    |         |
| CHECKED  |         |
| DATE     | 5-23-07 |

CITY OF MERCER ISLAND  
 PARKWOOD TRAIL AND SUBBASIN 45B  
 WATERCOURSE STABILIZATION PROJECT

TRAIL DEVELOPMENT & LANDSCAPE RESTORATION

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01026-10000 |
| SHT. OF:        | 9 OF 11        |
| DRAWING NUMBER: | 1 4            |



MATCHLINE

MATCHLINE



State Of  
Washington  
Registered  
Landscape Architect

Richard B. Van De Mark  
Certificate No. 481

REFER TO SHEET L-1 FOR CLEARING AND GRADING AND SITE PREPARATION ST.

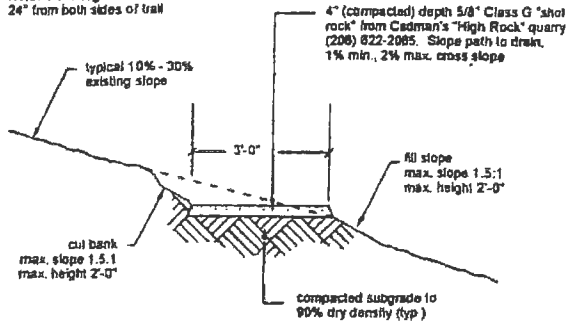
|                    |   |         |  |
|--------------------|---|---------|--|
| DESIGNED           |   |         |  |
| DRAWN              |   |         |  |
| VERIFY SCALE       |   |         |  |
| BAR IS ONE INCH ON | 1 | 5-23-07 |  |

CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN 45B  
WATERCOURSE STABILIZATION PROJECT

|                 |                |
|-----------------|----------------|
| PROJECT NUMBER: | 11-01026-10000 |
| SHT. OF:        | 10 OF 11       |
| DRAWING NUMBER: |                |

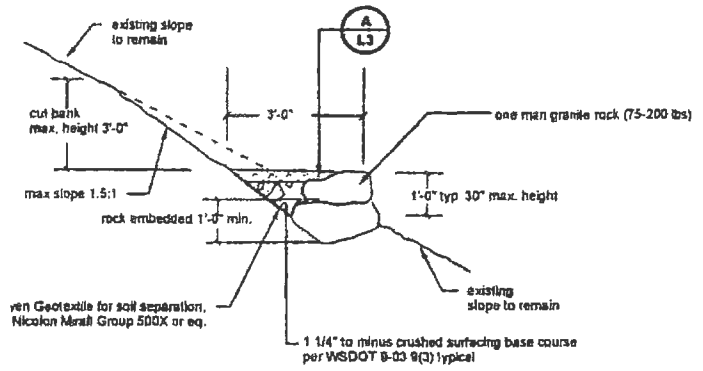
TRAIL DEVELOPMENT & LANDSCAPE RESTORATION

Note: Clear vegetation and debris to 24" from both sides of trail



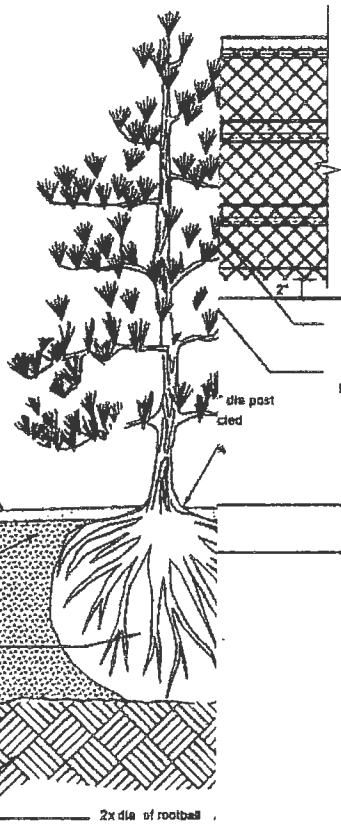
| 5/8" Class G Aggregate Grain Size | % Passing |
|-----------------------------------|-----------|
| Sieve Size                        |           |
| 5/8"                              | 100%      |
| 3/8"                              | 89.9%     |
| #4                                | 73.7%     |
| #10                               | 30.5%     |
| #40                               | 11.0%     |
| #200                              | 6.7%      |

Note: compact aggregate layers to 90% of material dry density at optimum moisture content per ASTM D1557 (typical)



### A Trail Way Section no scale

### 12" - 24" Rock Wall no scale



**NOTES:**

- 1 Fabric shall be 8 gauge 2 x 2 steel mesh, black vinyl coated (8 gauge finish)- knuckled selvage, top & bottom.
- 2 Secure to posts & rails with 7/8" galv. staples @ 1' - 0" on center.
- 3 Fabric to be attached on side facing away from trail
- 4 Fence material; 3 rail post & rail fence. All wood ACC pressure treated to .4 lbs/CF retention

- min. 2' - 3" mulch (finished grade)
- 3' - 4" soil saucer
- (2) fertilizer tablets at rootball, place tablets at outer edges of rootball 1" - 2" below backfill surface
- remove burp from top 2/3 of rootball, remove all wire & string
- native backfill soil amended w/25% decomposed organic mulch amendment (compost) for entire tree pit area approx. rootball depth
- undisturbed subgrade (provides a firm base so that rootball will not sink)
- 2x dia of rootball
- clear mulch area of grass, we to reduce competition during est

- 1/2" dia hole typ
- 7 gauge galv. coil pring wire (cont)
- ute post tied



State Of Washington Registered Landscape Architect

Richard B. Van De Mark  
Certificate No. 481

### E Coniferous Tree Planting no scale

|                                     |           |
|-------------------------------------|-----------|
| DESIGNED                            |           |
| DRAWN                               |           |
| VERIFY SCALE                        |           |
| BAR IS ONE INCH ON ANSI "D" DRAWING | 1 5 23 07 |

CITY OF MERCER ISLAND  
PARKWOOD TRAIL AND SUBBASIN 45B  
WATERCOURSE STABILIZATION PROJECT

TRAIL & LANDSCAPE DETAILS

|                |                |
|----------------|----------------|
| PROJECT NUMBER | 11-01026-10000 |
| SHT            | 11 OF 11       |
| DRAWING NUMBER | 1 2            |

Western Washington Hydrology Model  
PROJECT REPORT

---

Project Name: 150622  
Site Address:  
City :  
Report Date : 6/22/2015  
Gage : Seatac  
Data Start : 1948/10/01  
Data End : 1998/09/30  
Precip Scale: 1.00  
WVHM3 Version:

---

PREDEVELOPED LAND USE

Name : Basin 1  
Bypass: No

GroundWater: No

| <u>Pervious Land Use</u> | <u>Acres</u> |
|--------------------------|--------------|
| SAT, Forest, Mod         | .115         |

| <u>Impervious Land Use</u> | <u>Acres</u> |
|----------------------------|--------------|
|----------------------------|--------------|

---

Element Flows To:  
Surface                      Interflow                      Groundwater

---

Name : Basin 1  
Bypass: No

GroundWater: No

| <u>Pervious Land Use</u> | <u>Acres</u> |
|--------------------------|--------------|
|--------------------------|--------------|

|                            |              |
|----------------------------|--------------|
| <u>Impervious Land Use</u> | <u>Acres</u> |
| ROADS FLAT                 | 0.115        |

---

**Element Flows To:**

**Surface**                      **Interflow**                      **Groundwater**  
Vault 1, Vault 1,

---

**Name**            : Vault 1  
**Width**         : 17.45 ft.  
**Length**        : 17.45 ft.  
**Depth**         : 5ft.

**Discharge Structure**

**Riser Height**: 4 ft.  
**Riser Diameter**: 18 in.  
**Orifice 1 Diameter**: 0.30603 in. **Elevation**: 0 ft.  
**Orifice 1 Diameter**: 0.56 in. **Elevation**: 2.668 ft.  
**Orifice 1 Diameter**: 0.33 in. **Elevation**: 3 ft.  
(Volume = 17.45' x 17.45' x 4' = 1,218 cu. ft.)

**Element Flows To:**

**Outlet 1**                      **Outlet 2**

---

**Vault Hydraulic Table**

| <u>Stage(ft)</u> | <u>Area(acr)</u> | <u>Volume(acr-ft)</u> | <u>Dschrg(cfs)</u> | <u>Infilt(cfs)</u> |
|------------------|------------------|-----------------------|--------------------|--------------------|
| 0.000            | 0.007            | 0.000                 | 0.000              | 0.000              |
| 0.056            | 0.007            | 0.000                 | 0.001              | 0.000              |
| 0.111            | 0.007            | 0.001                 | 0.001              | 0.000              |
| 0.167            | 0.007            | 0.001                 | 0.001              | 0.000              |
| 0.222            | 0.007            | 0.002                 | 0.001              | 0.000              |
| 0.278            | 0.007            | 0.002                 | 0.001              | 0.000              |
| 0.333            | 0.007            | 0.002                 | 0.001              | 0.000              |
| 0.389            | 0.007            | 0.003                 | 0.002              | 0.000              |
| 0.444            | 0.007            | 0.003                 | 0.002              | 0.000              |
| 0.500            | 0.007            | 0.003                 | 0.002              | 0.000              |
| 0.556            | 0.007            | 0.004                 | 0.002              | 0.000              |
| 0.611            | 0.007            | 0.004                 | 0.002              | 0.000              |
| 0.667            | 0.007            | 0.005                 | 0.002              | 0.000              |
| 0.722            | 0.007            | 0.005                 | 0.002              | 0.000              |
| 0.778            | 0.007            | 0.005                 | 0.002              | 0.000              |
| 0.833            | 0.007            | 0.006                 | 0.002              | 0.000              |
| 0.889            | 0.007            | 0.006                 | 0.002              | 0.000              |
| 0.944            | 0.007            | 0.007                 | 0.002              | 0.000              |
| 1.000            | 0.007            | 0.007                 | 0.002              | 0.000              |
| 1.056            | 0.007            | 0.007                 | 0.003              | 0.000              |
| 1.111            | 0.007            | 0.008                 | 0.003              | 0.000              |
| 1.167            | 0.007            | 0.008                 | 0.003              | 0.000              |
| 1.222            | 0.007            | 0.009                 | 0.003              | 0.000              |
| 1.278            | 0.007            | 0.009                 | 0.003              | 0.000              |
| 1.333            | 0.007            | 0.009                 | 0.003              | 0.000              |
| 1.389            | 0.007            | 0.010                 | 0.003              | 0.000              |
| 1.444            | 0.007            | 0.010                 | 0.003              | 0.000              |
| 1.500            | 0.007            | 0.010                 | 0.003              | 0.000              |

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 1.556 | 0.007 | 0.011 | 0.003 | 0.000 |
| 1.611 | 0.007 | 0.011 | 0.003 | 0.000 |
| 1.667 | 0.007 | 0.012 | 0.003 | 0.000 |
| 1.722 | 0.007 | 0.012 | 0.003 | 0.000 |
| 1.778 | 0.007 | 0.012 | 0.003 | 0.000 |
| 1.833 | 0.007 | 0.013 | 0.003 | 0.000 |
| 1.889 | 0.007 | 0.013 | 0.003 | 0.000 |
| 1.944 | 0.007 | 0.014 | 0.003 | 0.000 |
| 2.000 | 0.007 | 0.014 | 0.003 | 0.000 |
| 2.056 | 0.007 | 0.014 | 0.004 | 0.000 |
| 2.111 | 0.007 | 0.015 | 0.004 | 0.000 |
| 2.167 | 0.007 | 0.015 | 0.004 | 0.000 |
| 2.222 | 0.007 | 0.016 | 0.004 | 0.000 |
| 2.278 | 0.007 | 0.016 | 0.004 | 0.000 |
| 2.333 | 0.007 | 0.016 | 0.004 | 0.000 |
| 2.389 | 0.007 | 0.017 | 0.004 | 0.000 |
| 2.444 | 0.007 | 0.017 | 0.004 | 0.000 |
| 2.500 | 0.007 | 0.017 | 0.004 | 0.000 |
| 2.556 | 0.007 | 0.018 | 0.004 | 0.000 |
| 2.611 | 0.007 | 0.018 | 0.004 | 0.000 |
| 2.667 | 0.007 | 0.019 | 0.004 | 0.000 |
| 2.722 | 0.007 | 0.019 | 0.006 | 0.000 |
| 2.778 | 0.007 | 0.019 | 0.007 | 0.000 |
| 2.833 | 0.007 | 0.020 | 0.007 | 0.000 |
| 2.889 | 0.007 | 0.020 | 0.008 | 0.000 |
| 2.944 | 0.007 | 0.021 | 0.009 | 0.000 |
| 3.000 | 0.007 | 0.021 | 0.009 | 0.000 |
| 3.056 | 0.007 | 0.021 | 0.010 | 0.000 |
| 3.111 | 0.007 | 0.022 | 0.011 | 0.000 |
| 3.167 | 0.007 | 0.022 | 0.011 | 0.000 |
| 3.222 | 0.007 | 0.023 | 0.012 | 0.000 |
| 3.278 | 0.007 | 0.023 | 0.012 | 0.000 |
| 3.333 | 0.007 | 0.023 | 0.013 | 0.000 |
| 3.389 | 0.007 | 0.024 | 0.013 | 0.000 |
| 3.444 | 0.007 | 0.024 | 0.014 | 0.000 |
| 3.500 | 0.007 | 0.024 | 0.014 | 0.000 |
| 3.556 | 0.007 | 0.025 | 0.015 | 0.000 |
| 3.611 | 0.007 | 0.025 | 0.015 | 0.000 |
| 3.667 | 0.007 | 0.026 | 0.015 | 0.000 |
| 3.722 | 0.007 | 0.026 | 0.016 | 0.000 |
| 3.778 | 0.007 | 0.026 | 0.016 | 0.000 |
| 3.833 | 0.007 | 0.027 | 0.016 | 0.000 |
| 3.889 | 0.007 | 0.027 | 0.017 | 0.000 |
| 3.944 | 0.007 | 0.028 | 0.017 | 0.000 |
| 4.000 | 0.007 | 0.028 | 0.017 | 0.000 |
| 4.056 | 0.007 | 0.028 | 0.209 | 0.000 |
| 4.111 | 0.007 | 0.029 | 0.559 | 0.000 |
| 4.167 | 0.007 | 0.029 | 1.012 | 0.000 |
| 4.222 | 0.007 | 0.030 | 1.549 | 0.000 |
| 4.278 | 0.007 | 0.030 | 2.157 | 0.000 |
| 4.333 | 0.007 | 0.030 | 2.830 | 0.000 |
| 4.389 | 0.007 | 0.031 | 3.562 | 0.000 |
| 4.444 | 0.007 | 0.031 | 4.348 | 0.000 |
| 4.500 | 0.007 | 0.031 | 5.185 | 0.000 |
| 4.556 | 0.007 | 0.032 | 6.069 | 0.000 |
| 4.611 | 0.007 | 0.032 | 6.999 | 0.000 |
| 4.667 | 0.007 | 0.033 | 7.973 | 0.000 |

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 4.722 | 0.007 | 0.033 | 8.987 | 0.000 |
| 4.778 | 0.007 | 0.033 | 10.04 | 0.000 |
| 4.833 | 0.007 | 0.034 | 11.13 | 0.000 |
| 4.889 | 0.007 | 0.034 | 12.26 | 0.000 |
| 4.944 | 0.007 | 0.035 | 13.43 | 0.000 |
| 5.000 | 0.007 | 0.035 | 14.63 | 0.000 |
| 5.056 | 0.007 | 0.035 | 15.86 | 0.000 |
| 5.111 | 0.000 | 0.000 | 17.13 | 0.000 |

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**MITIGATED LAND USE**

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**ANALYSIS RESULTS**

**Flow Frequency Return Periods for Predeveloped. POC #1**

| <u>Return Period</u> | <u>Flow(cfs)</u> |
|----------------------|------------------|
| 2 year               | 0.007439         |
| 5 year               | 0.01555          |
| 10 year              | 0.020907         |
| 25 year              | 0.026992         |
| 50 year              | 0.030898         |
| 100 year             | 0.034267         |

**Flow Frequency Return Periods for Mitigated. POC #1**

| <u>Return Period</u> | <u>Flow(cfs)</u> |
|----------------------|------------------|
| 2 year               | 0.004506         |
| 5 year               | 0.007561         |
| 10 year              | 0.010311         |
| 25 year              | 0.01481          |
| 50 year              | 0.019045         |
| 100 year             | 0.024168         |

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**Yearly Peaks for Predeveloped and Mitigated. POC #1**

| <u>Year</u> | <u>Predeveloped</u> | <u>Mitigated</u> |
|-------------|---------------------|------------------|
| 1950        | 0.006               | 0.003            |
| 1951        | 0.026               | 0.004            |
| 1952        | 0.020               | 0.014            |
| 1953        | 0.004               | 0.003            |
| 1954        | 0.005               | 0.003            |
| 1955        | 0.010               | 0.004            |
| 1956        | 0.017               | 0.007            |
| 1957        | 0.016               | 0.004            |
| 1958        | 0.005               | 0.004            |
| 1959        | 0.010               | 0.004            |
| 1960        | 0.009               | 0.004            |
| 1961        | 0.015               | 0.013            |
| 1962        | 0.015               | 0.004            |
| 1963        | 0.000               | 0.003            |
| 1964        | 0.008               | 0.004            |
| 1965        | 0.012               | 0.004            |
| 1966        | 0.011               | 0.004            |
| 1967        | 0.005               | 0.003            |
| 1968        | 0.016               | 0.004            |
| 1969        | 0.004               | 0.003            |



|      |       |       |
|------|-------|-------|
| 1970 | 0.012 | 0.003 |
| 1971 | 0.005 | 0.004 |
| 1972 | 0.010 | 0.004 |
| 1973 | 0.023 | 0.011 |
| 1974 | 0.010 | 0.003 |
| 1975 | 0.009 | 0.004 |
| 1976 | 0.011 | 0.005 |
| 1977 | 0.011 | 0.004 |
| 1978 | 0.003 | 0.003 |
| 1979 | 0.004 | 0.004 |
| 1980 | 0.004 | 0.003 |
| 1981 | 0.002 | 0.011 |
| 1982 | 0.005 | 0.003 |
| 1983 | 0.012 | 0.015 |
| 1984 | 0.003 | 0.004 |
| 1985 | 0.012 | 0.003 |
| 1986 | 0.003 | 0.004 |
| 1987 | 0.002 | 0.013 |
| 1988 | 0.010 | 0.015 |
| 1989 | 0.000 | 0.003 |
| 1990 | 0.002 | 0.003 |
| 1991 | 0.007 | 0.016 |
| 1992 | 0.021 | 0.014 |
| 1993 | 0.004 | 0.003 |
| 1994 | 0.001 | 0.003 |
| 1995 | 0.000 | 0.003 |
| 1996 | 0.008 | 0.004 |
| 1997 | 0.021 | 0.013 |
| 1998 | 0.017 | 0.015 |
| 1999 | 0.008 | 0.004 |

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**Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1**

| <b>Rank</b> | <b>Predeveloped</b> | <b>Mitigated</b> |
|-------------|---------------------|------------------|
| 1           | 0.0261              | 0.0155           |
| 2           | 0.0232              | 0.0150           |
| 3           | 0.0214              | 0.0148           |
| 4           | 0.0205              | 0.0147           |
| 5           | 0.0199              | 0.0143           |
| 6           | 0.0172              | 0.0141           |
| 7           | 0.0170              | 0.0134           |
| 8           | 0.0162              | 0.0131           |
| 9           | 0.0162              | 0.0126           |
| 10          | 0.0149              | 0.0110           |
| 11          | 0.0146              | 0.0109           |
| 12          | 0.0125              | 0.0067           |
| 13          | 0.0124              | 0.0050           |
| 14          | 0.0122              | 0.0042           |
| 15          | 0.0116              | 0.0040           |
| 16          | 0.0112              | 0.0040           |
| 17          | 0.0106              | 0.0040           |
| 18          | 0.0106              | 0.0039           |
| 19          | 0.0105              | 0.0038           |
| 20          | 0.0103              | 0.0038           |
| 21          | 0.0102              | 0.0038           |
| 22          | 0.0099              | 0.0038           |
| 23          | 0.0096              | 0.0038           |

|    |        |        |
|----|--------|--------|
| 24 | 0.0088 | 0.0037 |
| 25 | 0.0087 | 0.0037 |
| 26 | 0.0082 | 0.0037 |
| 27 | 0.0082 | 0.0037 |
| 28 | 0.0081 | 0.0036 |
| 29 | 0.0070 | 0.0036 |
| 30 | 0.0058 | 0.0036 |
| 31 | 0.0052 | 0.0036 |
| 32 | 0.0049 | 0.0035 |
| 33 | 0.0049 | 0.0035 |
| 34 | 0.0048 | 0.0035 |
| 35 | 0.0047 | 0.0035 |
| 36 | 0.0042 | 0.0034 |
| 37 | 0.0040 | 0.0034 |
| 38 | 0.0037 | 0.0034 |
| 39 | 0.0036 | 0.0034 |
| 40 | 0.0035 | 0.0034 |
| 41 | 0.0034 | 0.0033 |
| 42 | 0.0033 | 0.0033 |
| 43 | 0.0027 | 0.0033 |
| 44 | 0.0022 | 0.0032 |
| 45 | 0.0022 | 0.0032 |
| 46 | 0.0015 | 0.0031 |
| 47 | 0.0012 | 0.0030 |
| 48 | 0.0004 | 0.0029 |
| 49 | 0.0002 | 0.0029 |
| 50 | 0.0002 | 0.0028 |

**POC #1**

**The Facility PASSED**

**The Facility PASSED.**

| <b>Flow(CFS)</b> | <b>Predev</b> | <b>Dev</b> | <b>Percentage</b> | <b>Pass/Fail</b> |
|------------------|---------------|------------|-------------------|------------------|
| 0.0037           | 972           | 965        | 99                | Pass             |
| 0.0040           | 877           | 390        | 44                | Pass             |
| 0.0043           | 791           | 359        | 45                | Pass             |
| 0.0045           | 727           | 348        | 47                | Pass             |
| 0.0048           | 661           | 331        | 50                | Pass             |
| 0.0051           | 611           | 320        | 52                | Pass             |
| 0.0054           | 557           | 310        | 55                | Pass             |
| 0.0056           | 508           | 299        | 58                | Pass             |
| 0.0059           | 474           | 288        | 60                | Pass             |
| 0.0062           | 427           | 280        | 65                | Pass             |
| 0.0065           | 393           | 270        | 68                | Pass             |
| 0.0067           | 363           | 261        | 71                | Pass             |
| 0.0070           | 336           | 249        | 74                | Pass             |
| 0.0073           | 307           | 238        | 77                | Pass             |
| 0.0076           | 281           | 227        | 80                | Pass             |
| 0.0078           | 255           | 212        | 83                | Pass             |
| 0.0081           | 234           | 198        | 84                | Pass             |
| 0.0084           | 223           | 184        | 82                | Pass             |
| 0.0087           | 202           | 178        | 88                | Pass             |
| 0.0089           | 185           | 165        | 89                | Pass             |
| 0.0092           | 170           | 154        | 90                | Pass             |
| 0.0095           | 158           | 148        | 93                | Pass             |

|        |     |     |     |      |
|--------|-----|-----|-----|------|
| 0.0098 | 148 | 140 | 94  | Pass |
| 0.0100 | 132 | 134 | 101 | Pass |
| 0.0103 | 122 | 128 | 104 | Pass |
| 0.0106 | 111 | 115 | 103 | Pass |
| 0.0109 | 104 | 109 | 104 | Pass |
| 0.0111 | 94  | 99  | 105 | Pass |
| 0.0114 | 88  | 95  | 107 | Pass |
| 0.0117 | 80  | 84  | 104 | Pass |
| 0.0120 | 75  | 72  | 96  | Pass |
| 0.0122 | 67  | 65  | 97  | Pass |
| 0.0125 | 60  | 58  | 96  | Pass |
| 0.0128 | 58  | 47  | 81  | Pass |
| 0.0131 | 54  | 38  | 70  | Pass |
| 0.0133 | 52  | 32  | 61  | Pass |
| 0.0136 | 48  | 25  | 52  | Pass |
| 0.0139 | 43  | 19  | 44  | Pass |
| 0.0142 | 41  | 14  | 34  | Pass |
| 0.0144 | 38  | 11  | 28  | Pass |
| 0.0147 | 34  | 6   | 17  | Pass |
| 0.0150 | 31  | 2   | 6   | Pass |
| 0.0152 | 28  | 2   | 7   | Pass |
| 0.0155 | 26  | 1   | 3   | Pass |
| 0.0158 | 24  | 0   | 0   | Pass |
| 0.0161 | 24  | 0   | 0   | Pass |
| 0.0163 | 19  | 0   | 0   | Pass |
| 0.0166 | 18  | 0   | 0   | Pass |
| 0.0169 | 18  | 0   | 0   | Pass |
| 0.0172 | 15  | 0   | 0   | Pass |
| 0.0174 | 11  | 0   | 0   | Pass |
| 0.0177 | 9   | 0   | 0   | Pass |
| 0.0180 | 8   | 0   | 0   | Pass |
| 0.0183 | 8   | 0   | 0   | Pass |
| 0.0185 | 8   | 0   | 0   | Pass |
| 0.0188 | 8   | 0   | 0   | Pass |
| 0.0191 | 7   | 0   | 0   | Pass |
| 0.0194 | 7   | 0   | 0   | Pass |
| 0.0196 | 7   | 0   | 0   | Pass |
| 0.0199 | 6   | 0   | 0   | Pass |
| 0.0202 | 5   | 0   | 0   | Pass |
| 0.0205 | 5   | 0   | 0   | Pass |
| 0.0207 | 3   | 0   | 0   | Pass |
| 0.0210 | 3   | 0   | 0   | Pass |
| 0.0213 | 3   | 0   | 0   | Pass |
| 0.0216 | 2   | 0   | 0   | Pass |
| 0.0218 | 2   | 0   | 0   | Pass |
| 0.0221 | 2   | 0   | 0   | Pass |
| 0.0224 | 2   | 0   | 0   | Pass |
| 0.0227 | 2   | 0   | 0   | Pass |
| 0.0229 | 2   | 0   | 0   | Pass |
| 0.0232 | 1   | 0   | 0   | Pass |
| 0.0235 | 1   | 0   | 0   | Pass |
| 0.0238 | 1   | 0   | 0   | Pass |
| 0.0240 | 1   | 0   | 0   | Pass |
| 0.0243 | 1   | 0   | 0   | Pass |
| 0.0246 | 1   | 0   | 0   | Pass |
| 0.0249 | 1   | 0   | 0   | Pass |
| 0.0251 | 1   | 0   | 0   | Pass |

|        |   |   |   |      |
|--------|---|---|---|------|
| 0.0254 | 1 | 0 | 0 | Pass |
| 0.0257 | 1 | 0 | 0 | Pass |
| 0.0260 | 1 | 0 | 0 | Pass |
| 0.0262 | 0 | 0 | 0 | Pass |
| 0.0265 | 0 | 0 | 0 | Pass |
| 0.0268 | 0 | 0 | 0 | Pass |
| 0.0271 | 0 | 0 | 0 | Pass |
| 0.0273 | 0 | 0 | 0 | Pass |
| 0.0276 | 0 | 0 | 0 | Pass |
| 0.0279 | 0 | 0 | 0 | Pass |
| 0.0282 | 0 | 0 | 0 | Pass |
| 0.0284 | 0 | 0 | 0 | Pass |
| 0.0287 | 0 | 0 | 0 | Pass |
| 0.0290 | 0 | 0 | 0 | Pass |
| 0.0293 | 0 | 0 | 0 | Pass |
| 0.0295 | 0 | 0 | 0 | Pass |
| 0.0298 | 0 | 0 | 0 | Pass |
| 0.0301 | 0 | 0 | 0 | Pass |
| 0.0303 | 0 | 0 | 0 | Pass |
| 0.0306 | 0 | 0 | 0 | Pass |
| 0.0309 | 0 | 0 | 0 | Pass |

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**Water Quality BMP Flow and Volume for POC 1.**

**On-line facility volume:** 0 acre-feet

**On-line facility target flow:** 0 cfs.

**Adjusted for 15 min:** 0 cfs.

**Off-line facility target flow:** 0 cfs.

**Adjusted for 15 min:** 0 cfs.

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**PerlnD and Implnd Changes**

No changes have been made.

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# EXHIBIT B



January 5, 2018

G-3837

Mr. William Summers  
MI Treehouse LLC  
P.O. Box 261  
Medina, WA 98039  
Email: [bill@summersdevelopment.com](mailto:bill@summersdevelopment.com)

**Subject:** Pipe Pile Installation Time and Noise  
Proposed Residence  
5637 East Mercer Way, Mercer Island, WA 98040

**Reference:** GEO Group Northwest, Inc. Geotechnical Engineering Report  
Report dated 3/13/2015, G3837 for the Proposed Residence

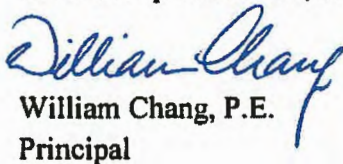
Dear Mr. Summers:

At your request, we are presenting our geotechnical evaluation to address the time and the noise impacts of the proposed pipe pile installation at the proposed residence.

At the present time we do not have a final design, however, based on our experience on similar projects we anticipate that the house will be supported on 4 inch diameter pipe piles driven by a 1,100 pound pneumatic hammer such as a Teledyne model TB425 or equivalent. The noise generated by the pile driving equipment is similar to that of a pneumatic jackhammer, with rapid percussions to advance the pile into the ground.

Accordingly, we also anticipate that up to 80 pipe piles will be installed, and the time frame to install the pipe piles will be from 5 to 10 working days, depending on the efficiency of the contractor.

Sincerely,  
GEO Group Northwest, Inc.

  
William Chang, P.E.  
Principal



## EXHIBIT C

**CRITERIA FOR APPROVAL OF ZONING VARIANCE  
DEVELOPMENT CODE, CHAPTER 19.15.020(G)**

Your answers to the following questions will be used in the decision on your application. Please respond fully to all of the following questions (attach extra sheets, if necessary). It is the applicant's burden of proof to show the Code Official that all five of the variance criteria are satisfied. **Please attach extra sheets if needed.**

A variance is being requested from the following code section(s):       MICC 19.02.020.H(1)      

- A. Is your request for a change in the type use allowed in the zoning district? YES / NO - NO
- B. Describe the special circumstances applicable to the particular lot such as the size, shape, topography, or location of the lot; the trees, ground cover, or other physical conditions of the lot and its surroundings; or factors necessary for the successful installation of a solar energy system such as a particular orientation of a building for the purposes of providing solar access.

      See Exhibit A.        
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- C. Explain why the granting of the variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the property is situated.

      See Exhibit A.        
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- D. Explain how granting of the variance will not alter the character of the neighborhood, nor impair the appropriate use or development of adjacent property.

      See Exhibit A.        
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- E. Explain how the variance is consistent with the policies and provisions of the Comprehensive Plan and the Development Code.

      See Exhibit A.        
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

|   |               |
|---|---------------|
| <i>Application for a deviation or variance involves substantial time, expense, and risk for a property owner. Application does not guarantee approval. Request must meet difficult criteria, and applicants are proceeding "at their own risk".</i> |               |
| _____<br>Signature of Property Owner  | _____<br>Date |
| _____<br>Site Address   |               |



## RESPONSES TO CRITERIA FOR APPROVAL OF ZONING REQUEST

A variance is being requested from the following code section: MICC 19.02.020.H(1)

- A. Is your request for a change in the type of use, allowed in the zoning district? No.
- B. Describe the unique circumstances applicable to the particular lot [that require the variance to be granted]:

The site is located on East Mercer Way, at SE 56<sup>th</sup> Street. See Survey in RUE CAO 15-001 project file.

There is an existing access-utility easement at the southwest corner of the property that provides access and utilities to the property as well as to the property directly south, 5645 East Mercer Way. There is a driveway in the easement paved with asphaltic paving, approximately 600 square feet in area that connects the street to the residence to the south.

The site contains a small perennial stream, Stream "A", that flows easterly. This small channel has been mapped by the City as a Type 2 watercourse.

The site contains two steep slope areas, one at the northwest corner and one along the south property line.

Other portions of the site have been classified as a Type 3 wetland.

In this light, City staff has determined that to develop the site, it is appropriate for the owner to apply for a Reasonable Use Exception ("RUE") pursuant to MICC 19.07.030.B((3)). The owner has done so. The owner's RUE application has been given the project identification RUE CAO 15-001. Pertinent documents are available in the City files.

One of the requirements of the RUE provisions of the Code is that the applicant demonstrate that alteration of critical areas in order to allow a reasonable use, will "be the minimum necessary to allow for a reasonable use of the property."

The owner has provided two site plans that will allow for a reasonable use of the property. One site plan places the proposed residence a distance of five feet from the existing access-utility easement on the site, as required by MICC 19.02.020.H(1). However, in order to "minimize" impacts on the Type 3 wetland on the property, City

staff has suggested that the owner request a variance to allow the proposed residence to be placed closer than five feet from the existing access-utility easement. The owner has agreed to do so. The second site plan, therefore, places the proposed residence at a distance that is approximately 18 inches to 5 feet from the easement.

- C. Explain why the granting of the variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the property is situated:

The purpose of MICC 19.02.020.H(1) is to provide a buffer between the edge of an access/utility easement and a proposed structure. In this case, the easement is over-sized. Allowing the proposed residence to be closer than five feet to the edge of the easement will interfere neither with access to the southern neighbor's home nor to any utilities needed for the two properties.

- D. Explain how granting of the variance will not alter the character of the neighborhood, nor impair the appropriate use of development of adjacent property

The proposed 3 foot variance from the 5 foot easement buffer requirement will be imperceptible to any of the neighboring homes. The homeowner to the south of the site, the beneficiary of the access easement, has no objection to the granting of the variance.

- E. Explain how the variance is consistent with the policies and provisions of the Comprehensive Plan and the Development Code:

By allowing the application of the reasonable use exception in the Land Use Code to minimize the impact on the wetland located on the site, the granting of the variance will further Comprehensive Plan Policies that encourage the protection of environmentally sensitive areas and lands. Land Use Issues (1) and (4); Land Use Policies 15.2 and 18.

By the granting of the variance, the Land Use Code reasonable use exception criteria that require minimizing the alteration of critical areas when allowing a reasonable use exception will be furthered. MICC 19.07.030.B(3).