

**Track and Field Improvements
815 21st ST SE
Puyallup, WA 98372
Parcel #: 0420352148
Owner: Cascade Christian Schools**

Construction Stormwater Pollution Prevention Plan

***Vader*ENGINEERING**

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Construction Stormwater Pollution Prevention Plan
(CSWPPP)

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815 21st ST SE
Puyallup, WA 98372

Parcel(s): 0420352148

Permit No: _____

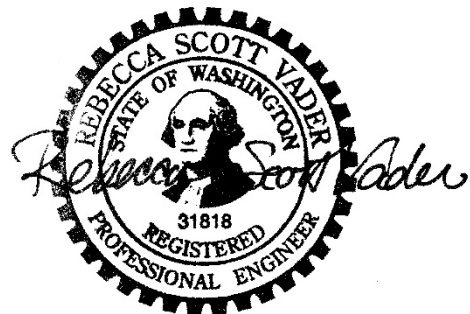
Application Submitted March 30, 2022

Revised _____,

Approved _____,

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Work for this project was performed for Cascade Christian Schools, and prepared in conformance with sound engineering principles and standards, with the best available site and technical information at the time of investigation. This work is specific to the project, site, and client, and should not be applied to any other purpose without consultation with Vader Engineering. The report contained herein has been prepared by the undersigned Professional Engineer(s) Licensed in the State of Washington.



Rebecca Scott Vader, PE

Proximity Requirement

A copy of this CSWPP Plan shall be retained onsite or within reasonable access to the site until construction completes and the site achieves permanent stabilization.

A log of preventative activities that indicate what actions were taken to maintain erosion control shall also be kept and be available for inspection.

EROSION CONTROL LEAD REQUIREMENT

The proponent shall be responsible to see that the general contractor identifies an Erosion and Sediment Control Lead for the Construction SWPPP. That individual shall be onsite or on call at all times. If a preconstruction meeting is held, this person shall attend. For sites disturbing 1 acre or more, that lead must be a Certified Lead. Certification may be obtained by an approved training program that meets the erosion and sediment control training criteria established by Ecology. See BMPC160 Certified Erosion and Sediment Control Lead (CESCL) for more information about the duties of the Lead.

CESCL (Required > 1 ac)

Lead Name: _____
24hr Contact Telephone: _____
Fax number: _____
Address: _____

If needed: Update

Lead Name: _____
24hr Contact Telephone: _____
Fax number: _____
Address: _____

Construction Emergency Contact:

Name: _____
24hr Contact Telephone: _____

Owner Emergency Contact:

Name: _____
24hr Contact Telephone: _____

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Introduction to Construction Storm Water Pollution Prevention Plans

This narrative contains the concise, site-specific information about existing conditions constructions schedule, and other pertinent items to supplement what is shown on the drawings. This report shall be located on the construction site or within reasonable access to the site, and the drawings shall be kept on the construction site at all times.

One primary purpose of the CSWPPP narrative is to describe the scope of self-conducted inspections and set out inspection frequency. This narrative provides a basic template to document the major observations related to implementing the CSWPPP and actions taken to maintain, repair or improve erosions and sedimentation control (TESC) as a result of the ongoing inspections. The site and project descriptions are above in the main body of the text.

Approval of this Construction SWPPP does not constitute an approval of permanent drainage design (e.g., size and location of impervious surfaces, pipes, restrictors, channels, retention, detention/infiltration facilities, utilities, etc.). These are covered under different narratives and plans.

Each site, and some sub-sites, will select which Best Management Practices are expected to protect the receiving waters. For construction sites that eventually discharge to surface water, the primary concern is compliance with Washington State water quality standards. For sites that infiltrate runoff, both the infiltrative capacity of the constructed facilities and the prevention of groundwater pollution will be monitored.

The implementation of this Construction SWPPP and the construction, maintenance, replacement, and upgrading of these Construction SWPPP facilities is the responsibility of the applicant/contractor until all construction is completed and approved and vegetation and/or landscaping is established.

There are 13 elements to a Construction Storm Water Pollution Prevention Plan. However, some elements do not apply to every site. When this is encountered, a justification is provided in the text.

Note to Reader: The CSWPPP is formatted by section, with typical guidance presented at the beginning of a section and project- specific notes added in bold italic text at the end of the section. Adequate TESC control requires continuous adjustments to the stage of construction and weather conditions, so all BMPs are available to the contractor if needed for control.

Since these reports draw heavily on reference documents, lists, and standards, in certain areas of the report, typical items may be included in the text to indicate that they were considered, but ~~struck-through~~ to show that they are not applicable to this project. Correspondingly, tables and lists may have underlined or **bold** text to indicate selected items.

Section 1 - General Project Description

This project proposes to re-build a track and field on the site of the one that is smaller than athletic regulation and in need of significant maintenance, add the lighting from the master plan, and to add the adjoining seating and Restrooms/ Concession building. The existing pathways and field entrance will have minor changes for ADA access. The project area totals about 4.3 acres of a larger, developed campus. The balance of the campus that drains to distinct onsite basins will not be modified in the SW management design. No work within a ROW is proposed.

The proponent intends to provide stormwater facilities below ground for the new and replaced areas and retain the use of the existing collection system in the areas remaining unchanged. The project projects no impacts to critical areas so includes no mitigation on or adjacent to the site.

Please refer to the CSWPP Plan Sheets to assist in the description of the project and site and for the full details of the Temporary Erosion and Sediment Control Plan for the construction period. The objective of a CSWPPP is to control erosion and prevent sediment and other pollutants from leaving the site during the construction phase of a project. The personnel and practices narrated in this CSWPPP describe how that is to be accomplished.

Table 1 – Parcel Data

Addresses:	815 21st ST SE
Parcel Number:	0420352148
Lot Area:	743,764 SF (17.07 AC)
Total Developed Site:	743,764 SF (no native conditions on site)
Project Site Area Total Disturbed:	222,000 SF
Pervious Area Cleared for 'first time'	0
Impervious Area Pre-Project:	7.74 AC
New & Replaced Impervious:	0.84 AC
Cut	4,500 - CY
Fill	4,500 - CY
Project Landscaping:	8 Lane Track, Asphalt paths, Artificial Turf Field, Grass, Trees, Shrubs
Soils:	Briscot Loam

Utilities at the site: Water: City of Puyallup; Sewer: City of Puyallup; Power: PSE;
Communications: Qwest; Gas: PSE; Cable: Comcast

Current Discharge: Onsite detention pond, discharge to Deer Creek, a tributary to the Puyallup River

Proposed Discharge: Same

Permanent stabilization: Asphalt paving, Retaining walls, structures, and landscaping.

Section 2 – Site, Adjacent, and Critical Areas Descriptions

SITE: The project site is near the center of an existing school campus. The project area was previously cleared, graded, developed, and benefits from existing Master Plan infrastructure. Please see figure below.

The following tabulates the existing site data:

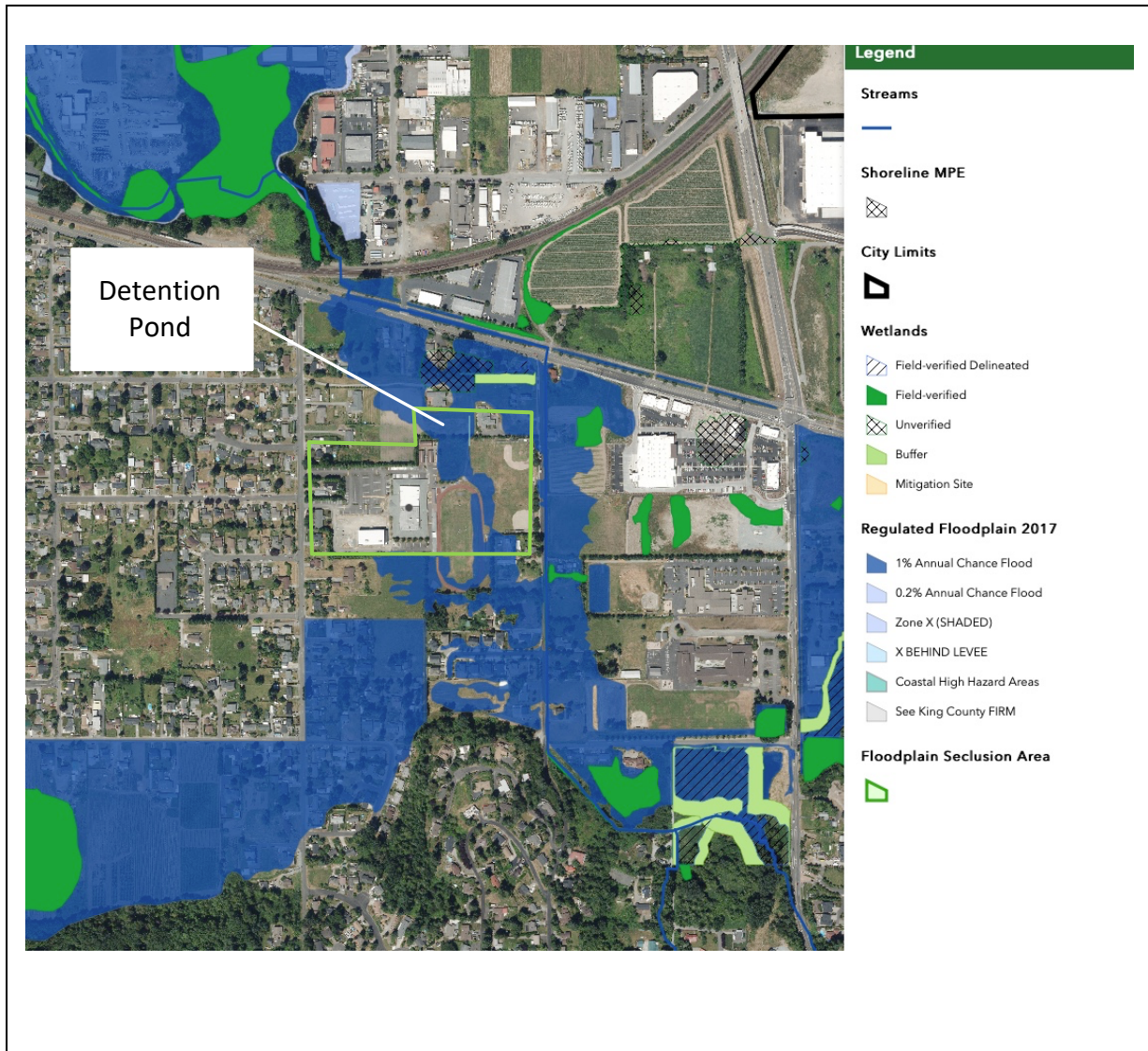
Addresses:	815 21st ST SE
Parcel Number:	0420352148
Lot Areas:	743,764 SF (17.07 AC)
Total Developed Site:	743,764 SF (no native conditions on site)
Project/Clearing Area:	222,000 SF
Impervious Site* Area:	Please see table 1, below
Zoning:	RS-08/RS-04
Soils (See Appendix):	Sandy Loam
Infiltration used?:	Unlined Detention Pond, expect incidental infiltration
Infiltration Rates:	0.1 in/hr for unlined detention ponds (Howie, DOE)
Connecting to right-of-way drainage system?	Onsite connection, which discharges to 21 st ST SE

Utilities at the site: If needed, special installation measures to avoid conflict with stormwater quantity and quality control features are listed with the utility.

Water: City of Puyallup
 Sewer: City of Puyallup
 Power: PSE
 Communications: Private provider
 Gas: PSE

Fuel Tanks: No evidence of fuel tanks found; tanks not considered likely with site history.

Figure 1: Critical Areas Map



Source: City of Puyallup GIS. Map disclaimed as approximate and not surveyed.

Adjacent Areas:

- | | |
|---|--|
| Residential Areas: | Residential properties surround the site. |
| Roads: | 21 st ST SE (not affected)
25 th ST SE (not affected) |
| Stream and receiving waters: | Overflow to Deer Creek then the Puyallup River. |
| Lakes: | None. |
| Wetlands: | None |
| Run on to the active project site expected? | No, due to constructed drainage and high points. |

The drainage discharge to the immediate receiving water is infiltration. The emergency overflow is piped north to deer creek where it enters a well-managed existing drainage system.

Critical Areas:

Inside a mapped Critical Drainage Area? No.
 Constructing within a Critical Area or buffer? No.
 Within 200 feet of a mapped Critical Area? No
 Critical areas for runoff that are down gradient of the project site?
 In basin, but Not directly downgradient.
 Special requirements for working near or within critical areas:
 No site disturbance proposed in critical areas.

Soils: Please see the *Geotechnical Investigation* by Cobalt Geosciences for more detail on items summarized below:

Soil Name(s):	Biscot
Soil Mapping unit:	Loam
Erodibility:	Slight to Moderate
Settleability:	Good due to low fines content
Permeability:	Moderate to good
Depth:	more than 10 ft (limits of observation)
Texture:	Sandy Loam
Soil Structure:	Medium dense to dense

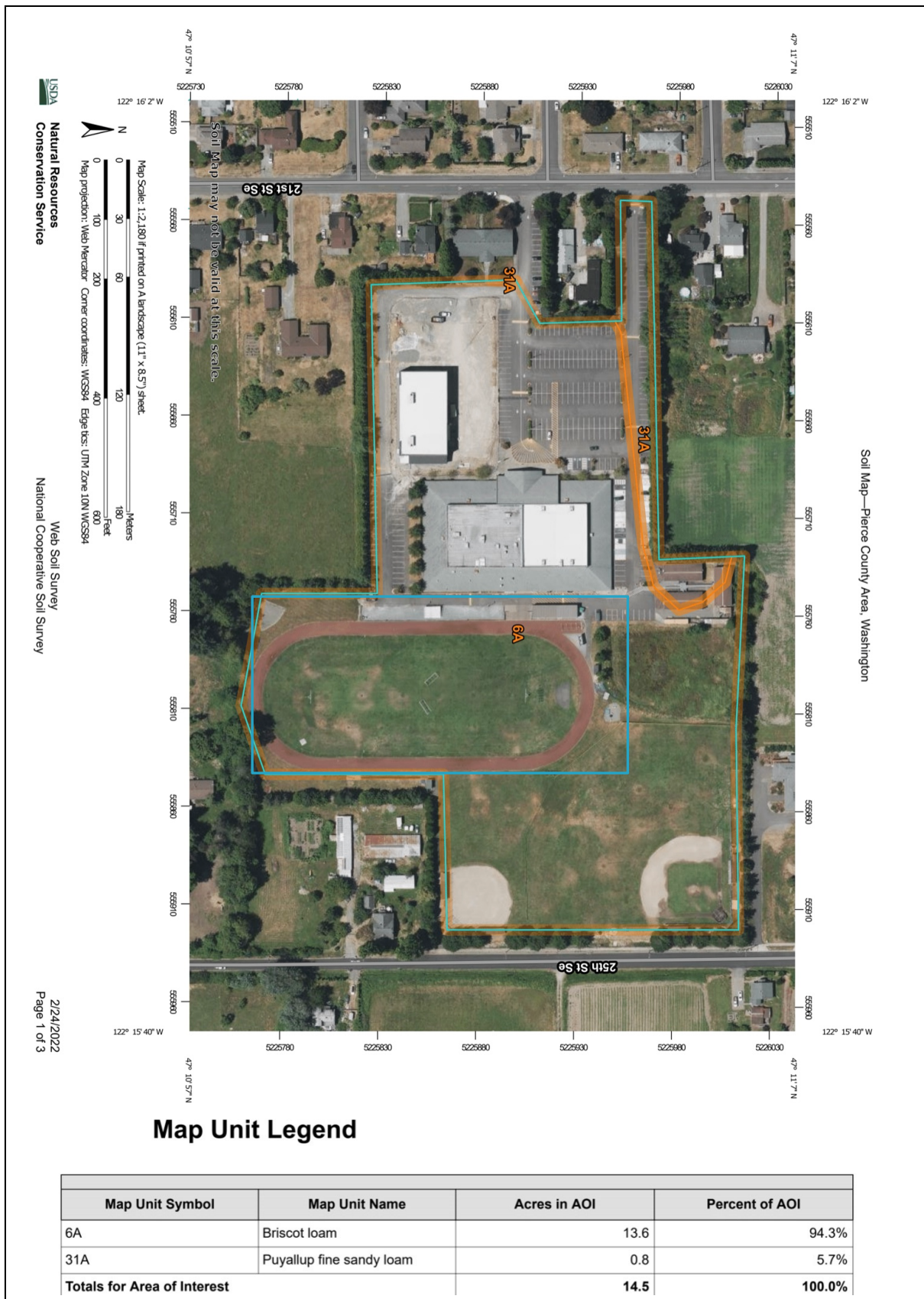
Potential Problems: Silt traces, if present in the soils will be the major contributors to sediment-laden water, as the sand and gravel will settle quickly.

Net grading /cut /fill: 0/4,500/4,500 CY

The goal to reduce net fill and import will be pursued with re-using excavated soil as structural fill whenever it meets specifications. Imported material meeting specifications for pavement courses, pipe bedding, trench interceptor, turf support, and structural fill will be used as needed to achieve project goals with the construction conditions.

Unsuitable export, if any, will be to accredited/commercial receiving pit.

Figure 2 – Soils Map and Work Area



Section 3 - Construction BMPs 13 Elements

The following list describes how each of the required elements is addressed. The types of BMPs selected are discussed below, and the locations, details, and related notes are shown on the drawing sheets. Many of the BMPs have inspection or maintenance components. It is these items that will populate the CSWPPP log kept electronically by the designated inspector. The log will record the date, the recent rainfall events, BMP modifications, and progression of construction, such as permanent stabilization of an area.

Some of the BMPs selected are redundant, however, all CSWPPP BMPs are included to provide flexibility during construction. BMPs may be substituted within type and/or layered across elements or time to achieve the necessary level of control.

ELEMENT 1: MARK CLEARING LIMITS

Clearing limits are shown on the drawing the CSWPP, also known as TESC Plan, and were selected to fulfill the requirement to limit ground disturbance.:

Before beginning land-disturbing activities, flag or paint the clearing limits. Retain any duff layer, topsoil and groundcover within the clearing limits to the maximum degree practicable. The project limits will be marked by high visibility paint or flagging on the hard surfaces and upgradients, and:

- BMP C233 Silt Fence or
- BMP C 235 Straw Wattles on down gradients and pervious areas.
- BMP C103 High Visibility Fence for in transit areas

Not initially selected or not applicable:

- BMP C101 Preserve Natural Vegetation, (none)
- BMP C102 Buffer Zones.

ELEMENT 2: ESTABLISH CONSTRUCTION ACCESS

The construction vehicle access and exit shall be limited to one route if possible. To fulfil this requirement, use:

- BMP C105 Stabilized Construction Entrance
- BMP C107 Construction Road/ Parking Area Stabilization (existing onsite paving)

Check daily during site activity for track out onto ROW. Clean daily or as necessary, more frequently during wet weather, to prevent sediment from entering waters of the state.

- Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area.
- Pavement washing will be allowed only after sediment is removed in this manner. Wastewater shall be controlled by pumping back onsite, or otherwise be prevented from discharging untreated into systems tributary to state surface waters.
- If sediment is tracked offsite, refer to extra measures in the entrance notes on the drawings.

Not initially Selected:

- BMP C106 Wheel Wash

The proposed construction access will be from the onsite pavements and/or the new parking entrance.

ELEMENT 3: CONTROL FLOW RATES

This project conveys runoff to, and in, constructed components so care is needed to prevent erosive flow rates from accumulating sediment and discharging it in interceptor/infiltration beds before full stabilization is achieved. Protection from internal flow rates may be necessary to avoid gully formation or excessive erosion inside the construction limits, primarily where steeper grades are used.

The controls to meet this requirement are split between large area and channel measures. To reduce formation of runoff, concentration of rivulets, and/or mobilization of fines over Large Areas:

- BMP C120 Temporary and Permanent Seeding
- BMP C121 Mulching
- BMP C122 Nets and Blankets
- BMP C130 Surface Roughening
- ~~BMP C131 Gradient Terraces~~
-

And to intercept, slow, and re-spread runoff in temporary or permanent Channels:

- BMP C207 Check Dams,
- BMP C235 Wattles,
- BMP 201 and 202 Grass-lined and Blanket or Rock-Lined Channels, and
- ~~BMP C203 Water Bars.~~

Other BMPs of this type and BMPs primarily listed under other elements may be combined or substituted to achieve stable base in onsite conveyances. In the event that prescriptive sizing from the table in Part 4 below becomes ineffective, custom sizing was performed according to the sizing calculations contained in Appendix A of this document.

Check weekly for adequate control of erosion between placements. Sediment retained behind these velocity resistors shall be removed before the accumulated depth exceeds ½ the depth of the device.

ELEMENT 4: INSTALL SEDIMENT CONTROLS

Design of Construction Sediment Control was performed in accordance with 2015 SWMMWW Vol II BMP C240 to minimize erosion and avoid discharge of sediment offsite or into onsite sensitive areas.

Sediment controls will be needed for soil stockpiles, at the edges of disturbance, and along the upstream side of interceptor/infiltration or ~~dispersion~~ trenches that are near to upslope disturbances.

Where safe and practical, trench spoils will be placed uphill, or for infiltration or dispersion trenches, removed. Also use:

- ~~BMP C231 Brush Barrier (if brush harvestable onsite or nearby)~~
- BMP C232 Gravel Filter Berm
- BMP C233 Silt Fence
- BMP C234 Vegetated Strip (where available on the east side).
- BMP C235 Wattles placed at the downstream edges of disturbance
- BMPC 251 Construction Stormwater Filtration

These BMPs are not intended to act as a barrier to flows. Check uphill sides for signs of clogging or sediment accumulations more than 1/3 the height of the device. If this occurs, remove the sediment, add another parallel BMP, or replace.

Due to the area of disturbance, to prepare for the event that construction occurs during wet weather and the above do not adequately control sediment, also use:

- BMP C240 Sediment Trap(s)

There are several published approximations available for addressing the needs of sub basins as construction progresses. Sizing of the sediment traps may enlarge a trap above the minimum size shown on the standard drawings. The surface area of the trap is 2080 SF per CFS of inflow from a 2-year runoff event. The 2- year event runoff from either the continuous modelling software or the Rational Method is used to size sediment settling, divided over multiple traps so that each portion of the excavation being worked had a trap before the temporary discharge point. The excavation area is modelled as ½ lawn and ½ impervious to simulate bare soil.

Because this is an extensive site, a larger unit is also selected:

- BMP C241 Temporary Sediment Pond

(See Form C for sizing)

The Temporary Sediment pond has at least a 3:1 length to width ratio. If insufficient, add temporary filter fabric or bale baffles in increase sinuosity to between 3:1 and 6:1

The proposed plan is intended as guidance and the Contractor shall be responsible for implementing and maintaining appropriate sediment controls based on changing site conditions.

ELEMENT 5: STABILIZE SOILS

All exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrop impact and flowing water, and wind erosion. From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days.

From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast. This applies to all soils on site, whether at final grade or not.

Stabilizing soils will be a key to constructing wet season grading and drainage. A wide selection of stabilization BMPs is proposed in order to meet the varied needs of cut and fill slopes, stockpiles, and surfaces brought near grade but not yet paved, including, but not limited to:

- BMP C120 Temporary and Permanent Seeding
- BMP C121 Mulching
- BMP C122 Nets and Blankets
- BMP C123 Plastic Covering
- BMP C124 Sodding
- BMP C125 Topsoiling/Composting
- BMP C126 Polyacrylamide (PAM) for Soil Erosion Protection
- BMP C130 Surface Roughening
- BMP C 131 Gradient Terraces
- BMO C140 Dust Control

All of these BMPs require good contact with the ground and prompt repair of areas that are damaged. Check for rills and re-grade to avoid gully formation.

The proposed sediment control details and notes are provided on Sheets C3 through C4 of the Plan set.

ELEMENT 6: PROTECT SLOPES

This project includes trenching and temporary cuts for foundations ~~and/or permanent cut and fill slopes~~ up to 2H: 1V that will need protection from erosion during rainfall and storm events. The site soils will erode before stabilization is achieved, so it is important to divert runoff away from slopes with permanent or temporary interceptors.

In addition to the BMPs listed in elements above, if run-on begins to occur, apply above the slope as needed:

- BMP C200 Interceptor Dike and Swale (these exist in places, maintain)
- BMP C205 Subsurface Drains
- BMP C206 Level Spreader
- BMP C 207 Check Dams
- BMP C208 Triangular Silt Dike to prevent gully formation or other erosion of the constructed slopes.

Direct the flow line of these features at grades of .5 to 1% to an outfall above a permanently stabilized vegetated strip or facility which can safely contain the stormwater.

Check outlets and make timely repairs to avoid gully formation. When the area below the diversion is permanently stabilized, remove the BMP and blend the channel with the natural surface.

Provide drainage to remove ground water intersecting the slope surface of exposed soil areas.

Primarily for the foundation and built up retaining walls.

ELEMENT 7: PROTECT DRAIN INLETS

Provide protection for all storm drain inlets within or down slope of construction until permanent stabilization is achieved. For inlets that are in operation before permanent stabilization of the disturbed drainage area, apply:

- BMP C220 Storm Drain Inlet Protection (any of multiple configurations)

Check inlet protection filters at least weekly and after storm events. Clean or replace clogged inserts or exterior filters. Take care not to wash sediment into storm drains while cleaning, but spread removed material evenly over the surrounding land or move to a stockpile and stabilize as appropriate.

Protection needed at onsite inlets, existing and proposed

ELEMENT 8: STABILIZE CHANNELS AND OUTLETS

All temporary onsite conveyance channels shall be designed, constructed and stabilized to prevent erosion from the peak 10-minute flow velocity from a Type 1A 10-year 24-hour frequency storm for the developed condition, or alternate method as detailed in the SWMMWW procedure in Vol II Section 3.3.3. Element 8.

Stabilization, including riprap armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches is already provided at the outlet of the conveyance system.

In the event that temporary or permanent channels shows signs of erosion, stabilize with:

- BMP C202 Blanket-lined or Rock-Lined Channels
- ~~BMP C203 Water Bars~~
- BMP C204 Pipe Slope Drains
- BMP C205 Subsurface Drains
- BMP C206 Level Spreader
- BMP C207 Check Dams and
- BMP C 208 Triangular Silt Dike (geotextile encased)
- BMP C209 Outlet Protection.

Check on any Channel Stabilization features for inadequate performance, such as erosion at the sides, or sediment accumulation during and after each runoff producing rainfall. If significant

erosion occurs between check dams, install a protective liner on that portion of the channel. Remove sediment before it exceeds $\frac{1}{2}$ the depth of the backwater/sump.

ELEMENT 9: CONTROL POLLUTANTS

All pollutants, including waste materials and demolition debris, that occur on-site shall be handled and disposed of in a manner that does not cause contamination of stormwater. See the Source Control section of the Drainage Report for more information. A copy of the permitted and prohibited discharges list is appended to this report for convenience. Use:

- BMP C151 Concrete Handling
- BMP C153 Material Delivery, Storage and Containment

to prevent pollution from concrete foundation wash waters, petroleum products, detergents, soil stabilizers, fertilizers, asphalt compounds, or paints in the event that they are stored on the project site. Such items stored in their usual and accustomed places in the buildings and places outside the construction area are not subject to these construction provisions.

Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste).

Keep material storage areas clean, organized, and supplied with appropriate spill cleanup materials or kits. Further provisions may be necessary for liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117 of 302. In the unlikely event that these are part of the project site, add to the inspection log document the selection of proper storage, secondary containment, adequate spacing, and other items listed in the BMP.

Maintenance and repair of heavy equipment and vehicles, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Report all spills to 911. Emergency repairs may be performed onsite using temporary plastic placed beneath and, if raining, over the vehicle.

Concrete work and other high pH components need appropriate protections, use where needed:

- BMP C152 Sawcutting and Surfacing Pollution Protection
- BMP C154 Concrete Washout Areas
- ~~BMP C250 Construction Stormwater Chemical Treatment~~
- ~~BMP C251 Construction Stormwater Filtration~~
- ~~BMP C252 High pH Neutralization Using CO₂~~
- ~~BMP C253 pH Control for High pH Water~~

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' label recommendations shall be followed for application rates and procedures.

Wheel wash, or tire bath wastewater, shall be discharged to a separate onsite treatment system or pumped and hauled to a sanitary sewer facility if allowed by the local wastewater authority.

The Contractor shall be responsible that no wastes enter the runoff.

ELEMENT 10: CONTROL DE-WATERING

Other than gravity footing drains to relieve pressure at foundations and retaining walls, permanent dewatering not expected. In the event that permanent dewatering is needed, contact the geotechnical and civil engineers for coordination of outfall. If temporary dewatering is needed, discharge only non-turbid water to the vegetated areas of the site. Use filters to clean turbid water if necessary, including the use of:

- BMP C 236 Vegetative Filtration.
- BMP C240 Sediment Trap

Highly turbid or otherwise compromised dewatering water, such as from concrete pours or clean up, shall be handled separately from stormwater. (BMP C151 Concrete Handling)

All foundation and trench de-watering water, which has similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system, prior to discharge to a sediment trap or sediment pond. Channels must be stabilized, as specified in Element #8.

~~Clean, non-turbid de-watering water, such as well point ground water, can be discharged to systems tributary to state surface waters, as specified in Element #8, provided the de-watering flow does not cause erosion or flooding of the receiving waters. These clean waters should not be routed through stormwater sediment ponds. Ongoing dewatering not expected.~~

Other disposal options, depending on site constraints, may include: 1) infiltration, 2) transport offsite in vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters, 3) onsite treatment using chemical treatment or other suitable treatment technologies, or 4) sanitary sewer discharge- or 5) use of sedimentation bag with outfall to a vegetated ditch or swale for small volumes of localized dewatering.

Significant dewatering activities are not expected during this project; however, the Contractor shall be responsible that no wastes enter the runoff.

ELEMENT 11: MAINTAIN BMP'S

The construction phase erosion and sedimentation BMPs must be maintained until the site is accepted by the jurisdiction as permanently stabilized. The BMP's and any accumulated sediments or waste then need to be removed promptly, within 30 days.

For a construction site of at least 1 acre, (this project disturbs over an acre) a:

- BMP C160 Certified Erosion and Sediment Control Lead is prescribed, and is always recommended.

The Owner/Contractor must identify the inspector charged with visually examining stormwater that discharges from site, if any, for:

- Suspended sediment,
- Turbidity,
- Discoloration, and
- Oil sheen.

This inspector will evaluate the effectiveness of BMPS and determine if maintenance, repair, or improvement is necessary to achieve discharge thresholds.

- BMP C150 Materials On Hand will allow efficient maintenance.

Inspect BMP implementation and maintenance and document in the site log at least once a week and within 24 hours of a precipitation event that causes a stormwater discharge from the property. In the wet season, inspect daily. Any problems shall be addressed within 10 days of the inspection.

The *TEMPORARY EROSION AND SEDIMENTATION CONTROL MAINTENANCE REQUIREMENTS* on the drawings read as follows:

1. Erosion and sedimentation control facilities shall be inspected after each storm event and daily during prolonged rainfall.
2. Necessary repairs or replacement of facilities shall be accomplished promptly.
3. Sediment deposits shall be removed after each storm event or when the level of deposition reaches approximately one-half the maximum potential depth.
4. Sediment deposits remaining in place after the ESC facilities are no longer required shall be dressed to conform to the existing grade, prepared, and seeded.
5. Temporary erosion and sedimentation control facilities shall be maintained by: _TBD by Contractor_____

ELEMENT 12: MANAGE THE PROJECT

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Fit the existing topography, soils, and drainage patterns.
- Emphasize erosion control rather than sediment control.
- Minimize the extent and duration of the area exposed.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.
- Schedule major earthwork during the dry season if possible.

If it is determined that the CSWPPP is ineffective in eliminating or significantly minimizing ESC problems, additional BMP measures or modifications will be necessary until the problems are corrected. BMPs may be selected from the alternatives listed in the Volume 2 of the Stormwater Manual. Revisions shall be made within 7 days following the determination of insufficiency.

Sampling and analysis of the stormwater discharged from a construction site may be necessary on a case-by-case basis to ensure compliance with Discharge and Surface Water Standards:

- **Discharge:** Runoff leaving the construction site shall be free of settleable solids, as measured with an Imhoff Cone and in accordance with Standard Methods for the Examination of Water and Wastewater, most recent edition, American Water Works Association. "Free of settle able solids" shall be defined as measuring less than 2.5 mL/L/hr, for storms up to the water quality design event.
- **Surface Water:** For storms up to the water quality design event, turbidity downstream of a construction site may not increase more than 5 NTU, if upstream turbidity is 50 NTU or less, and may not increase more than 10 percent, if upstream turbidity is over 50 NTU. To the extent practicable, samples should be taken far enough downstream so that the construction site discharge has been well-mixed with the surface water.

Whenever inspection and/or monitoring reveals that the BMP's identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMP's or design changes shall be implemented as soon as possible.

In addition to conducting and documenting the daily, weekly, after rainfall and monthly inspections, rainfall-responsive scheduling can reduce the effort necessary to achieve erosion and sedimentation control.

- **BMP C162 Scheduling**

provides for managing the land-disturbing activities by micro scheduling grading to reduce the amount and duration of soil exposed, especially during rainy periods. Small portions of the site may be cleared, brought to grade, and stabilized before clearing the next section.

Per the DOE, the following activities are exempt from the seasonal clearing and grading limitations:

- Routine maintenance and necessary repair of erosion and sediment control BMP's;
- Routine maintenance of public facilities or existing utility structures that do not (a) expose the soil or (b) result in the removal of the soil's vegetative cover; and
- Self-contained project sites, where there is complete infiltration of the water quality design event runoff within the site.

ELEMENT 13: PROTECT LOW IMPACT DEVELOPMENT BMPS

Construct clog-able portions of any Treatment BMPs such as infiltration, dispersion, and filters after the contributing area receives permanent stabilization treatments.

Clean and remove temporary sediment accumulations from CBs and diversion sumps prior to allowing discharge to the surface dispersion pipes.

If discharge of sediment-laden water to vegetation is used as a protection, re-spread sediment before it accumulates to the degree that it smothers the vegetation.

Section 4 - Construction Schedule & Phasing

Construction is expected to begin shortly after permits are obtained. To aid in management of reliable construction, the proponent intends to retain a contractor both experienced and familiar with the area and the soils. A contractor based close to the project site will allow site work scheduling to accommodate the weather patterns as much as practical.

For more specifics on the CSWPPP schedule, the following notes from the TESC drawings are shown on the drawings.

CONSTRUCTION SEQUENCE:

1. HOLD A PRECONSTRUCTION MEETING WITH THE CITY OF PUYALLUP AND OBTAIN REQUIRED PERMITS.
2. ESTABLISH CLEARING AND GRADING LIMITS.
3. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE.
4. CONSTRUCT PERIMETER DITCHES, SILT FENCES, AND OTHER EROSION AND CONTROL DEVICES AS SHOWN ON THE PLAN.
5. CONSTRUCT PROTECTION DEVICES FOR CRITICAL AREAS AND SIGNIFICANT TREES PROPOSED FOR RETENTION.
6. SCHEDULE AN EROSION CONTROL INSPECTION WITH THE CITY OF PUYALLUP.
7. GRADING ACTIVITIES MAY ONLY COMMENCE AFTER ALL DRAINAGE AND EROSION CONTROL MEASURES ARE IN PLACE PER THE APPROVED PLAN.
8. IDENTIFY EROSION CONTROL MEASURES WHICH REQUIRE REGULAR MAINTENANCE.
9. EROSION AND SEDIMENT CONTROLS MAY ONLY BE REMOVED ONCE THE SITE IS STABILIZED TO THE CITY OF PUYALLUP SITE INSPECTOR'S SATISFACTION.

The project shall be phased where feasible to accomplish soil-exposing activities in the dry season. This project has limited activities –grading, connecting utilities, paving, constructing the building improvements and landscaping, that are expected to occur without interruption.

Grading and Drainage during the wet season requires greater vigilance in erosion and sedimentation control. Manage the land-disturbing activities by micro scheduling grading to reduce the amount and duration of soil exposed, especially during rainy periods.

The building foundation portion of the site is expected to be cleared, set to grade, and stabilized with foundation concrete early in the schedule. Backfill for final grade around the building will occur later. And topsoil and plantings near the end of the project in an advantageous weather window for planting.

Transport of sediment from the construction site will be prevented by directing the discharge from the excavation into sediment control features.

In addition to conducting and documenting the daily, weekly, after rainfall and monthly inspections, rainfall-responsive scheduling can reduce the effort necessary to achieve erosion and sedimentation control.

Section 5 – Pollution Prevention

The names of the proponent contact, construction emergency contact and onsite temporary erosion and sedimentation control personnel are recorded on the front cover of this document.

During construction, when erosion and sedimentation pollution are at elevated potential, the primary goal is TESC. A certified CESCL is mandated for sites disturbing more than 1 acre.

After stabilization, the prevention of stormwater pollution from the operations and maintenance of the business become important. This is addressed in the Operations, Maintenance, and Source Control report.

Section 6 – Inspections and Monitoring

All BMPs must be inspected, maintained and repaired as needed to assure continue performance of their intended function. Site inspection shall occur in all areas disturbed by construction activities and at any stormwater discharge point. During inspections, the Contractor shall evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges.

All maintenance and repairs shall be documented in the site log. All new BMPs or design changes shall be documented in the SWPPP as soon as possible.

If a project is less than 1 acre and does not discharge to an impaired water body, regular stormwater sampling and reporting to Ecology under the NPDES general construction permit is not triggered.

EROSION CONTROL LEAD

The owner shall identify an Erosion and Sediment Control Lead in the Construction SWPPP and that individual shall be onsite or on call at all times. If a preconstruction meeting is held, this person shall attend. For sites disturbing 1 acre or more, that lead must be a Certified Lead.

Duties and responsibilities of the Lead shall include, but are not limited to the following:

- Maintaining permit file on site at all times which includes the SWPPP and any associated permits and plans.
- Directing BMP installation, inspection, maintenance, modification, and removal.
- Updating all project drawings and the Construction SWPPP with changes made.
- Keeping daily/weekly logs, and inspection reports. Inspection reports should include:
 - Inspection locations, dates and times.
 - Weather information, including conditions during the inspection and recent rainfall events.
 - A summary list of BMPs implemented, including field observations. The list should include the following:
 - List of all BMPs in place on the project site

- BMPs inspected
 - BMPs needing maintenance
 - BMPs failed and needing replacement
 - Recommended replacements or other actions
 - Visual observations or water quality monitoring conducted
 - Monitoring results
 - Comments and notes
- Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the owner.

Keep the contact information up to date if the role is assigned to another. If a pre-construction meeting is held, this person shall attend.

For convenience, inspection report forms follow, and may be reproduced without limitation. A table summarizing how and when to report on the various conditions observed follows the forms.

Section 7 – Record Keeping

The inspection forms may be kept with this document or in a separate log that is also maintained on site or within reasonable access to the site and made available for viewing upon request to jurisdictional personnel. If requested by a jurisdictional agency in writing, a copy of the records shall be submitted within 14 days.

3-year Records Retention Schedule

The records created as part of implementing and inspecting the CSWPPP shall be retained by the Contractor during the life of the construction project and for at least 3 years following permit coverage. Records may be transferred to Owner following determination of permanent stabilization and BMP removal.

Conclusion - Manage the project

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Fit the existing topography, soils, and drainage patterns.
- Emphasize erosion control rather than sediment control.
- Minimize the extent and duration of the area exposed.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.
- Schedule major earthwork during the dry season if possible.

If it is determined that the CSWPPP is ineffective in eliminating or significantly minimizing ESC problems, additional BMP measures or modifications will be necessary until the problems are corrected. BMPs may be selected from the alternatives listed in the SWMMWW. Revisions shall be made within 10 days following the determination of insufficiency.

Form A -Sample Site Inspection Form

From <http://www.ecy.wa.gov/programs/wq/stormwater/construction/>

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? (*refer to permit conditions S4 & S5*) 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.

Form B – BMP Site Inspection

Form B –BMP Site Inspection Form

Copy this form as needed. Mark N for Not functioning, I for Improvement needed, and P for Performing. This form adapted from the Ecology SWPPP Template.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 2: Establish Construction Access

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 3: Control Flow Rates

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 4: Install Sediment Controls

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 5: Stabilize Soils

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 6: Protect Slopes

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 7: Protect Drain Inlets

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 8: Stabilize Channels and Outlets

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 9: Control Pollutants

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 10: Control Dewatering

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 11: Maintain BMPS

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 12: Manage the Project

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Form C – Sediment Pond Sizing

Sediment Pond Sizing.22.03.26.xlsx

Import or Calculate Design Inflow Rates

Use returns from MGSFLOOD, skip to next section

If Hydrologic Modelling not required, Use Rational Method

$$Q = CIA$$

Where:

Q is design inflow rate, approximating Cubic feet per second
 C is a coefficient selected to represent the land surface condition
 I is the rainfall intensity in inches per hour.
 A is the area of the basin in acres

Use 2 yr unless 10 yr warranted.
 Select 0.5 for dense residential.
 See Mapped Intensities.
 Calculate from design drawings.

Location	Condition	Event	C coeff	I in/hr	A acres	Q quantity
Pond 1	BareSoil	2 yr	0.5		0	0.0
	Bare soil	10yr	0.5		0	0.0

Sediment Pond Surface Area Size Calculation and/or Verification Check

Use Published algorithm to calculate required size, and/or check against available size

$$SA = 2 \cdot Q/Vs$$

Where:

SA is Surface Area in square feet
 Q is inflow rate in Cubic Feet per Second From above
 Vs is Velocity of Settling, for silts, listed at 0.00096 feet per second

Location	Event	Q	SA reqd sf	if verifying, enter pond surface area *			Result
				23	70	1,610	
Pond 1	2 yr	0.8	1,604				OK
Pond 1	10 yr	1.3	2,750	30	92	2,760	OK

* If length/width not at least 3:1, add temporary sinuousation baffles to achieve ratio

Sediment Pond Dimension Calculation and/or Verification Check

Cells Return Calculated SF at ration for entered width

$$SA \text{ reqd} / \text{width} = \text{length}$$

Where:

Enter value, Minimum width is 7 feet per manual
 Acceptable length to width is between 3:1 and 6:1

Location	2 yr	ENTER	Length to Width Ratio			
	SA reqd s	Width >7	3	4	5	6
Trap 1	-	30	90	120	150	180

AREA PRODUCED Compare to reqd area and iterate until sufficient
 2,700 3,600 4,500 5,400

3.2.18.4 Maintenance Standards

- Remove sediment from the trap when it reaches 1-foot in depth.
- Repair any damage to the pond embankments or slopes.

Sediment Pond Sizing.22.03.26.xlsx

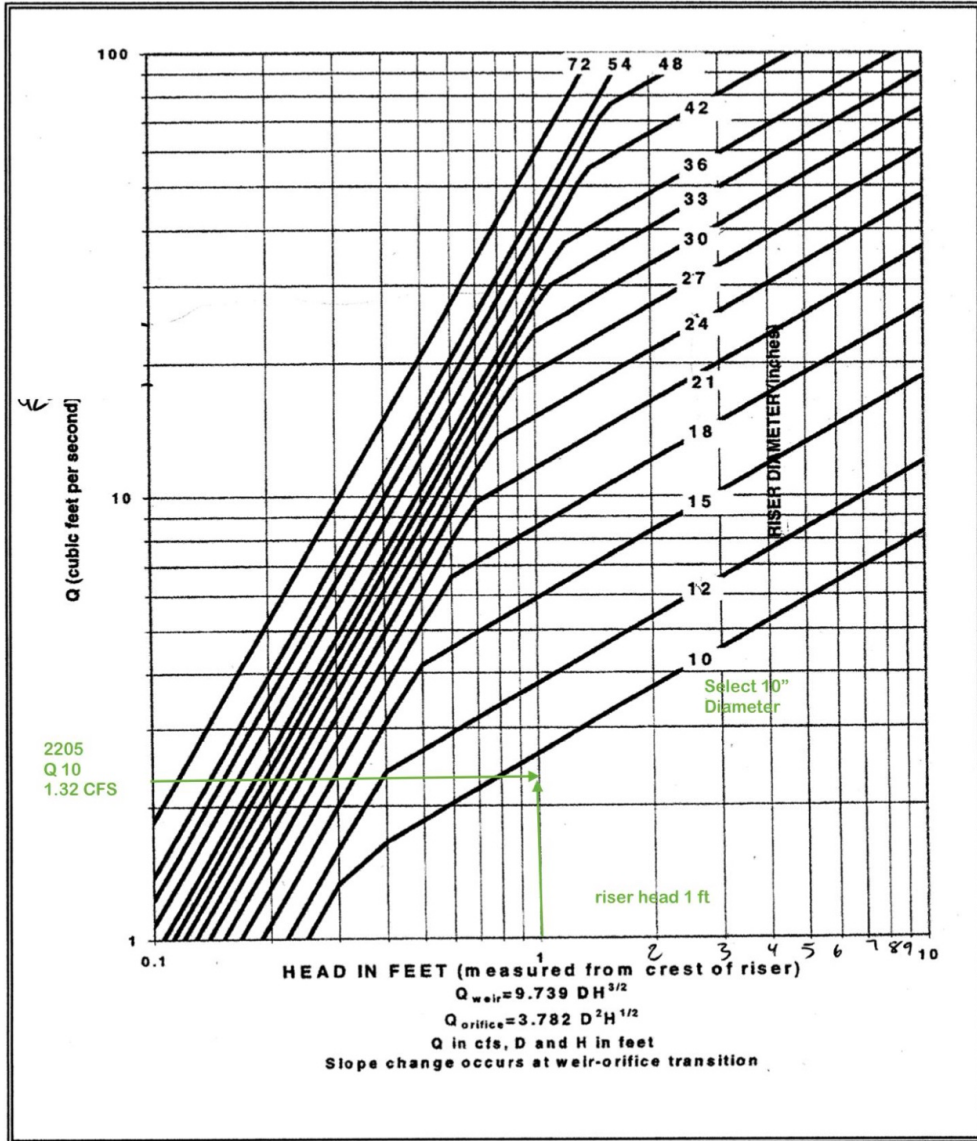


Figure 4.2.21 – Riser Inflow Curves

MGS FLOOD PROJECT REPORT

Program Version: MGSFlood 4.55
Program License Number: 201910004
Project Simulation Performed on: 03/29/2022 8:11 PM
Report Generation Date: 03/29/2022 8:13 PM

Input File Name: 2205.MGS.3.29.ESC.fld
 Project Name: 2205 CCS Track
 Analysis Title: ESC Sizing
 Comments: Half grass Half impervious to approximate bare subgrade

PRECIPITATION INPUT

Computational Time Step (Minutes): 15

Extended Precipitation Time Series Selected
 Climatic Region Number: 15

Full Period of Record Available used for Routing
 Precipitation Station : 96004005 Puget East 40 in_5min 10/01/1939-10/01/2097
 Evaporation Station : 961040 Puget East 40 in MAP
 Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
 HSPF Parameter Region Name : USGS Default

***** Default HSPF Parameters Used (Not Modified by User) *****

***** WATERSHED DEFINITION *****

Predevelopment/Post Development Tributary Area Summary

	Predeveloped	Post Developed
Total Subbasin Area (acres)	4.252	4.241
Area of Links that Include Precip/Evap (acres)	0.000	0.000
Total (acres)	4.252	4.241

-----SCENARIO: PREDEVELOPED

Number of Subbasins: 2

----- Subbasin : Track & Field -----

-----Area (Acres) -----	
Till Grass	1.500
Impervious	1.502

Subbasin Total	3.002

----- Subbasin : Around T&F -----

-----Area (Acres) -----	
Till Forest	0.400
Till Grass	0.850

Subbasin Total	1.250

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 4

----- Subbasin : Rubberized Track-1.01,GrassEnd Zone-0.51 -----

-----Area (Acres) -----	
Till Grass	0.750
Impervious	0.752

Subbasin Total 1.502

----- Subbasin : New Field Turf-2. -----

-----Area (Acres)-----
 Till Grass 1.100
 Impervious 1.100

 Subbasin Total 2.200

----- Subbasin : Paved High Jump-0.24 -----

-----Area (Acres)-----
 Till Grass 0.120
 Impervious 0.120

 Subbasin Total 0.240

----- Subbasin : Concessions, walk and seating-0.299 -----

-----Area (Acres)-----
 Till Grass 0.149
 Impervious 0.150

 Subbasin Total 0.299

***** LINK DATA *****

-----SCENARIO: PREDEVELOPED
 Number of Links: 1

Link Name: Copy of New Structure Lnk2

Link Type: Structure
 Downstream Link: None

Prismatic Pond Option Used
 Pond Floor Elevation (ft) : 57.00
 Riser Crest Elevation (ft) : 60.00
 Max Pond Elevation (ft) : 61.00
 Storage Depth (ft) : 3.00
 Pond Bottom Length (ft) : 190.0
 Pond Bottom Width (ft) : 135.0
 Pond Side Slopes (ft/ft) : L1= 3.00 L2= 3.00 W1= 3.00 W2= 3.00
 Bottom Area (sq-ft) : 25650.
 Area at Riser Crest El (sq-ft) : 31,824.
 (acres) : 0.731
 Volume at Riser Crest (cu-ft) : 86,049.
 (ac-ft) : 1.975
 Area at Max Elevation (sq-ft) : 34026.
 (acres) : 0.781
 Vol at Max Elevation (cu-ft) : 118,968.
 (ac-ft) : 2.731

Hydraulic Conductivity (in/hr) : 0.01
 Massmann Regression Used to Estimate Hydraulic Gradient
 Depth to Water Table (ft) : 5.00
 Bio-Fouling Potential : Low
 Maintenance : Average or Better

Riser Geometry
 Riser Structure Type : Circular
 Riser Diameter (in) : 18.00
 Common Length (ft) : 0.000
 Riser Crest Elevation : 60.00 ft

Hydraulic Structure Geometry

Link Name: 10" Sideline pipes as rectangle

Link Type: Structure

Downstream Link Name: Sediment Pond

Prismatic Pond Option Used

Pond Floor Elevation (ft) : 100.00
 Riser Crest Elevation (ft) : 101.83
 Max Pond Elevation (ft) : 102.83
 Storage Depth (ft) : 1.83
 Pond Bottom Length (ft) : 770.0
 Pond Bottom Width (ft) : 0.7
 Pond Side Slopes (ft/ft) : L1= 0.01 L2= 0.01 W1= 0.01 W2= 0.00
 Bottom Area (sq-ft) : 508.
 Area at Riser Crest El (sq-ft) : 522.
 (acres) : 0.012
 Volume at Riser Crest (cu-ft) : 943.
 (ac-ft) : 0.022
 Area at Max Elevation (sq-ft) : 530.
 (acres) : 0.012
 Vol at Max Elevation (cu-ft) : 1,469.
 (ac-ft) : 0.034

Hydraulic Conductivity (in/hr) : 0.01
 Massmann Regression Used to Estimate Hydralic Gradient
 Depth to Water Table (ft) : 7.00
 Bio-Fouling Potential : Low
 Maintenance : Average or Better

Riser Geometry

Riser Structure Type : Circular
 Riser Diameter (in) : 10.00
 Common Length (ft) : 0.000
 Riser Crest Elevation : 101.83 ft

Hydraulic Structure Geometry

Number of Devices: 1

---Device Number 1---

Device Type : Circular Orifice
 Control Elevation (ft) : 100.00
 Diameter (in) : 4.00
 Orientation : Horizontal
 Elbow : Yes

Link Name: Sideline Infil Trench

Link Type: Infiltration Trench

Downstream Link: None

Trench Type : Trench at Toe of Embankment
 Trench Length (ft) : 384.00
 Trench Width (ft) : 20.00
 Trench Depth (ft) : 2.00
 Trench Bottom Elev (ft) : 100.00
 Trench Rockfill Porosity (%) : 30.00

Hydraulic Conductivity (in/hr) : 0.10
 Massmann Regression Used to Estimate Hydralic Gradient
 Depth to Water Table (ft) : 5.00
 Bio-Fouling Potential : Low
 Maintenance : Average or Better

*****FLOOD FREQUENCY AND DURATION STATISTICS*****

-----**SCENARIO: PREDEVELOPED**

Number of Subbasins: 2
 Number of Links: 1

***** Link: Copy of New Structure Lnk2 ***** Link WSEL Stats

WSEL Frequency Data(ft)
 (Recurrence Interval Computed Using Gringorten Plotting Position)
 Tr (yrs) WSEL Peak (ft)

Tr (yrs)	WSEL Peak (ft)
1.05-Year	57.051
1.11-Year	57.060
1.25-Year	57.070
2.00-Year	57.099
3.33-Year	57.130
5-Year	57.160
10-Year	57.206
25-Year	57.293
50-Year	57.316
100-Year	57.401

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 4
 Number of Links: 3

***** Link: Sediment Pond ***** Link WSEL Stats

WSEL Frequency Data(ft)
 (Recurrence Interval Computed Using Gringorten Plotting Position)
 Tr (yrs) WSEL Peak (ft)

Tr (yrs)	WSEL Peak (ft)
1.05-Year	58.025
1.11-Year	58.029
1.25-Year	58.036
2.00-Year	58.070
3.33-Year	58.120
5-Year	58.142
10-Year	58.222
25-Year	58.385
50-Year	58.514
100-Year	58.662

*****Groundwater Recharge Summary *****

Recharge is computed as input to Perind Groundwater Plus Infiltration in Structures

Total Predeveloped Recharge During Simulation

Model Element	Recharge Amount (ac-ft)
Subbasin: Track & Field	183.316
Subbasin: Around T&F	172.851
Link: Copy of New Structur	2.732
Total:	358.898

Total Post Developed Recharge During Simulation

Model Element	Recharge Amount (ac-ft)
Subbasin: Rubberized Track-1.091.658	
Subbasin: New Field Turf-2.	134.432
Subbasin: Paved High Jump-0.24	14.665
Subbasin: Concessions, walk an	18.209
Link: Sediment Pond	0.125
Link: 10" Sideline pipes a	Not Computed
Link: Sideline Infiltr Tren	Not Computed
Total:	259.089

**Total Predevelopment Recharge is Greater than Post Developed
 Average Recharge Per Year, (Number of Years= 158)
 Predeveloped: 2.272 ac-ft/year, Post Developed: 1.640 ac-ft/year**

*****Water Quality Facility Data *****

-----SCENARIO: PREDEVELOPED

Number of Links: 1

***** Link: Copy of New Structure Lnk2 *****

Infiltration/Filtration Statistics-----
 Inflow Volume (ac-ft): 1182.37
 Inflow Volume Including PPT-Evap (ac-ft): 1182.37
 Total Runoff Infiltrated (ac-ft): 2.73, 0.23%
 Total Runoff Filtered (ac-ft): 0.00, 0.00%
 Primary Outflow To Downstream System (ac-ft): 1180.42
 Secondary Outflow To Downstream System (ac-ft): 0.00
 Volume Lost to ET (ac-ft): 0.00
 Percent Treated (Infiltrated+Filtered+ET)/Total Volume: 0.23%

-----SCENARIO: POSTDEVELOPED

Number of Links: 3

***** Link: Sediment Pond *****

Basic Wet Pond Volume (91% Exceedance): 11879. cu-ft
 Computed Large Wet Pond Volume, 1.5*Basic Volume: 17818. cu-ft

Infiltration/Filtration Statistics-----
 Inflow Volume (ac-ft): 1377.42
 Inflow Volume Including PPT-Evap (ac-ft): 1377.42
 Total Runoff Infiltrated (ac-ft): 0.12, 0.01%
 Total Runoff Filtered (ac-ft): 0.00, 0.00%
 Primary Outflow To Downstream System (ac-ft): 1378.22
 Secondary Outflow To Downstream System (ac-ft): 0.00
 Volume Lost to ET (ac-ft): 0.00
 Percent Treated (Infiltrated+Filtered+ET)/Total Volume: 0.01%

*****Compliance Point Results *****

Scenario Predeveloped Compliance Link: Copy of New Structure Lnk2
 Scenario Postdeveloped Compliance Link: Sediment Pond

*** Point of Compliance Flow Frequency Data ***
 Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	0.772	2-Year	0.707
5-Year	1.026	5-Year	1.004
10-Year	1.322	10-Year	1.255
25-Year	1.779	25-Year	1.654
50-Year	2.352	50-Year	1.910
100-Year	2.747	100-Year	2.170
200-Year	2.850	200-Year	2.281
500-Year	2.976	500-Year	2.424

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

**** Flow Duration Performance ****

Excursion at Predeveloped 50%Q2 (Must be Less Than or Equal to 0%): 127.0% FAIL
 Maximum Excursion from 50%Q2 to Q2 (Must be Less Than or Equal to 0%): 127.0% FAIL
 Maximum Excursion from Q2 to Q50 (Must be less than 10%): 42.1% FAIL
 Percent Excursion from Q2 to Q50 (Must be less than 50%): 59.1% FAIL

 FLOW DURATION DESIGN CRITERIA: FAIL

****** LID Duration Performance ******

Excursion at Predeveloped 8%Q2 (Must be Less Than 0%):	24.6%	FAIL
Maximum Excursion from 8%Q2 to 50%Q2 (Must be Less Than 0%):	145.6%	FAIL

LID DURATION DESIGN CRITERIA: FAIL

End of document.

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