

Construction Stormwater General Permit

Stormwater Pollution Prevention Plan (SWPPP)

for
Harbor Grove

9110 53rd Avew W Mukilteo, WA 98275

Prepared for:
The Washington State Department of Ecology
Northwest Regional Office

SWPPP Preparation Date
 08/09/2022

Permittee / Owner	Developer	Operator / Contractor
Sea-Pac Homes	Sea-Pac Homes	TBD

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD	TBD	TBD

SWPPP Prepared By

Name	Organization	Contact Phone Number
Olivia Westmoreland	The BlueLine Group	425-250-7236

Project Construction Dates

Activity / Phase	Start Date	End Date
Clearing / Start	2022	2024

Table of Contents

- 1 Project Information..... 5
 - 1.1 Existing Conditions 5
 - 1.2 Proposed Construction Activities..... 6
- 2 Construction Stormwater Best Management Practices (BMPs)..... 8
 - 2.1 The 13 Elements..... 8
 - 2.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits 8
 - 2.1.2 Element 2: Establish Construction Access 9
 - 2.1.3 Element 3: Control Flow Rates 10
 - 2.1.4 Element 4: Install Sediment Controls 11
 - 2.1.5 Element 5: Stabilize Soils 12
 - 2.1.6 Element 6: Protect Slopes..... 13
 - 2.1.7 Element 7: Protect Drain Inlets 14
 - 2.1.8 Element 8: Stabilize Channels and Outlets 15
 - 2.1.9 Element 9: Control Pollutants..... 16
 - 2.1.10 Element 10: Control Dewatering 20
 - 2.1.11 Element 11: Maintain BMPs..... 21
 - 2.1.12 Element 12: Manage the Project..... 22
 - 2.1.13 Element 13: Protect Low Impact Development (LID) BMPs 23
- 3 Pollution Prevention Team 24
- 4 Monitoring and Sampling Requirements 25
 - 4.1 Site Inspection 25
 - 4.2 Stormwater Quality Sampling..... 25
 - 4.2.1 Turbidity Sampling 25
 - 4.2.2 pH Sampling 27
- 5 Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies 28
 - 5.1 303(d) Listed Waterbodies 28
 - 5.2 TMDL Waterbodies 28
- 6 Reporting and Record Keeping 29
 - 6.1 Record Keeping 29
 - 6.1.1 Site Log Book 29
 - 6.1.2 Records Retention 29
 - 6.1.3 Updating the SWPPP..... 29
 - 6.2 Reporting 30
 - 6.2.1 Discharge Monitoring Reports..... 30
 - 6.2.2 Notification of Noncompliance..... 30

List of Tables

Table 1 – Summary of Site Pollutant Constituents	5
Table 2 – Pollutants	16
Table 3 – pH-Modifying Sources	18
Table 4 – Dewatering BMPs.....	20
Table 5 – Management	22
Table 7 – Team Information	24
Table 8 – Turbidity Sampling Method.....	25
Table 9 – pH Sampling Method.....	27

List of Appendices

Appendix/Glossary

A. Site Map

B. BMP Detail

C. Correspondence

D. Site Inspection Form

E. Construction Stormwater General Permit (CSWGP)

F. 303(d) List Waterbodies/TMDL Waterbodies Information

G. Contaminated Site Information

H. Engineering Calculations

List of Acronyms and Abbreviations

Acronym / Abbreviation	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
CO₂	Carbon Dioxide
CRO	Central Regional Office of the Department of Ecology
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERO	Eastern Regional Office of the Department of Ecology
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMEW	Stormwater Management Manual for Eastern Washington
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
SWRO	Southwest Regional Office of the Department of Ecology
TMDL	Total Maximum Daily Load
VFO	Vancouver Field Office of the Department of Ecology
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

1 Project Information

Project/Site Name: Harbor Grove
Street/Location: 9110 53rd Ave W
City: Mukilteo State: WA Zip code: 98275

Receiving waterbody: Snohomish River

Design of the SWPPP was completed in accordance with the 2019 Stormwater Management Manual for Western Washington.

1.1 Existing Conditions

Total acreage (including support activities such as off-site equipment staging yards, material storage areas, borrow areas).

Total Acreage 2.38 AC (Subject Parcel #00611600015901)

Disturbed Acreage: 2.19 AC

Existing Structures: Single-story house with detached garage and asphalt driveway

Landscape Topography: Site topography slopes west

Drainage Patterns: West to East.

Existing Vegetation: Generally forested with understory vegetation

List of known impairments for 303(d) or Total Maximum Daily Load (TMDL) for the receiving waterbody:

N/A

Critical Areas: Steep slopes

Table 1 includes a list of suspected and/or known contaminants associated with the construction activity.

Table 1 – Summary of Site Pollutant Constituents

Constituent (Pollutant)	Location (Remediation Area)	Depth	Concentration (mg/kg)
N/A	N/A	N/A	N/A

1.2 Proposed Construction Activities

Description of site development (example: subdivision):

Single-Family Residential Subdivision

Description of construction activities (example: site preparation, demolition, excavation):

This project proposes subdividing a parcel into 7 lots and provide associated utilities and infrastructure, and frontage improvements.

Construction activities will include site preparation, TESC installation, excavation for utilities, foundations, grading, utility installation, asphalt paving, concrete pours, and landscaping.

Description of site drainage including flow from and onto adjacent properties. Must be consistent with Site Map in Appendix A:

In the existing condition, onsite runoff sheet flows west across vegetated landcover. Runoff travelling west continues across private property before entering a catch basin on the east side of Hargreaves PL. Flow continues west through the existing conveyance system, travelling underneath Hargreaves PL. Flow continues to the west side of Hargreaves PL, eventually discharging to Smuggler's Gulch creek, where it continues to the quarter-mile downstream location.

Description of final stabilization (example: extent of revegetation, paving, landscaping):

In final conditions the developed site will be fully stabilized with a paved access tract, driveways, and seeding of exposed dirt disturbed during construction on disturbed pervious portion of lots. Permanent storm drainage infrastructure will collect surface runoff from onsite; pervious and impervious areas.

Contaminated Site Information:

Proposed activities regarding contaminated soils or groundwater (example: on-site treatment system, authorized sanitary sewer discharge):

None noted at this time.

2 Construction Stormwater Best Management Practices (BMPs)

Alternate City approved BMPs shall be utilized in the event the BMP(s) listed below are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NEDES Permit (Appendix E). To avoid potential erosion and sediment control issues that may cause violation(s) of the NPDES Construction Stormwater permit, the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of alternative BMPs after the first sign that existing BMPs are ineffective or failing. The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e., hand-written notes and deletions). Update the SWPPP when the CESCL has noted a deficiency in BMPs or deviation from original design. Please refer to the TESC plan included in Appendix A and BMP details included in Appendix B.

The wet weather plan shall be approved prior to October 1 for any construction to take place between October 1 and April 30.

2.1 The 13 Elements

2.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. The BMPs relevant to marking the clearing limits that will be applied for this project include:

Applicable BMPs:

- BMP C103: High Visibility Fence Plastic or Metal Fence

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspection to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.2 Element 2: Establish Construction Access

Construction access or activities occurring on unpaved areas shall be minimized, where necessary, access points shall be stabilized to minimize the tracking of sediment onto public roads. **Construction** vehicle access and exit shall be limited to one route, if possible. Wheel washing, street sweeping, and street cleaning may be necessary if the stabilized construction access is not effective. All wash wastewater shall be controlled on site and cannot be discharged into waters of the State. If sediment is tracked off site, roads shall be cleaned thoroughly at the end of each day, or more frequently during wet weather. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area.

Applicable BMPs:

- BMP C105: Stabilized Construction Entrance/Exit
- BMP C107: Construction Road/parking Area Stabilization.

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspection to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.3 Element 3: Control Flow Rates

In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site will be controlled. In general, discharge rates of stormwater from the site will be controlled where increases in impervious area or soil compaction during construction could lead to downstream erosion, or where necessary to meet local agency stormwater discharge requirements (e.g. discharge to combined sewer systems). Perimeter control is not required on the upgradient border of the site.

Will you construct stormwater retention and/or detention facilities?

Yes No

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?

Yes No

Upon completion of construction, site drainage will be routed through the on-site drainage system.

Applicable BMPs:

- BMP C233: Silt Fence
- BMP C207: Check Dams
- BMP C240: Temporary Sediment Trap

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.4 Element 4: Install Sediment Controls

All stormwater runoff from disturbed areas shall pass through appropriate sediment removal BMPs before leaving the construction site. BMPs will be constructed as one of the first steps of grading and will be functional before other land disturbing activities take place.

Additionally, sediment will be removed from paved areas in and adjacent to construction work areas manually or using mechanical sweepers to minimize tracking of sediments on vehicle tires away from the site and to minimize wash off sediments from adjacent streets in runoff.

When permanent stormwater BMPs will be used to control sediment discharge during construction, the structure is to be protected from excessive sedimentation with adequate erosion and sediment control BMPs. Any accumulated sediment shall be removed after construction is complete and the permanent stormwater BMP is to be restabilized with vegetation per applicable design requirements once the site has been stabilized.

Applicable BMPs:

- BMP C200: Interceptor Dikes and Swales
- BMP C207: Check Dams
- BMP C233: Silt Fence
- BMP C240: Sediment Trap

A sediment trap will be utilized during construction for the majority of the onsite disturbed area. Sediment facilities are sized to detain the 10-year storm event calculated using a 15-minute time step. Please refer to the TESC plan included in Appendix A, and the BMP details included in Appendix B.

The sediment trap has a tributary area of 2.38 acres (0.95 acres impervious, 1.24 acres pervious) that will result in a 10-year input runoff of 0.5420 cfs.

Sediment Trap was sized Per Volume II of the SWMMWW BMP C240:

$$\text{Surface Area Required } [ft^2] = 2,080 \times 10\text{-year inflow } \left[\frac{ft^3}{s}\right]$$

$$\text{Surface Area Required: Sediment Trap} = 2,080 \times 0.5420 \frac{ft^3}{s} = 1,127 ft^2$$

$$\text{Surface Area Provided: Sediment Trap} = 1,134 ft^2$$

2.1.5 Element 5: Stabilize Soils

Exposed and unworked soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project.

In general, cut and fill slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

Earthwork quantities: Cut 4,446 CY Fill: 9,873 CY

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can Be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Will you construct during the wet season?

Yes No (TBD)

Applicable BMPs:

Element 5: Stabilize Soils:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C123: Plastic Covering
- BMP C130: Surface Roughening
- BMP C140: Dust Control
- Early application of gravel base on areas to be paved

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.6 Element 6: Protect Slopes

Will steep slopes be present at the site during construction?

Yes No

Cut and fill slopes within the site will be designed, constructed, and protected in a manner that minimizes erosion. The BMPs to be used to protect slopes for this project are listed below.

Applicable BMPs:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C123: Plastic Covering
- BMP C130: Surface Roughening

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.7 Element 7: Protect Drain Inlets

All storm drain inlets and culverts operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. The priority, however, shall be to keep all access roads clean of sediment and keep street wash water from entering storm drains until treatment can be provided. Inlet protection shall be implemented for all drainage inlets and culverts that could potentially be impacted by sediment-laden runoff on and near the project site. The following inlet protection measures will be applied on this project:

Applicable BMPs:

- BMP C220: Storm Drain Inlet Protection

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.8 Element 8: Stabilize Channels and Outlets

Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches, will be installed at the outlets of all conveyance systems.

Site runoff will not be conveyed in channels or discharged to a stream or some other natural drainage point, thus this element does not apply.

Applicable BMPs: N/A

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.9 Element 9: Control Pollutants

The following pollutants are anticipated to be present on-site:

Table 2 – Pollutants

Pollutant (List pollutants and source, if applicable)
Concrete
Diesel Fuel
Asphalt
Residential building, insulation, and roofing materials

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well-organized, and free of debris. BMPs to be implemented to control specific sources of pollutants are discussed below.

Chemical storage:

- Any chemicals stored in the construction areas will conform to the appropriate source control BMPs listed in Volume IV of the Ecology stormwater manual. In Western WA, all chemicals shall have cover, containment, and protection provided on site, per BMP C153 for Material Delivery, Storage and Containment in the 2019 SWMMWW.
- Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers’ recommendations for application procedures and rates shall be followed.

Excavation and tunneling spoils dewatering waste:

- Dewatering BMPs and BMPs specific to the excavation and tunneling (including handling of contaminated soils) are discussed under Element 10.

Demolition:

- Dust released from demolished sidewalks, buildings, or structures will be controlled using Dust Control measures (BMP C140).
- Storm drain inlets vulnerable to stormwater discharge carrying dust, soil, or debris will be protected using Storm Drain Inlet Protection (BMP C220 as described above for Element 7). Provisions shall be made to remove filters at the end of the project without dropping accumulated sediment into the catch basin.

- Process water and slurry resulting from sawcutting and surfacing operations will be prevented from entering the waters of the State by implementing Sawcutting and Surfacing Pollution Prevention measures (BMP C152).

Concrete and grout:

- Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151). Concrete wash out areas shall not be allowed on bare dirt or allowed to drain to bare dirt or the storm system.

Sanitary wastewater:

- Portable sanitation facilities will be firmly secured, regularly maintained, and emptied when necessary.
- Wheel wash or tire bath wastewater shall be discharged to a separate onsite treatment system or to the sanitary sewer as part of Wheel Wash implementation (BMP C106).

Solid Waste:

- Solid waste will be stored in secure, clearly marked containers.

Other:

- Other BMPs will be administered as necessary to address any additional pollutant sources on site.

Installation Schedules: Start of project and replaced as needed and as start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?

Yes No

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- All vehicles, equipment, and petroleum product storage/dispensing area will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.
- On-site fueling tanks and petroleum product storage containers shall include secondary containment.

- Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
- In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.
- Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.

Applicable BMPs:

- Material Delivery, Storage and Containment (BMP C153)

Fuel onsite will be comprised of fuel tanks in operating equipment ranging between 50-100 gallons of off road diesel fuel. The BMPs listed below as well as procedures described above should be followed with refueling equipment. Spill kits should be kept on hand and accessible during refueling activities.

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

Will wheel wash or tire bath system BMPs be used during construction?

Yes No (TBD)

Will pH-modifying sources be present on-site?

Yes No

Table 3 – pH-Modifying Sources

<input type="checkbox"/>	None
<input type="checkbox"/>	Bulk cement
<input type="checkbox"/>	Cement kiln dust
<input type="checkbox"/>	Fly ash
<input checked="" type="checkbox"/>	Other cementitious materials
<input type="checkbox"/>	New concrete washing or curing waters
<input type="checkbox"/>	Waste streams generated from concrete grinding and sawing
<input type="checkbox"/>	Exposed aggregate processes
<input checked="" type="checkbox"/>	Dewatering concrete vaults
<input checked="" type="checkbox"/>	Concrete pumping and mixer washout waters
<input type="checkbox"/>	Recycled concrete
<input type="checkbox"/>	Recycled concrete stockpiles
<input type="checkbox"/>	Other (i.e., calcium lignosulfate) [please describe:]

Applicable BMPs:

- Monitoring should be performed to ensure concrete placement does not result in excessively high pH in stormwater runoff. pH testing should be performed on a weekly basis, from the start of concrete work until pH drops below 8.5 su.

Concrete and grout:

- Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151). Concrete wash out areas shall not be allowed on bare dirt or allowed to drain to bare dirt or the storm system.

Installation Schedules: Start of project and replaced as needed and at start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

Adjust pH of stormwater if outside the range of 6.5 to 8.5 su.

Obtain written approval from Ecology is required before using chemical treatment with the exception of CO₂ or dry ice to modify pH.

Concrete trucks must not be washed out onto the ground, or into storm drains, open ditches, streets, or streams. Excess concrete must not be dumped on-site, except in designated concrete washout areas with appropriate BMPs installed.

Will uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters?

Yes No

2.1.10 Element 10: Control Dewatering

All dewatering water from open cut excavation, tunneling, foundation work, trench, or underground vaults shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond. Channels will be stabilized, per Element #8.

Clean, non-turbid dewatering water will not be routed through stormwater sediment ponds, and will not be discharged to systems tributary to the receiving waters of the State in a manner that does no cause erosion, flooding, or a violation of State water quality standards in the receiving water.

Highly turbid dewatering water from soils known or suspected to be contaminated, or from use of construction equipment, will require additional monitoring and treatment as required for the specific pollutants based on the receiving waters into which the discharge is occurring. Such monitoring is the responsibility of the contractor.

Dewatering of soils known to be free of contamination will trigger BMPs to trap sediment and reduce turbidity. Other BMPs to be used for sediment trapping and turbidity reduction include the following.

Table 4 – Dewatering BMPs

<input type="checkbox"/>	Infiltration
<input checked="" type="checkbox"/>	Transport off-site in a vehicle (vacuum truck for legal disposal)
<input type="checkbox"/>	Ecology-approved on-site chemical treatment or other suitable treatment technologies
<input type="checkbox"/>	Sanitary or combined sewer discharge with local sewer district approval (last resort)
<input type="checkbox"/>	Use of sedimentation bag with discharge to ditch or swale (small volumes of localized dewatering)

Installation Schedules: Start of project and replaced as needed and as start of wet season.

Inspection and Maintenance plan: Responsible staff to make weekly site walks and inspections to identify deficiencies in onsite BMPs and anticipate potential problems and remedies.

Responsible Staff: Identified Certified Erosion and Sediment Control Lead in Section 3 of this SWPPP.

2.1.11 Element 11: Maintain BMPs

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see *Volume II of the SWMMWW* or *Chapter 7 of the SWMMEW*).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any stormwater or non-stormwater discharge from the site. If the site becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment shall be stabilized on-site or removed. Disturbed soil resulting from removal of either BMPs or vegetation shall be permanently stabilized.

Additionally, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction shall be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed and the facility shall be returned to conditions specified in the construction documents.

2.1.12 Element 12: Manage the Project

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be taken into account.
- Inspection and monitoring:
 - Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
 - Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. Sampling locations are indicated on the Site Map. Sampling station(s) are in accordance with applicable requirements of the CSWGP.
- Maintain an updated SWPPP.
 - The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

<input checked="" type="checkbox"/>	Design the project to fit the existing topography, soils, and drainage patterns
<input type="checkbox"/>	Emphasize erosion control rather than sediment control
<input type="checkbox"/>	Minimize the extent and duration of the area exposed
<input type="checkbox"/>	Keep runoff velocities low
<input type="checkbox"/>	Retain sediment on-site
<input checked="" type="checkbox"/>	Thoroughly monitor site and maintain all ESC measures
<input checked="" type="checkbox"/>	Schedule major earthwork during the dry season
<input type="checkbox"/>	Other (please describe)

2.1.13 Element 13: Protect Low Impact Development (LID) BMPs

With the exception of BMP T5.13, this project does not implement any LID BMPs listed in Appendix 1 of the Phase II Western Washington Municipal Stormwater Permit. There will be no LID BMPs implemented that require protection during construction.

3 Pollution Prevention Team

Table 7 – Team Information

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	TBD	TBD
Resident Engineer	Brett Pudists, PE	425-250-7247
Emergency Ecology Contact	Northwest Region	425 649-7000
Emergency Permittee/ Owner Contact	Nate Perkl	425-626-5353
Non-Emergency Owner Contact	Nate Perkl	425-626-5353
Monitoring Personnel	TBD	TBD
Ecology Regional Office	Northwest Region	425 649-7000

4 Monitoring and Sampling Requirements

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

See form in Appendix D

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this template.

4.1 Site Inspection

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

4.2 Stormwater Quality Sampling

4.2.1 Turbidity Sampling

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

<input type="checkbox"/>	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
<input checked="" type="checkbox"/>	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU or the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU or the transparency is 6 cm or less at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours.
 - **Central Region** (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima): (509) 575-2490 or http://www.ecy.wa.gov/programs/spills/forms/nerets_online/CRO_nerets_online.html
 - **Eastern Region** (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400 or http://www.ecy.wa.gov/programs/spills/forms/nerets_online/ERO_nerets_online.html
 - **Northwest Region** (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000 or http://www.ecy.wa.gov/programs/spills/forms/nerets_online/NWRO_nerets_online.html
 - **Southwest Region** (Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum,): (360) 407-6300 or http://www.ecy.wa.gov/programs/spills/forms/nerets_online/SWRO_nerets_online.html
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.
4. Continue to sample discharges daily until one of the following is true:
 - Turbidity is 25 NTU (or lower).
 - Transparency is 33 cm (or greater).
 - Compliance with the water quality limit for turbidity is achieved.
 - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
 - 1% - 10% over background turbidity, if background is 50 NTU or greater
 - The discharge stops or is eliminated.

4.2.2 pH Sampling

pH monitoring is required for “Significant concrete work” (i.e., greater than 1000 cubic yards poured concrete over the life of the project). The use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD] or fly ash) also requires pH monitoring.

For significant concrete work, pH sampling will start the first day concrete is poured and continue until it is cured, typically three (3) weeks after the last pour.

For engineered soils and recycled concrete, pH sampling begins when engineered soils or recycled concrete are first exposed to precipitation and continues until the area is fully stabilized.

If the measured pH is 8.5 or greater, the following measures will be taken:

1. Prevent high pH water from entering storm sewer systems or surface water.
2. Adjust or neutralize the high pH water to the range of 6.5 to 8.5 su using appropriate technology such as carbon dioxide (CO₂) sparging (liquid or dry ice).
3. Written approval will be obtained from Ecology prior to the use of chemical treatment other than CO₂ sparging or dry ice.

Method for sampling pH:

Table 9 – pH Sampling Method

<input type="checkbox"/>	pH meter
<input type="checkbox"/>	pH test kit
<input type="checkbox"/>	Wide range pH indicator paper
<input checked="" type="checkbox"/>	To be determined

5 Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies

5.1 303(d) Listed Waterbodies

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

Yes No

List the impairment(s):

N/A

5.2 TMDL Waterbodies

Waste Load Allocation for CWSGP discharges:

N/A

List and describe BMPs:

N/A

Discharges to TMDL receiving waterbodies will meet in-stream water quality criteria at the point of discharge.

The Construction Stormwater General Permit Proposed New Discharge to an Impaired Water Body form is included in Appendix F.

6 Reporting and Record Keeping

6.1 Record Keeping

6.1.1 Site Log Book

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sample logs

6.1.2 Records Retention

Records will be retained during the life of the project and for a minimum of three (3) years following the termination of permit coverage in accordance with Special Condition S5.C of the CSWGP.

Permit documentation to be retained on-site:

- CSWGP
- Permit Coverage Letter
- SWPPP
- Site Log Book

Permit documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with Special Condition S5.G.2.b of the CSWGP.

6.1.3 Updating the SWPPP

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.
- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

6.2 Reporting

6.2.1 Discharge Monitoring Reports

Cumulative soil disturbance is one (1) acre or larger; therefore, Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period the DMR will be submitted as required, reporting “No Discharge”. The DMR due date is fifteen (15) days following the end of each calendar month.

DMRs will be reported online through Ecology’s WQWebDMR System.

To sign up for WQWebDMR go to:

<http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html>

6.2.2 Notification of Noncompliance

If any of the terms and conditions of the permit is not met, and the resulting noncompliance may cause a threat to human health or the environment, the following actions will be taken:

1. Ecology will be notified within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (Regional office numbers listed below).
2. Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. If applicable, sampling and analysis of any noncompliance will be repeated immediately and the results submitted to Ecology within five (5) days of becoming aware of the violation.
3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

Specific information to be included in the noncompliance report is found in Special Condition S5.F.3 of the CSWGP.

Anytime turbidity sampling indicates turbidity is 250 NTUs or greater, or water transparency is 6 cm or less, the Ecology Regional office will be notified by phone within 24 hours of analysis as required by Special Condition S5.A of the CSWGP.

- **Central Region** at (509) 575-2490 for Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, or Yakima County
- **Eastern Region** at (509) 329-3400 for Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, or Whitman County
- **Northwest Region** at (425) 649-7000 for Island, King, Kitsap, San Juan, Skagit, Snohomish, or Whatcom County
- **Southwest Region** at (360) 407-6300 for Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, or Wahkiakum

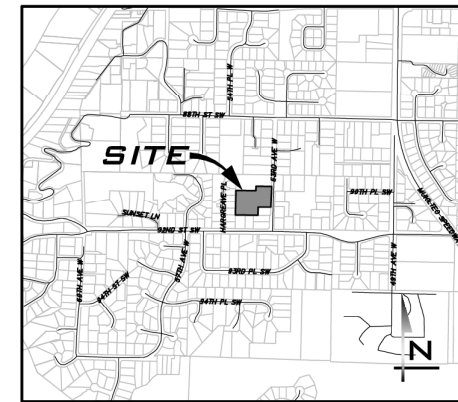
Include the following information:

1. Your name and / Phone number
2. Permit number
3. City / County of project
4. Sample results
5. Date / Time of call
6. Date / Time of sample
7. Project name

In accordance with Special Condition S4.D.5.b of the CSWGP, the Ecology Regional office will be notified if chemical treatment other than CO₂ sparging is planned for adjustment of high pH water.

A. Site Map

HARBOR GROVE CIVIL PLANS



BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425 216 4051 F: 425 216 4052
WWW.THEBLUELINEGROUP.COM

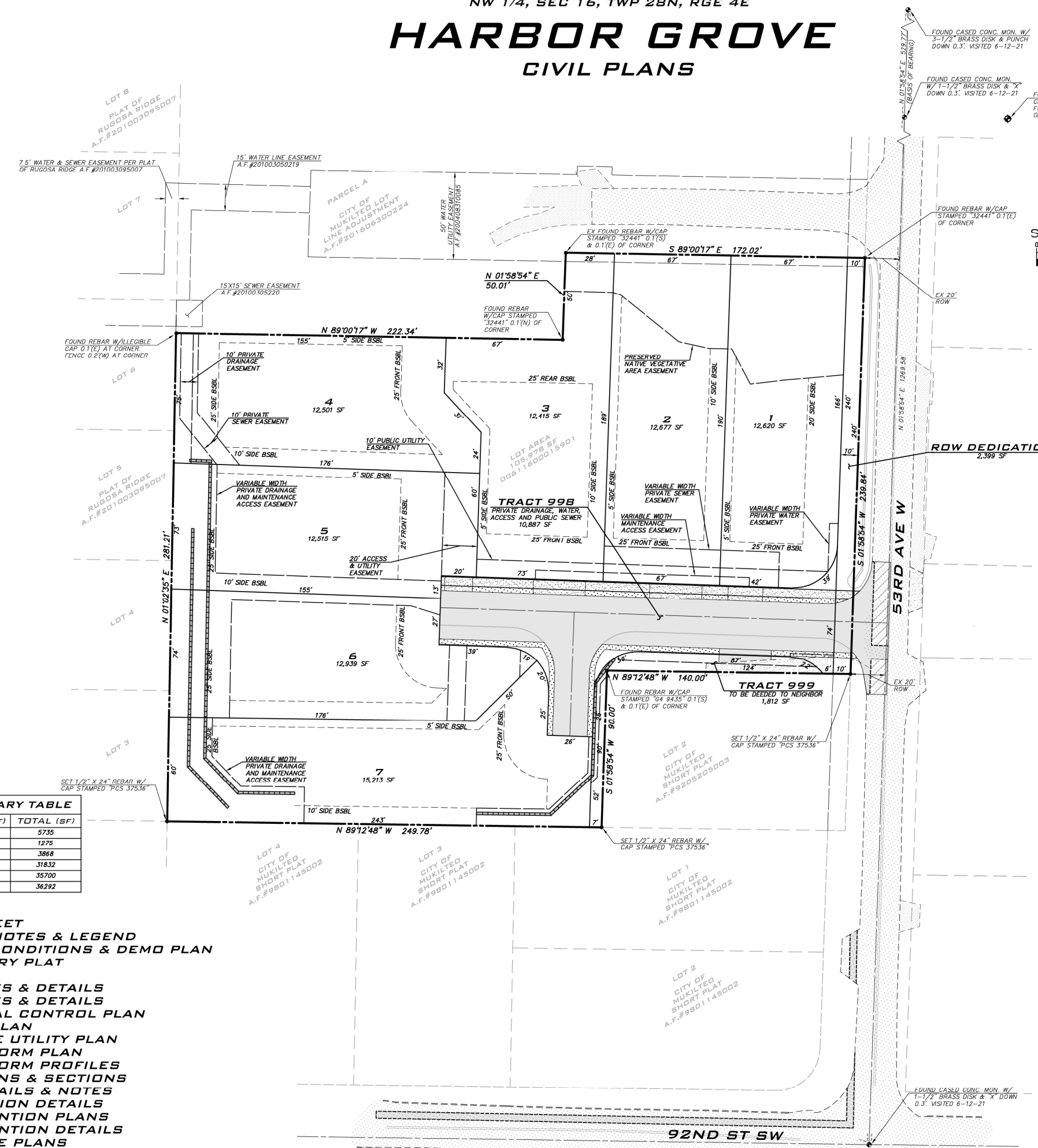
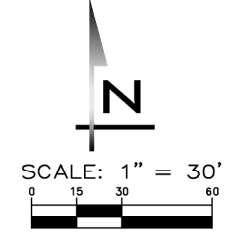
SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLERAN, P.L.A., AICP

PROJECT ENGINEER:
LUCAS ZIOTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21



PROJECT TEAM

OWNER/APPLICANT
SEA-PAC HOME
120 SW EVERETT MALL WAY, STE 100
EVERETT, WA 98204
(425) 626-5353
CONTACT: NATE PERKL

CIVIL ENGINEER
THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 250-7224
CONTACT: TC COLLERAN, AICP, P.L.A.

GEOTECHNICAL ENGINEER
EARTH SOLUTIONS NW LLC
15365 NE 90TH ST, SUITE 100
REDMOND, WA 98052
(425) 449-4704
CONTACT: HENRY WRIGHT, PE

SURVEYOR
PACIFIC COAST SURVEYS, INC.
PO BOX 13619
MILL CREEK, WA 98082
(425) 512-7099
CONTACT: DARREN RIDDLE, PLS

LANDSCAPE ARCHITECT
THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 250-7230
CONTACT: TC COLLERAN, AICP, P.L.A.

UTILITY PURVEYORS

WATER SUPPLY: MUKILTEO WATER AND WASTEWATER DISTRICT
SANITARY SEWER: MUKILTEO WATER AND WASTEWATER DISTRICT
FIRE DISTRICT: MUKILTEO FIRE DISTRICT
SCHOOL DISTRICT: MUKILTEO SCHOOL DISTRICT NO 6

SITE DATA

SITE ADDRESS: 9110 53RD AVE W
MUKILTEO, WA 98275

TAX ACCOUNT NUMBER: 00611600015901

EXISTING ZONING: RD-12.5

GROSS SITE AREA: 2.43 ACRES (105,978 SF)

NEW SITE AREA: 2.38 ACRES (103,587 SF)

NUMBER OF LOTS PROPOSED: 7

MINIMUM LOT SIZE (REQUIRED): 12,500 SF

MAXIMUM LOT WIDTH: 60 FEET

SETBACKS:
FRONT: 25'
CORNER: 20'
SIDE: 5', WITH 15' OF TOTAL SIDE YARD
REAR: 25'

MAXIMUM LOT COVERAGE: 30%
MAXIMUM LOT HARD SURFACE COVERAGE: 55%

LEGAL DESCRIPTION

PARCEL B OF CITY OF MUKILTEO LOT LINE ADJUSTMENT NO. LLA2016-004, RECORDED UNDER RECORDING NO. 201608305002, BEING A PORTION OF LOTS 159 AND 165, WEST & WHEELER'S SEA VIEW 5 ACRE TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 7 OF PLATS, PAGES 12 AND 13, RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

SITUATE IN CITY OF MUKILTEO, COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

VERTICAL DATUM

ORIGINATING BENCHMARK:
FOUND CASED CONC. MON. ON CENTERLINE, 53RD AVE W

VERTICAL DATUM: NAVD 88

ELEVATION: 395.82' (PER GPS OBSERVATIONS)

SURVEY REFERENCES

(R1) CITY OF MUKILTEO SP - A.F.#9205200691
(R2) CITY OF MUKILTEO ROS - A.F.#201606300224

EQUIPMENT & PROCEDURES

METHOD OF SURVEY:
SURVEY PERFORMED BY FIELD TRAVERSE

INSTRUMENTATION:
LEICA 1515 ROBOTIC ELECTRONIC TOTAL STATION

PRECISION:
MEETS OR EXCEEDS STATE STANDARDS WAC 332-130-090

BASIS OF BEARING:
THE MONUMENTED CENTERLINE OF 53RD AVE. W.,
AS THE BEARING OF N 01°58'54" E.

EXISTING UTILITY NOTE

EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

IMPERVIOUS AREA CALCULATIONS

ASSUMED IMPERVIOUS FOR EACH LOT:

LOT 1: 4,038 SF
LOT 2: 4,057 SF
LOT 3: 3,973 SF
LOT 4: 4,000 SF
LOT 5: 4,005 SF
LOT 6: 4,140 SF
LOT 7: 4,868 SF

TOTAL NEW LOT IMPERVIOUS = 29,081 SF

HARD SURFACE AREA SUMMARY TABLE

	PGHS (SF)	NPGHS (SF)	TOTAL (SF)
EXISTING	4,222	1513	5735
REMOVED	760	515	1275
REPLACED	2870	998	3868
NEW	12201	19631	31832
NEW + REPLACED	15071	20629	35700
TOTAL HARD SURFACES	15663	20629	36292

SHEET INDEX

- 1 CV-01 COVER SHEET
- 2 GN-01 GENERAL NOTES & LEGEND
- 3 EC-01 EXISTING CONDITIONS & DEMO PLAN
- 4 SP-01 PRELIMINARY PLAT
- 5 TP-01 TESC PLAN
- 6 TD-01 TESC NOTES & DETAILS
- 7 TD-02 TESC NOTES & DETAILS
- 8 HC-01 HORIZONTAL CONTROL PLAN
- 9 GP-01 GRADING PLAN
- 10 CU-01 COMPOSITE UTILITY PLAN
- 11 RS-01 ROAD & STORM PLAN
- 12 RP-01 ROAD & STORM PROFILES
- 13 VT-01 VAULT PLANS & SECTIONS
- 14 VT-02 VAULT DETAILS & NOTES
- 15 PS-01 PUMP STATION DETAILS
- 16 TR-01 TREE RETENTION PLANS
- 17 TR-02 TREE RETENTION DETAILS
- 18 LS-01 LANDSCAPE PLANS
- 19 LS-02 LANDSCAPE DETAILS
- 20 DT-01 STANDARD DETAILS
- 21 DT-02 STANDARD DETAILS

NO	DATE	BY	REVISIONS
1	8/2/21	LCZ	ISSUING FOR CITY LIST AROUND COMMENTS

COVER SHEET

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

WASHINGTON

SNOHOMISH COUNTY

8/9/22

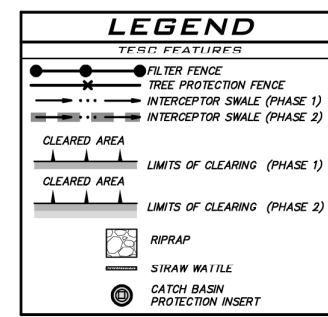
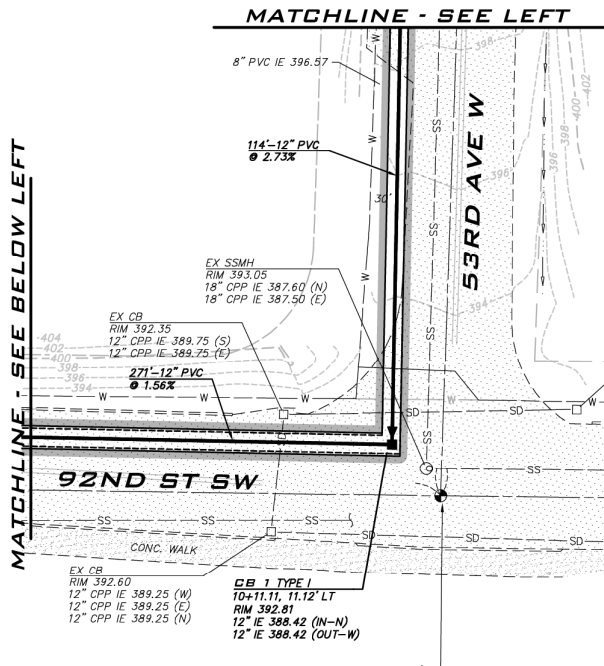
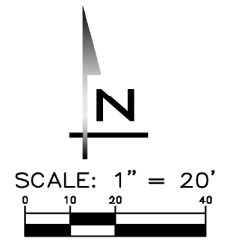
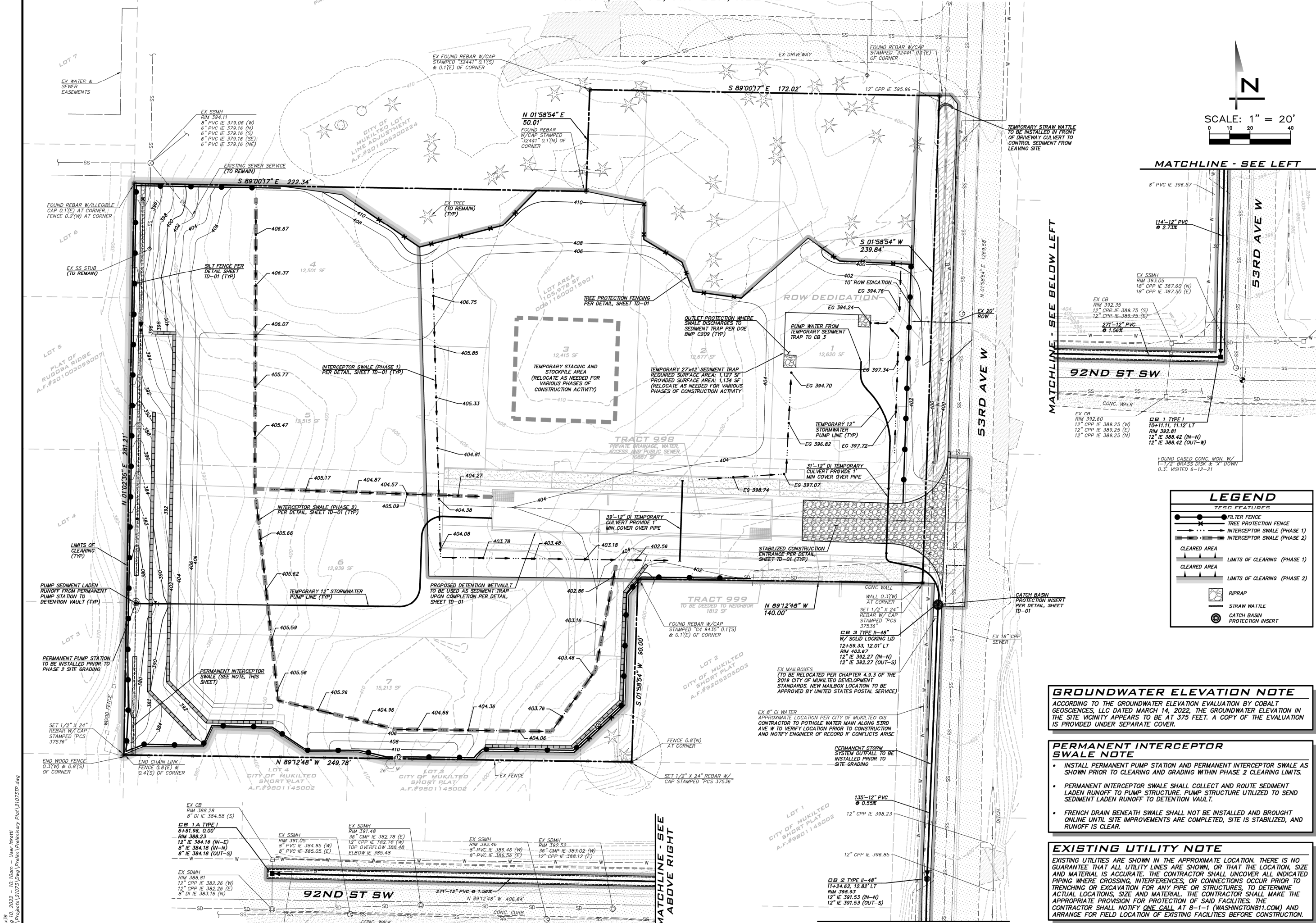
JOB NUMBER:
21-073

SHEET NAME:
CV-01

SHT **1** OF **21**

NO	DATE	BY	LCZ	REVISIONS
1	6/2/21			ISSUING PER CITY LIST AROUND COMMENTS

TESC PLAN
HARBOR GROVE
CIVIL PLANS
 9110 53RD AVE W
 SNOHOMISH COUNTY WASHINGTON



GROUNDWATER ELEVATION NOTE
 ACCORDING TO THE GROUNDWATER ELEVATION EVALUATION BY COBALT GEOSCIENCES, LLC DATED MARCH 14, 2022, THE GROUNDWATER ELEVATION IN THE SITE VICINITY APPEARS TO BE AT 375 FEET. A COPY OF THE EVALUATION IS PROVIDED UNDER SEPARATE COVER.

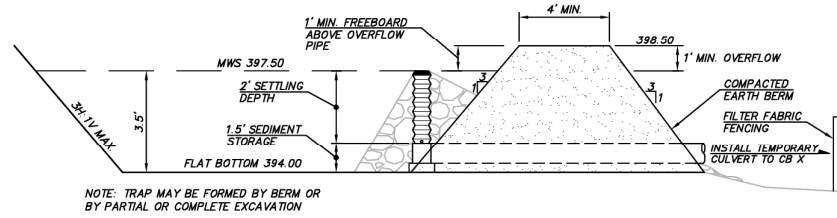
PERMANENT INTERCEPTOR SWALE NOTE

- INSTALL PERMANENT PUMP STATION AND PERMANENT INTERCEPTOR SWALE AS SHOWN PRIOR TO CLEARING AND GRADING WITHIN PHASE 2 CLEARING LIMITS.
- PERMANENT INTERCEPTOR SWALE SHALL COLLECT AND ROUTE SEDIMENT LADEN RUNOFF TO PUMP STRUCTURE. PUMP STRUCTURE UTILIZED TO SEND SEDIMENT LADEN RUNOFF TO DETENTION VAULT.
- FRENCH DRAIN BENEATH SWALE SHALL NOT BE INSTALLED AND BROUGHT ONLINE UNTIL SITE IMPROVEMENTS ARE COMPLETED, SITE IS STABILIZED, AND RUNOFF IS CLEAR.

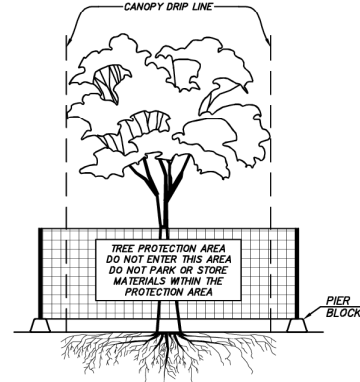
EXISTING UTILITY NOTE
 EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

SITE GRADING AND CONSTRUCTION SWPPP NOTES

- PRIOR TO ANY SITE WORK, INCLUDING CLEARING, LOGGING OR GRADING, THE SITE CLEARING LIMITS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR (OR PROJECT ENGINEER) AS REQUIRED BY THESE PLANS. THE PROJECT SURVEYOR'S NAME AND PHONE NUMBER IS
- SOILS IN MUKILTEO OFTEN CONTAIN FINER PARTICLES WHICH WILL PASS THROUGH SEDIMENT TRAPS UNTREATED AND HAVE EXTREMELY LONG SETTLING TIMES. THEREFORE, THE NEED TO CONTROL EROSION FROM THE SITE IS THE FIRST PRIORITY AND SHOULD BE EMPHASIZED.
- THE CONSTRUCTION STORMWATER POLLUTION PREVENTION FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED SWPPP PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING. AN INSPECTION BY THE CITY OF THESE FACILITIES SHALL BE ARRANGED FOR BY THE CONTRACTOR PRIOR TO ANY GRADING. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.
- STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED BY TEMPORARY SEEDING AND MULCHING. HYDROSEEDING IS PREFERRED.
- THE DEVELOPER (OR PROJECT ENGINEER) IS RESPONSIBLE FOR WATER QUALITY AS DETERMINED BY THE MONITORING PROGRAM ESTABLISHED BY THE PROJECT ENGINEER. THE PROJECT ENGINEER'S NAME AND PHONE NUMBER IS
- IF THE PROJECT WILL DISTURB MORE THAN ONE (1) ACRE OF LAND, THEN A CONSTRUCTION NPDES PERMIT IS REQUIRED AND A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) SHALL BE ASSIGNED TO THE SITE. THE CESCL'S NAME, PHONE NUMBER, AND CESCL CERTIFICATE NUMBER IS
- ALL SITE WORK MUST BE PERFORMED IN ACCORDANCE WITH THE CURRENT CITY ADOPTED INTERNATIONAL BUILDING CODE.
- ALL EARTH WORK SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARDS. A PRECONSTRUCTION SOILS INVESTIGATION MAY BE REQUIRED TO EVALUATE SOILS STABILITY.
- IF CUT AND FILL SLOPES EXCEED A MAXIMUM OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL, A ROCK OR CONCRETE RETAINING WALL MAY BE REQUIRED. ALL ROCK RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT ARE TO BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER EXPERIENCED IN SOIL MECHANICS.
- THE SURFACE OF ALL SLOPES SHALL BE COMPACTED. THIS MAY BE ACCOMPLISHED BY OVER-BUILDING THE SLOPES, THEN CUTTING BACK TO FINAL GRADES; OR BY COMPACTING EACH LAY AS THE SLOPE IS BEING CONSTRUCTED. ALL SLOPES SHALL BE COMPACTED BY THE END OF EACH WORKING DAY.
- ALL STRUCTURAL FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY IN THE UPPER 4 FEET & 60% MAXIMUM DENSITY BELOW 4 FEET AS DETERMINED BY MODIFIED PROCTOR.
- NONCOMPLIANCE WITH THE EROSION CONTROL REQUIREMENTS, WATER QUALITY REQUIREMENTS AND CLEARING LIMITS VIOLATIONS MAY RESULT IN REVOCATION OF PROJECT PERMITS AND PLAN APPROVAL AND BOND FORECLOSURES.
- UPON COMPLETION OF WORK, FINAL REPORTS MUST BE SUBMITTED TO THE CITY IN CONFORMANCE WITH THE CURRENT CITY ADOPTED INTERNATIONAL BUILDING CODE.
- A WET WEATHER EROSION CONTROL PLAN MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL ON OR BEFORE SEPTEMBER 1. IF THE PROJECT IS PROPOSING TO ACTIVELY CLEAR, GRADE, OR OTHERWISE DISTURB 1,000 SQUARE FEET OR MORE OF SOIL DURING THE PERIOD BETWEEN OCTOBER 1 AND APRIL 3 OTHER THRESHOLDS FOR A WET WEATHER EROSION CONTROL PLAN INCLUDE PROJECTS THAT:
 - HAVE AREA(S) THAT DRAIN, BY PIPE, OPEN DITCH, SHEET FLOW, OR A COMBINATION OF THESE TO A TRIBUTARY WATER, AND THE TRIBUTARY WATER IS ONE-QUARTER MILE OR LESS DOWNSTREAM; OR
 - HAVE SLOPES STEEPER THAN 15 PERCENT ADJACENT OR ON-SITE; OR
 - HAVE HIGH POTENTIAL FOR SEDIMENT TRANSPORT, AS DETERMINED BY THE CONSTRUCTION SITE SEDIMENT TRANSPORT POTENTIAL WORKSHEET; OR
 - HAVE A CRITICAL AREA OR CRITICAL AREA BUFFER ON-SITE, OR WITHIN 50 FEET OF THE SITE; OR
 - HAVE HIGH GROUNDWATER TABLE OR SPRINGS.



TEMPORARY SEDIMENT TRAP
NOT TO SCALE



NOTES:

- PLACE TREE PROTECTION FENCES AROUND EACH TREE OR GROUP OF TREES TO BE RETAINED. PLACE FOUR TO SIX-FOOT HIGH TEMPORARY CHAIN LINK OR POLYETHYLENE LAMINAR FENCING FIVE FEET (IF POSSIBLE) OUTSIDE THE DRIP LINE(S) OF THE TREE OR GROUP OF TREES. INSTALL FENCE POSTS USING PIER BLOCKS ONLY. AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS.
- INSTALL TREE PROTECTION FENCES PRIOR TO BEGINNING CONSTRUCTION
 - WORK WITHIN THE PROTECTION FENCING SHOULD BE DONE MANUALLY. DO NOT STOCKPILE CONSTRUCTION MATERIALS, SUPPLIES, SOILS OR DEBRIS WITHIN THE TREE PROTECTION FENCES. NOR ALLOW VEHICLE PARKING OR EQUIPMENT STORAGE.
 - CEMENT TRUCKS MUST NOT BE ALLOWED TO DEPOSIT WASTE OR WASH OUT MATERIALS FROM THEIR TRUCKS WITHIN THE TREE PROTECTION FENCES.
 - THE AREA WITHIN THE TREE PROTECTION FENCING SHOULD BE MULCHED WITH WOOD CHIPS, HOG FUEL, OR SIMILAR MATERIALS TO A DEPTH OF 8 TO 10 INCHES. THE MATERIALS SHOULD BE PLACED PRIOR TO BEGINNING OF CONSTRUCTION AND REMAIN UNTIL THE FENCING IS TAKEN DOWN.
 - THE TREE PROTECTION FENCES NEED TO BE CLEARLY MARKED AS "TREE PROTECTION AREAS" WITH FOUR-INCH OR LARGER LETTERS.

TREE PROTECTION FENCE
NOT TO SCALE

TEMPORARY SEEDING GENERAL NOTES

- USE SEEDING THROUGHOUT THE PROJECT ON DISTURBED AREAS THAT HAVE REACHED FINAL GRADE OR THAT WILL REMAIN UNWORKED FOR MORE THAN 30 DAYS.
- THE OPTIMUM SEEDING WINDOWS ARE APRIL 1 THROUGH JUNE 30 AND SEPTEMBER 1 THROUGH OCTOBER 1.
- BETWEEN OCTOBER 1 AND MARCH 30 SEEDING REQUIRES A COVER OF MULCH WITH STRAW OR AN EROSION CONTROL BLANKET UNTIL 75 PERCENT GRASS COVER IS ESTABLISHED.
- REVIEW ALL DISTURBED AREAS IN LATE AUGUST TO EARLY SEPTEMBER AND COMPLETE ALL SEEDING BY THE END OF SEPTEMBER.
 - MULCH IS REQUIRED AT ALL TIMES FOR SEEDING. MULCH CAN BE APPLIED ON TOP OF THE SEED OR SIMULTANEOUSLY BY HYDROSEEDING (SEE ECOLOGY BMP C121 MULCHING FOR SPECIFICATIONS).
 - SEED AND MULCH ALL DISTURBED AREAS NOT OTHERWISE VEGETATED AT FINAL SITE STABILIZATION.

MAINTENANCE OF SILTATION BARRIERS

- SILTATION BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED EROSION CONTROL ELEMENTS, ESPECIALLY END-RUNS AND SEDIMENT BUILD-UP. NECESSARY REPAIRS TO BARRIERS SHALL BE ACCOMPLISHED THE SAME DAY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THE SEDIMENT LEVEL REACHES APPROXIMATELY ONE-HALF THE SILTATION BARRIER HEIGHT.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE CHECK DAM IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDDED.

SEDIMENT TRAP GENERAL NOTES

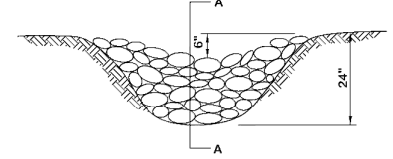
- SEDIMENT TRAPS ARE ONLY EFFECTIVE IN REMOVING SEDIMENT DOWN TO ABOUT THE MEDIUM SILT SIZE FRACTION. SOILS IN MUKILTEO OFTEN CONTAIN FINE SILT AND MAY NOT BE ADEQUATELY TREATED WITH SEDIMENT PONDS. THEREFORE, EROSION CONTROL PRACTICES SHOULD BE EMPHASIZED AND PRIORITIZED.
- THE POND SHALL BE CHECKED AFTER EACH RAIN EVENT, OR WEEKLY, WHICHEVER IS SOONER, TO INSURE THAT IT THE WALLS ARE STRUCTURALLY SOUND, THE POND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT, AND TO DETERMINE MAINTENANCE NEEDS.
- ANY DAMAGE TO THE POND EMBANKMENTS OR SLOPES SHALL BE REPAIRED IMMEDIATELY.
- THE EMERGENCY SPILLWAY SHOULD BE CHECKED REGULARLY TO INSURE THAT THE LINING IS WELL ESTABLISHED AND EROSION RESISTANT. THE SILTATION BASIN SHOULD BE CHECKED FOR SEDIMENT CLEANOUT AFTER EACH RAINFALL WHICH PRODUCES RUNOFF.
- WHEN THE SEDIMENT REACHES THE CLEANOUT LEVEL (TYPICALLY 1-FOOT IN DEPTH), IT SHALL BE REMOVED AND PROPERLY DISPOSED OF OFF-SITE.
- SECONDARY TREATMENT MAY BE NECESSARY IF THE SEDIMENT POND CANNOT EFFECTIVELY REMOVE THE FINE GRAIN SOILS.

SOURCE CONTROL BMP'S

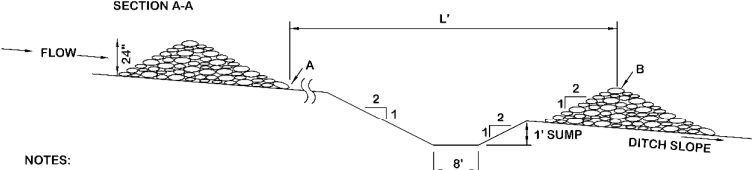
- VEHICLE/EQUIPMENT WASHING & STEAM CLEANING (BMP S1.20) - NO WASHING OF VEHICLES ON SITE (BMP S1.10)
- EMERGENCY SPILL CLEANUP PLANS (BMP S1.80) - NO CHANGE VEHICLE OIL OR OTHER VEHICLE MAINTENANCE ON SITE.
- VEGETATION MANAGEMENT/INTEGRATED PEST MANAGEMENT (BMP S1.90) - CERTIFIED PROFESSIONAL IS TO MANAGE PEST CONTROL.
- MAINTENANCE OF STORM DRAINAGE FACILITIES (BMP S2.00) - CLEAN GRATE, ETC.
- STREET SWEEPING (BMP S20.20) - KEEP STREETS CLEAN & FREE OF DEBRIS.

CONSTRUCTION SEQUENCE

- PRIOR TO CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SCHEDULE AND ATTEND PRE-CONSTRUCTION CONCERENCE WITH THE CITY OF MUKILTEO INSPECTION UNIT AND EROSION CONTROL SPECIALIST.
- FLAG CLEARING LIMITS AND INSTALL SILT FENCE AS SHOWN.
- INSTALL ROCK CONSTRUCTION ENTRANCES.
- INSTALL PERMANENT STORMWATER OUTFALL ALONG 53RD AVE W AND 92ND ST SW
- CONSTRUCT TEMPORARY SEDIMENT TRAP AND INSTALL TEMPORARY INTERCEPTOR SWALES (PHASE 1) TO DIRECT SURFACE FLOW TO SEDIMENT TRAP AS SHOWN ON TESC PLAN.
- CLEAR AND GRUB ROAD AREAS AND STOCKPILE AREAS (PHASE 1 LIMITS OF CLEARING) CONSTRUCT DETENTION VAULT AND USE AS SEDIMENT STORAGE. INSTALL PHASE 2 EROSION CONTROL BMP'S SUCH AS INTERCEPTOR SWALES, ETC. AND DIRECT RUNOFF TO THE VAULT.
- INSTALL PERMANENT INTERCEPTOR SWALE RUNNING PARALLEL ALONG WEST PARCEL BOUNDARY AND PERMANENT PUMP STATION.
- CLEAR AND GRUB REMAINING AREAS WITHIN PHASE 2 CLEARING LIMITS DELINEATED ON THE TESC PLAN.
- GRADE AND STABILIZE ROAD AND GRAVEL BASE. COVER EXPOSED SOILS WITH MULCH, HOG FUEL OR HYDROSEED.
- CONSTRUCT SEWER, WATER AND STORM UTILITIES. INSTALL GAS, POWER, TELEPHONE AND CABLE UTILITIES AS REQUIRED.
- PLACE AND POUR CURBS AND GUTTERS.
- PAVE ROADS WITH ATB AND PLACE DETENTION SYSTEM INTO FULL OPERATION.
- HYDROSEED REMAINING EXPOSED SOILS AND STABILIZE PROJECT.
- FLUSH STORM DRAINAGE SYSTEM AND REMOVED SEDIMENTATION IN ALL CATCH BASINS AND THE VAULT.
- STABILIZE ALL DISTURBED AREAS AND REMOVE ALL T.E.S.C. MEASURES.



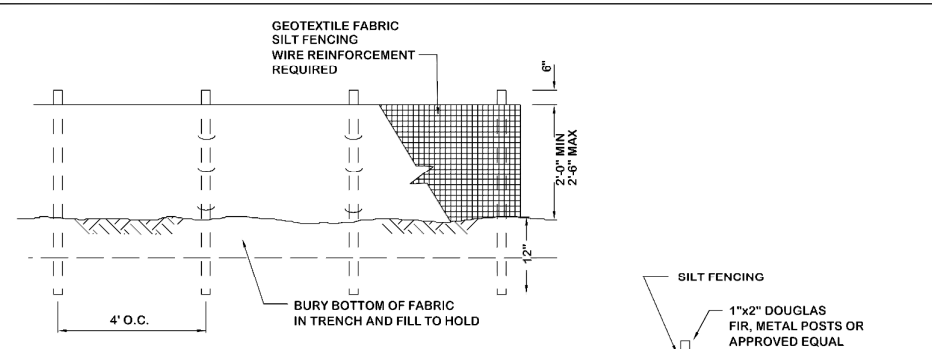
ROCK CHECK DAM
NTS



NOTES:

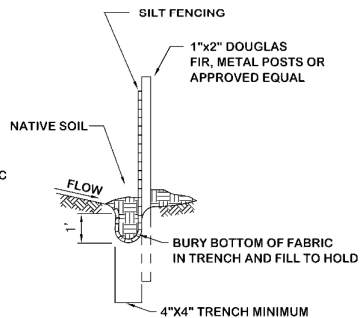
- THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.
- CONSTRUCT ROCK DAMS FROM ROCK LARGE ENOUGH TO STAY IN PLACE GIVEN EXPECTED FLOW. PLACE ROCK BY HAND OR MECHANICAL MEANS.

	REVISION DATE	APPROVED FOR PUBLICATION	ROCK CHECK DAMS
	11/18/2016 DATE	11/22/2016 DATE	



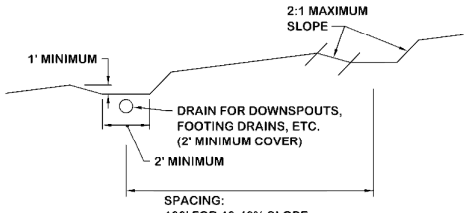
NOTES:

- SEE BMP C233 OF THE ECOLOGY MANUAL FOR FABRIC SPECIFICATIONS.
- MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH = 100' TO FENCE.
- NO FLOWS GREATER THAN 0.5 CFS.
- PREFAB FENCE ALLOWED IF REINFORCED AND APPROVED BY CITY INSPECTOR.
- JOINTS IN FILTER FABRIC SHALL BE OVERLAPPED 6" AT POST.
- USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO FENCE.



SILT FENCE DETAIL

	REVISION DATE	APPROVED FOR PUBLICATION	SILT FENCE DETAIL
	11/18/2016 DATE	11/22/2016 DATE	



SPACING:
100' FOR 10-40% SLOPE
200' FOR 5-10% SLOPE
300' FOR LESS THAN 5% SLOPE

MAINTENANCE STANDARDS:

- DAMAGE RESULTING FROM RUNOFF OR CONSTRUCTION ACTIVITY SHALL BE REPAIRED IMMEDIATELY
- IF THE FACILITIES DO NOT REGULARLY RETAIN STORM RUNOFF, THE CAPACITY AND/OR FREQUENCY OF THE DIKES/ SWALES SHALL BE INCREASED
- MAINTENANCE TO BE PERFORMED BY PROPERTY OWNER
- INSPECT DIVERSION DIKES AND INTERCEPTOR SWALES ONCE A WEEK AFTER EVERY RAINFALL.

	REVISION DATE	APPROVED FOR PUBLICATION	INTERCEPTOR SWALE DETAIL
	11/18/2016 DATE	11/22/2016 DATE	

BLUELINE
25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED
PROJECT MANAGER:
T.C. COLLERAN, P.L.A., AICP
PROJECT ENGINEER:
LUCAS ZIROTTI
DESIGNER:
LEE M. TOMKINS
ISSUE DATE:
7/29/21

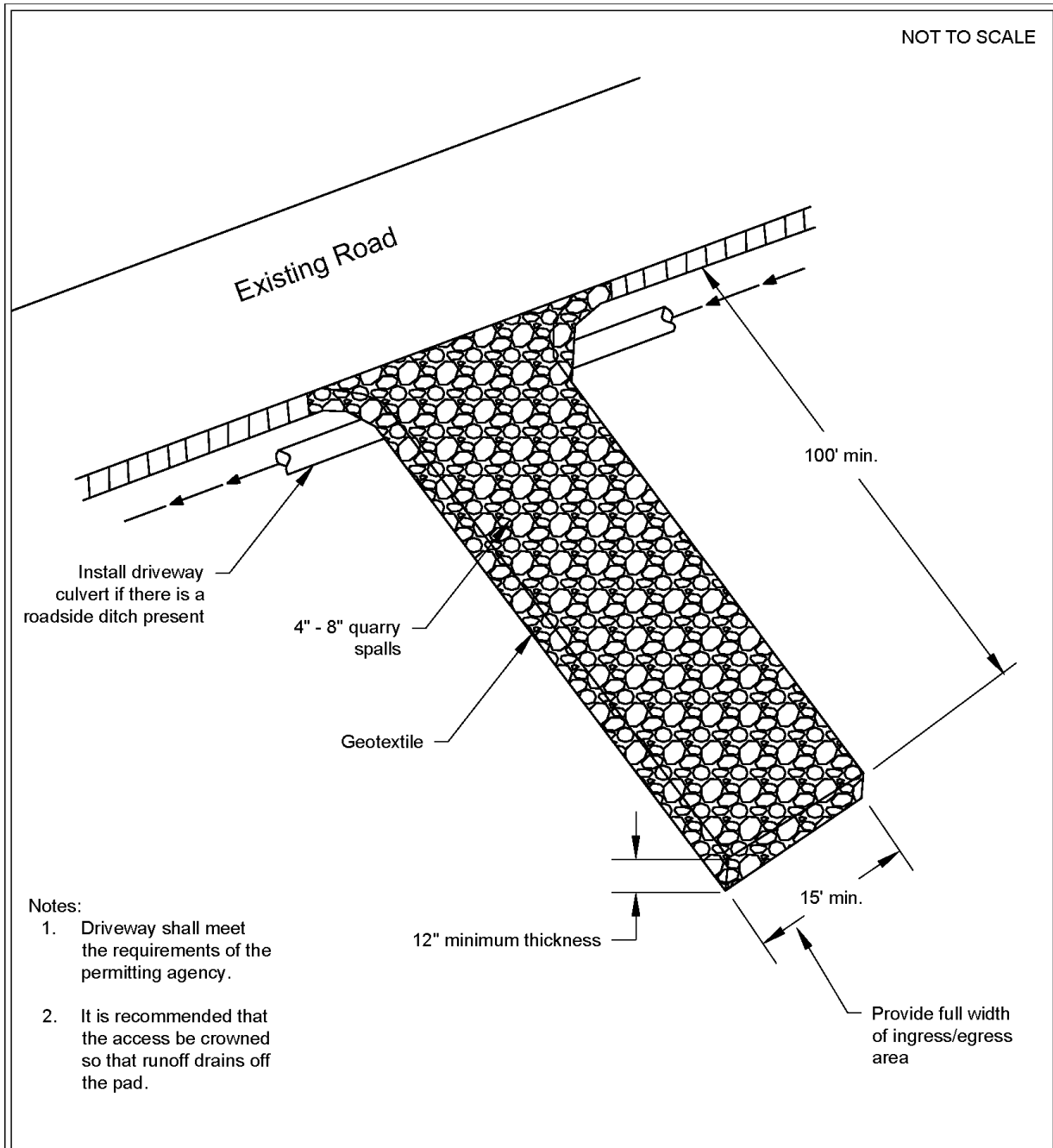
NO	DATE	BY	REVISIONS
1	8/9/21	LCZ	REVISION FOR CITY LIST DRAWING COMMENTS

TESC NOTES & DETAILS
HARBOR GROVE
CIVIL PLANS
9110 53RD AVE W
SNOHOMISH COUNTY WASHINGTON

8/9/22
JOB NUMBER:
21-073
SHEET NAME:
TD-01
SHT **6** OF **21**

B. BMP Detail

Figure II-3.1: Stabilized Construction Access

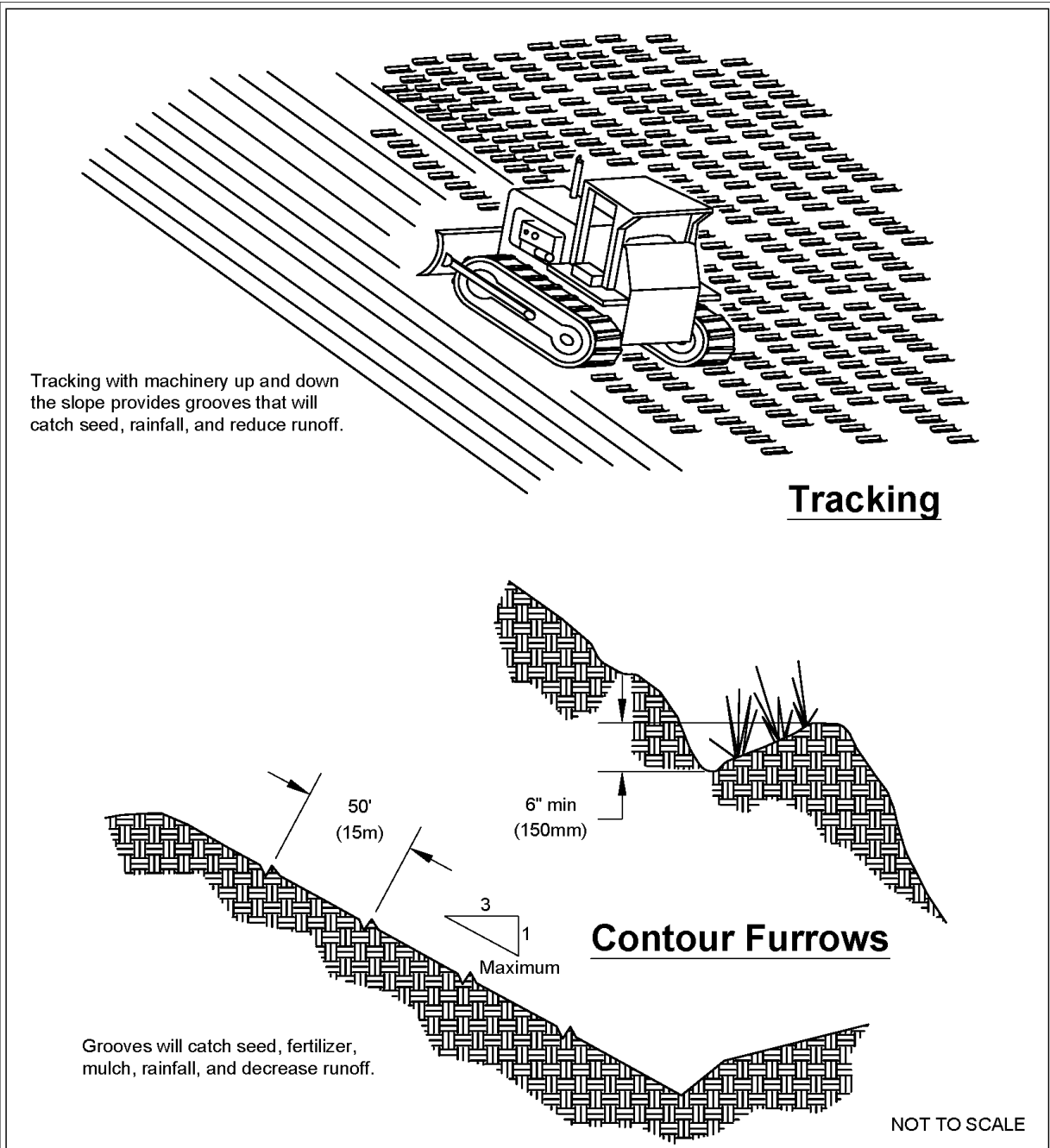


Stabilized Construction Access

Revised June 2018

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

Figure II-3.5: Surface Roughening by Tracking and Contour Furrows



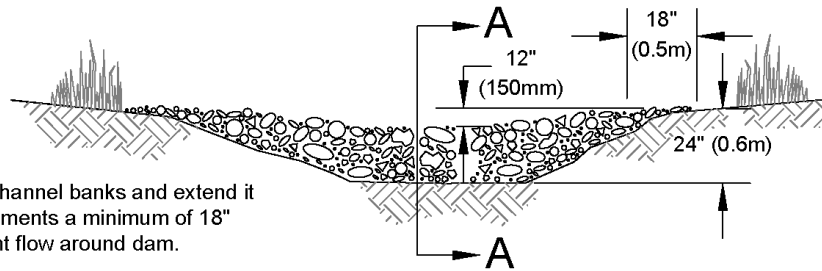
Surface Roughening by Tracking
and Contour Furrows

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

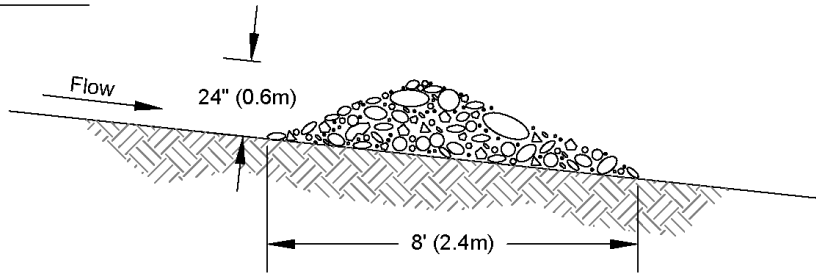
Figure II-3.16: Rock Check Dam

View Looking Upstream

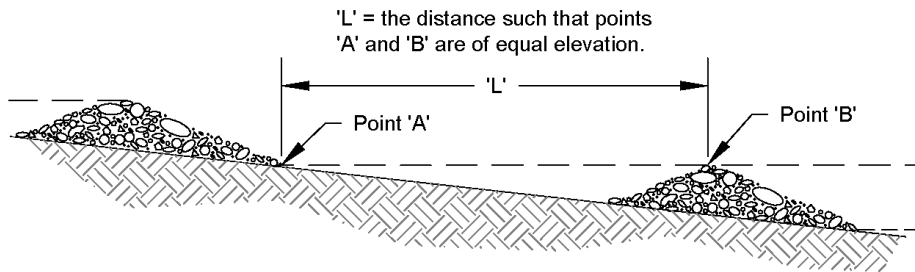


Note:
Key stone into channel banks and extend it beyond the abutments a minimum of 18" (0.5m) to prevent flow around dam.

Section A-A



Spacing Between Check Dams



NOT TO SCALE

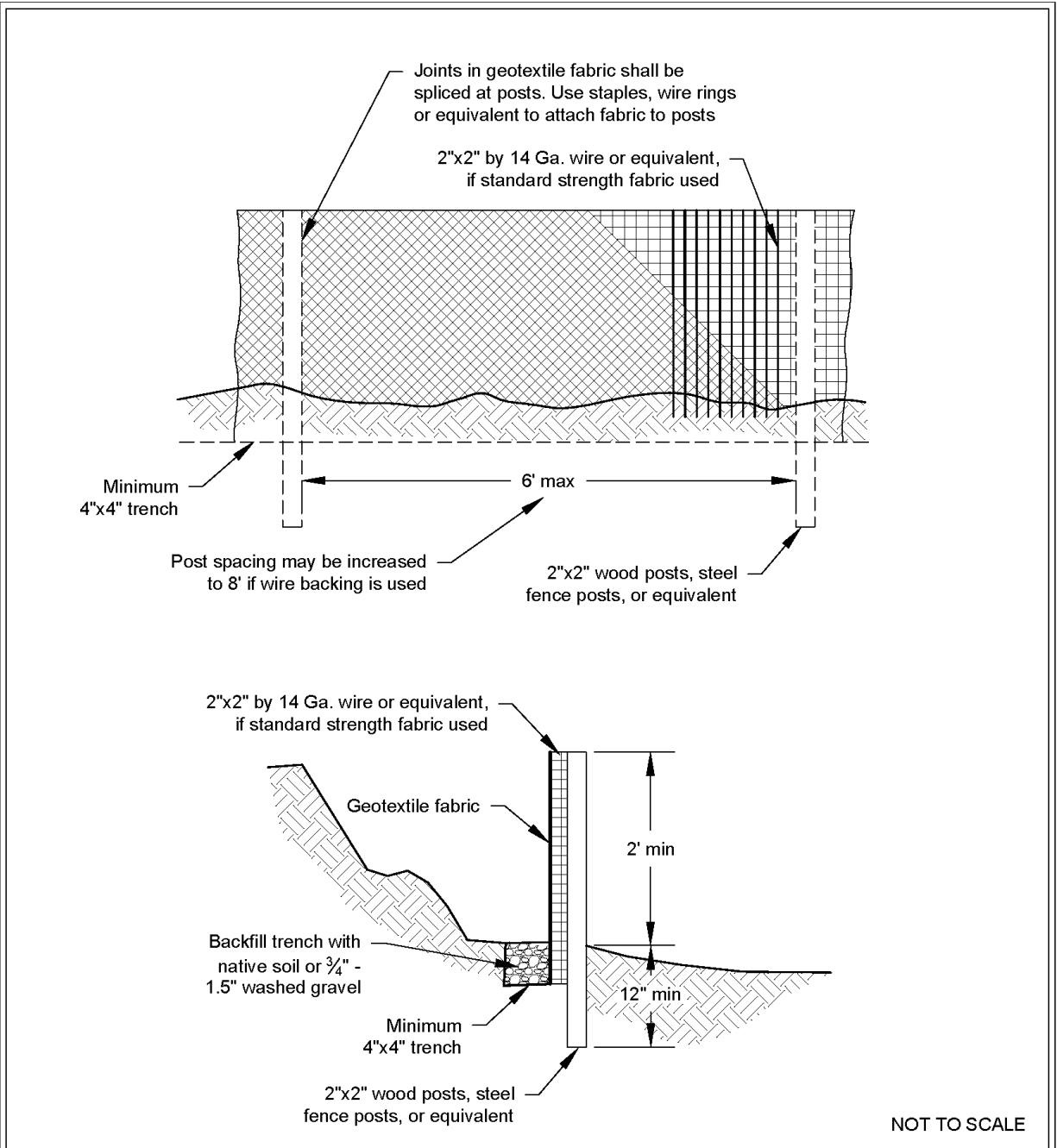


Rock Check Dam

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

Figure II-3.22: Silt Fence

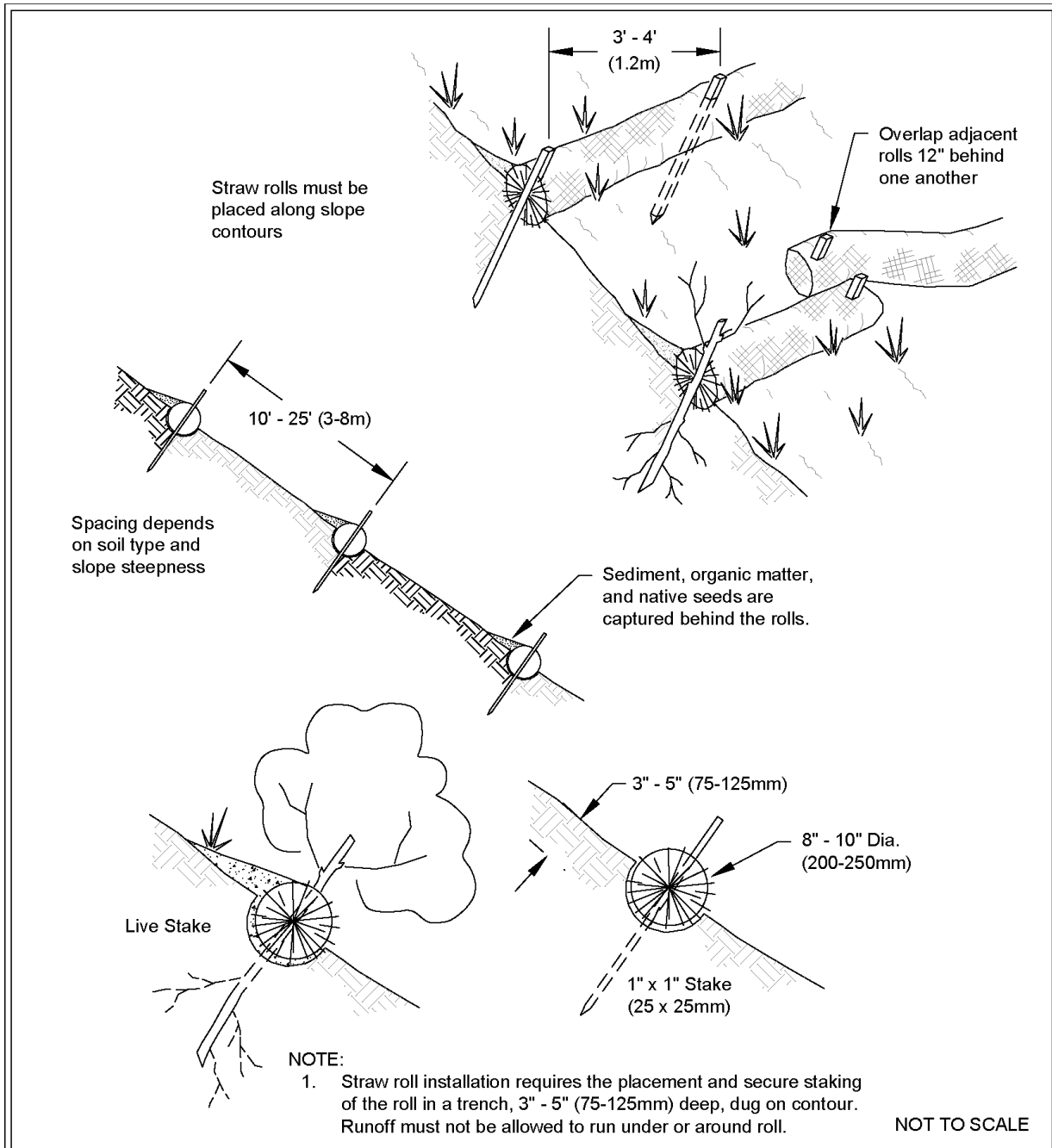


Silt Fence

Revised July 2017

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

Figure II-3.24: Wattles

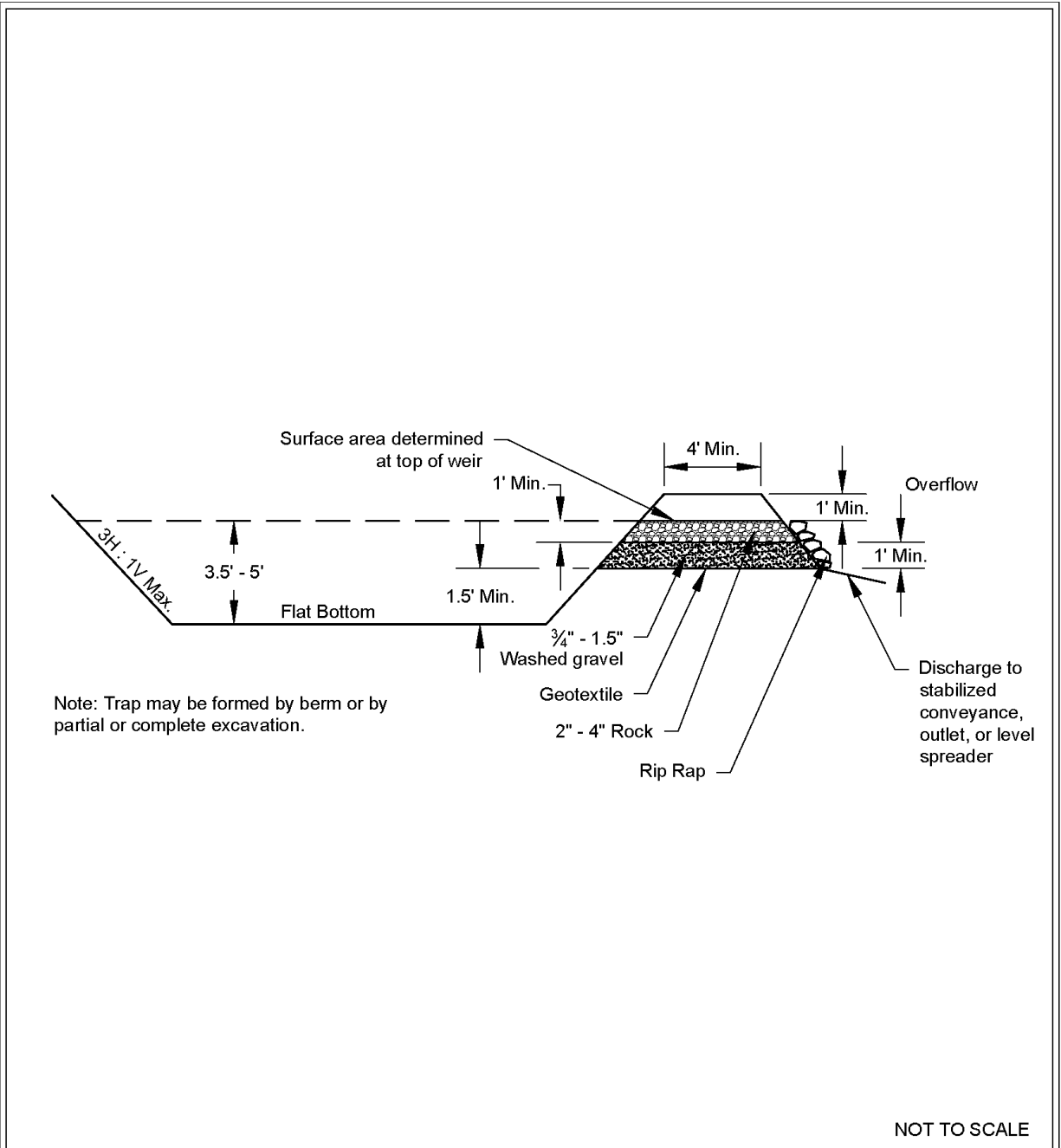


Wattles

Revised December 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

Figure II-3.26: Cross Section of Sediment Trap

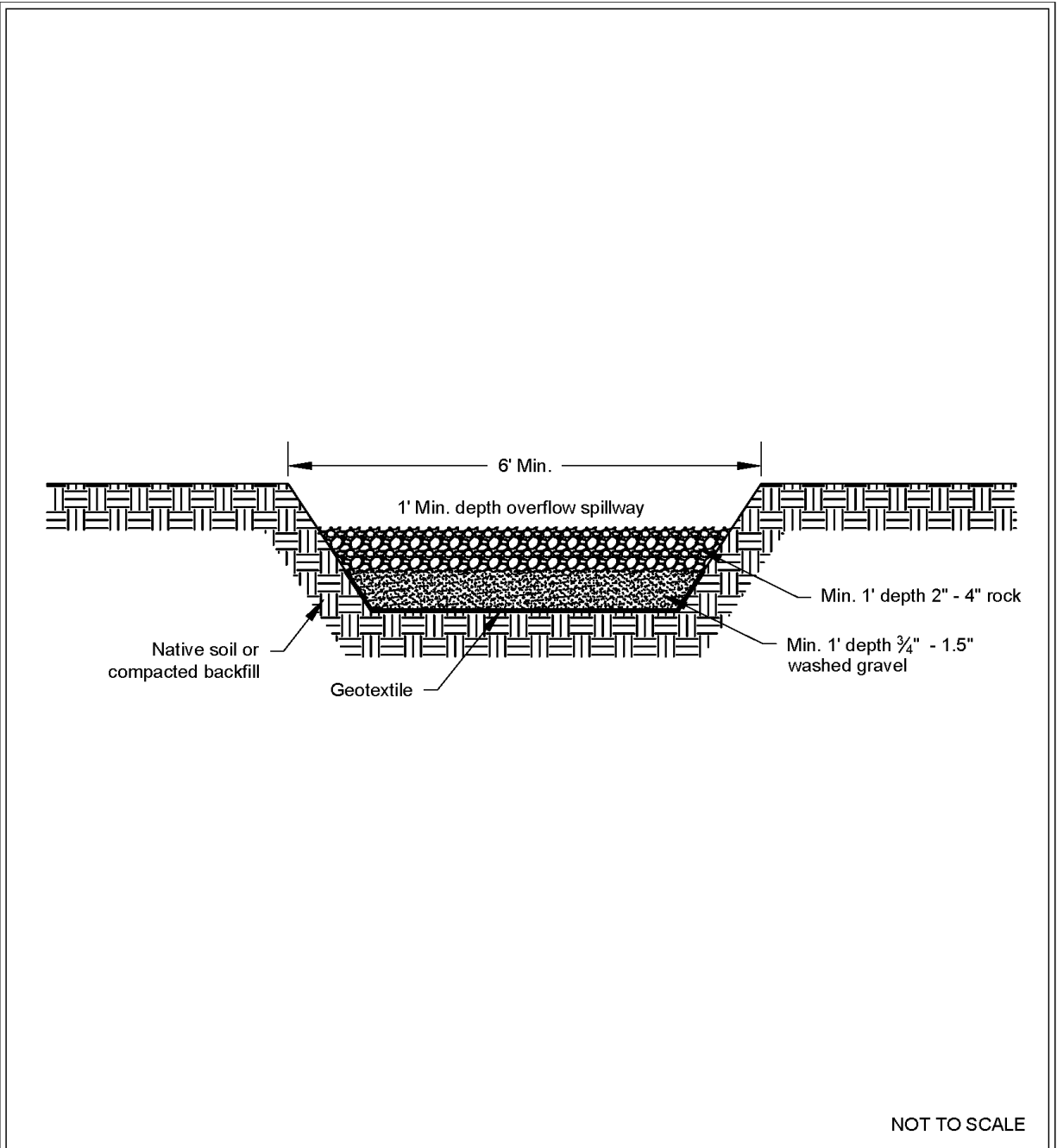


Cross Section of Sediment Trap

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

Figure II-3.27: Sediment Trap Outlet



Sediment Trap Outlet

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

C. Correspondence

D. Site Inspection Form

Construction Stormwater Site Inspection Form

Project Name _____ **Permit #** _____ **Inspection Date** _____ **Time** _____

Name of Certified Erosion Sediment Control Lead (CESCL) or qualified inspector if *less than one acre*
 Print Name: _____

Approximate rainfall amount since the last inspection (in inches): _____

Approximate rainfall amount in the last 24 hours (in inches): _____

Current Weather Clear Cloudy Mist Rain Wind Fog

A. Type of inspection: Weekly Post Storm Event Other

B. Phase of Active Construction (check all that apply):

Pre Construction/installation of erosion/sediment controls	<input type="checkbox"/>	Clearing/Demo/Grading	<input type="checkbox"/>	Infrastructure/storm/roads	<input type="checkbox"/>
Concrete pours	<input type="checkbox"/>	Vertical Construction/buildings	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Offsite improvements	<input type="checkbox"/>	Site temporary stabilized	<input type="checkbox"/>	Final stabilization	<input type="checkbox"/>

C. Questions:

- | | | | |
|--|-----|----|--|
| 1. Were all areas of construction and discharge points inspected? | Yes | No | |
| 2. Did you observe the presence of suspended sediment, turbidity, discoloration, or oil sheen | Yes | No | |
| 3. Was a water quality sample taken during inspection? (<i>refer to permit conditions S4 & S5</i>) | Yes | No | |
| 4. Was there a turbid discharge 250 NTU or greater, or Transparency 6 cm or less?* | Yes | No | |
| 5. If yes to #4 was it reported to Ecology? | Yes | No | |
| 6. Is pH sampling required? pH range required is 6.5 to 8.5. | Yes | No | |

If answering yes to a discharge, describe the event. Include when, where, and why it happened; what action was taken, and when.

*If answering yes to # 4 record NTU/Transparency with continual sampling daily until turbidity is 25 NTU or less/ transparency is 33 cm or greater.

Sampling Results: _____ Date: _____

Parameter	Method (circle one)	Result			Other/Note
		NTU	cm	pH	
Turbidity	tube, meter, laboratory				
pH	Paper, kit, meter				

Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required" details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✓

All in place BMPs All disturbed soils All concrete wash out area All material storage areas
 All discharge locations All equipment storage areas All construction entrances/exits

Construction Stormwater Site Inspection Form

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

E. Construction Stormwater General Permit (CSWGP)

General Permit is in progress

F. 303(d) List Waterbodies / TMDL Waterbodies Information

G. Contaminated Site Information

H. Engineering Calculations

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 21073 Sediment Trap
Site Name:
Site Address:
City:
Report Date: 8/10/2022
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 0.800
Version Date: 2021/08/18
Version: 4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Forest, Mod	acre 2.19
Pervious Total	2.19
Impervious Land Use	acre
Impervious Total	0
Basin Total	2.19

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Pasture, Mod	acre 1.24
Pervious Total	1.24
Impervious Land Use ROADS MOD ROOF TOPS FLAT	acre 0.36 0.59
Impervious Total	0.95
Basin Total	2.19

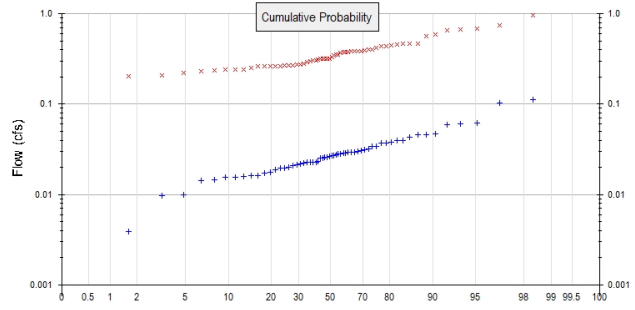
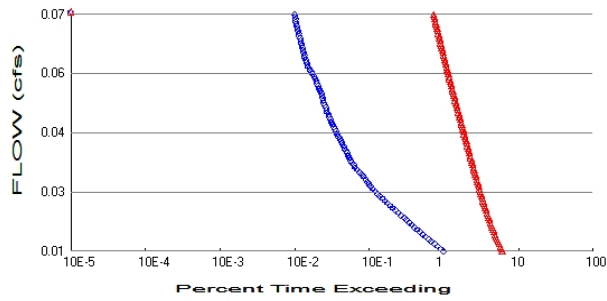
Element Flows To:		
Surface	Interflow	Groundwater

Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 2.19
 Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 1.24
 Total Impervious Area: 0.95

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.026966
5 year	0.042174
10 year	0.051641
25 year	0.062673
50 year	0.070194
100 year	0.077145

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.335536
5 year	0.454721
10 year	0.541987
25 year	0.662132
50 year	0.759062
100 year	0.862577

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.004	0.322
1950	0.034	0.406
1951	0.025	0.385
1952	0.019	0.313
1953	0.015	0.399
1954	0.047	0.568
1955	0.046	0.386
1956	0.037	0.180
1957	0.043	0.320
1958	0.029	0.748

1959	0.028	0.303
1960	0.026	0.296
1961	0.029	0.953
1962	0.018	0.378
1963	0.023	0.437
1964	0.025	0.237
1965	0.027	0.262
1966	0.014	0.264
1967	0.038	0.655
1968	0.037	0.345
1969	0.020	0.679
1970	0.021	0.266
1971	0.031	0.367
1972	0.029	0.466
1973	0.016	0.382
1974	0.032	0.469
1975	0.022	0.376
1976	0.021	0.261
1977	0.010	0.264
1978	0.020	0.208
1979	0.039	0.438
1980	0.023	0.267
1981	0.020	0.264
1982	0.030	0.275
1983	0.028	0.356
1984	0.026	0.316
1985	0.040	0.457
1986	0.102	0.467
1987	0.034	0.389
1988	0.023	0.319
1989	0.016	0.330
1990	0.029	0.243
1991	0.031	0.302
1992	0.023	0.318
1993	0.015	0.242
1994	0.010	0.251
1995	0.027	0.239
1996	0.061	0.356
1997	0.111	0.445
1998	0.015	0.421
1999	0.029	0.204
2000	0.016	0.677
2001	0.003	0.233
2002	0.027	0.220
2003	0.017	0.294
2004	0.026	0.593
2005	0.022	0.271
2006	0.061	0.391
2007	0.046	0.377
2008	0.060	0.278
2009	0.023	0.275

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.1112	0.9528
2	0.1023	0.7478
3	0.0613	0.6788

4	0.0609	0.6766
5	0.0599	0.6547
6	0.0467	0.5930
7	0.0461	0.5685
8	0.0460	0.4687
9	0.0427	0.4668
10	0.0395	0.4659
11	0.0393	0.4572
12	0.0382	0.4447
13	0.0373	0.4377
14	0.0373	0.4371
15	0.0342	0.4206
16	0.0340	0.4063
17	0.0319	0.3995
18	0.0315	0.3905
19	0.0307	0.3892
20	0.0298	0.3865
21	0.0294	0.3850
22	0.0293	0.3820
23	0.0293	0.3782
24	0.0286	0.3770
25	0.0286	0.3757
26	0.0283	0.3671
27	0.0282	0.3564
28	0.0274	0.3561
29	0.0269	0.3455
30	0.0268	0.3296
31	0.0263	0.3216
32	0.0258	0.3202
33	0.0258	0.3189
34	0.0254	0.3176
35	0.0254	0.3157
36	0.0230	0.3127
37	0.0229	0.3035
38	0.0227	0.3019
39	0.0227	0.2957
40	0.0226	0.2940
41	0.0223	0.2779
42	0.0217	0.2750
43	0.0214	0.2749
44	0.0209	0.2713
45	0.0202	0.2671
46	0.0197	0.2663
47	0.0196	0.2643
48	0.0188	0.2642
49	0.0175	0.2635
50	0.0172	0.2622
51	0.0163	0.2613
52	0.0160	0.2509
53	0.0159	0.2429
54	0.0154	0.2422
55	0.0154	0.2390
56	0.0146	0.2372
57	0.0142	0.2330
58	0.0099	0.2204
59	0.0097	0.2077
60	0.0039	0.2039
61	0.0034	0.1805

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0135	21079	129552	614	Fail
0.0141	19239	125317	651	Fail
0.0146	17547	121253	691	Fail
0.0152	15954	117168	734	Fail
0.0158	14506	113532	782	Fail
0.0163	13276	109896	827	Fail
0.0169	12142	106495	877	Fail
0.0175	11105	103201	929	Fail
0.0181	10181	100078	982	Fail
0.0186	9349	97212	1039	Fail
0.0192	8607	94389	1096	Fail
0.0198	7933	91865	1158	Fail
0.0204	7332	89405	1219	Fail
0.0209	6735	87181	1294	Fail
0.0215	6207	84914	1368	Fail
0.0221	5704	82796	1451	Fail
0.0226	5232	80785	1544	Fail
0.0232	4789	78711	1643	Fail
0.0238	4391	76850	1750	Fail
0.0244	4062	75096	1848	Fail
0.0249	3756	73406	1954	Fail
0.0255	3474	71717	2064	Fail
0.0261	3206	70134	2187	Fail
0.0267	2950	68572	2324	Fail
0.0272	2723	67011	2460	Fail
0.0278	2541	65514	2578	Fail
0.0284	2385	64188	2691	Fail
0.0289	2250	62776	2790	Fail
0.0295	2120	61429	2897	Fail
0.0301	2004	60145	3001	Fail
0.0307	1904	58883	3092	Fail
0.0312	1789	57643	3222	Fail
0.0318	1684	56402	3349	Fail
0.0324	1590	55269	3476	Fail
0.0330	1486	54199	3647	Fail
0.0335	1384	53130	3838	Fail
0.0341	1321	52082	3942	Fail
0.0347	1252	51012	4074	Fail
0.0353	1201	49986	4162	Fail
0.0358	1158	48959	4227	Fail
0.0364	1120	47975	4283	Fail
0.0370	1077	46991	4363	Fail
0.0375	1032	46071	4464	Fail
0.0381	993	45195	4551	Fail
0.0387	965	44253	4585	Fail
0.0393	928	43398	4676	Fail
0.0398	895	42521	4750	Fail
0.0404	857	41665	4861	Fail
0.0410	822	40831	4967	Fail
0.0416	791	39976	5053	Fail
0.0421	757	39227	5181	Fail
0.0427	732	38478	5256	Fail
0.0433	706	37730	5344	Fail
0.0438	683	36981	5414	Fail

0.0444	664	36233	5456	Fail
0.0450	645	35505	5504	Fail
0.0456	626	34800	5559	Fail
0.0461	607	34137	5623	Fail
0.0467	584	33495	5735	Fail
0.0473	567	32832	5790	Fail
0.0479	556	32169	5785	Fail
0.0484	541	31570	5835	Fail
0.0490	526	31014	5896	Fail
0.0496	515	30372	5897	Fail
0.0501	505	29837	5908	Fail
0.0507	495	29217	5902	Fail
0.0513	483	28661	5933	Fail
0.0519	471	28126	5971	Fail
0.0524	459	27592	6011	Fail
0.0530	443	27057	6107	Fail
0.0536	428	26522	6196	Fail
0.0542	417	26030	6242	Fail
0.0547	405	25560	6311	Fail
0.0553	388	25046	6455	Fail
0.0559	371	24554	6618	Fail
0.0564	355	24084	6784	Fail
0.0570	339	23635	6971	Fail
0.0576	325	23185	7133	Fail
0.0582	318	22779	7163	Fail
0.0587	307	22394	7294	Fail
0.0593	301	21966	7297	Fail
0.0599	292	21560	7383	Fail
0.0605	287	21186	7381	Fail
0.0610	279	20790	7451	Fail
0.0616	274	20437	7458	Fail
0.0622	268	20067	7487	Fail
0.0627	265	19727	7444	Fail
0.0633	262	19357	7388	Fail
0.0639	257	19021	7401	Fail
0.0645	253	18668	7378	Fail
0.0650	245	18320	7477	Fail
0.0656	242	18009	7441	Fail
0.0662	236	17656	7481	Fail
0.0668	231	17340	7506	Fail
0.0673	226	17043	7541	Fail
0.0679	224	16741	7473	Fail
0.0685	222	16409	7391	Fail
0.0690	220	16099	7317	Fail
0.0696	217	15774	7269	Fail
0.0702	211	15494	7343	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.

The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

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.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

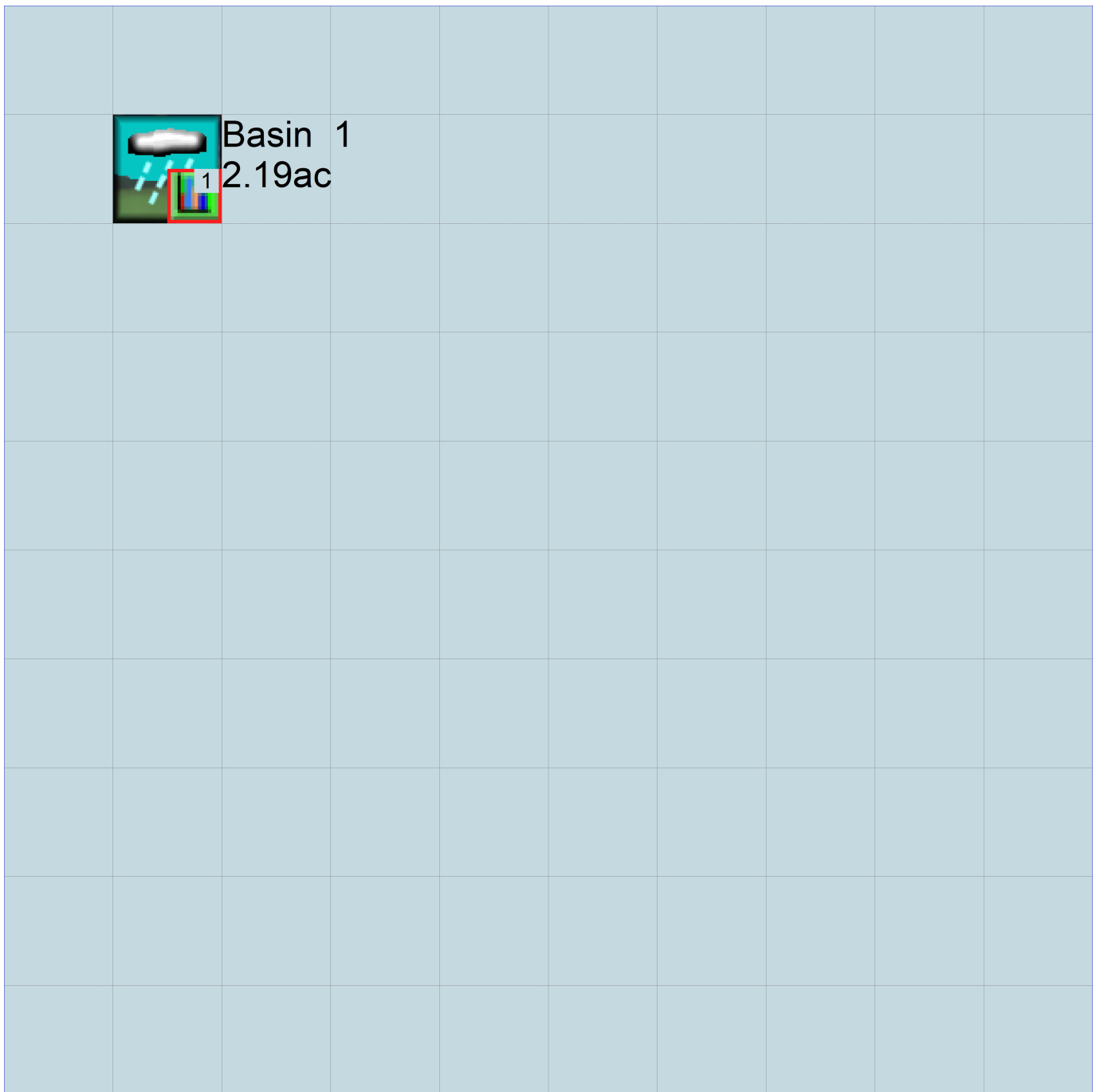
No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Basin 1
2.19ac

Mitigated Schematic



Predeveloped HSPF Message File

Mitigated HSPF Message File

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2022; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com