Storm Water Pollution Prevention Plan

For
Kimberly Clark Everett Pulp and Paper Mill
Demolition and Remediation

Prepared For
Kimberly Clark Worldwide, Inc
351 Phelps Drive
Irving, TX 75038

Owner	Site Tenant	Contractor
Kimberly Clark Worldwide, Inc.	Kimberly Clark Everett Pulp and Paper Mill	Cambria Contracting, Inc.
351 Phelps Drive	2600 Federal Ave	5105 Lockport Road
Irving, TX 75038	Everett, WA 98201	Lockport, NY 14094

Project Site Location
2600 Federal Avenue
Everett, WA 98201

Certified Erosion and Sediment Control Lead
Name: Keith Trosterud
Phone Number: 716-998-6680

SWPPP Prepared By
David Evans & Associates Inc.
1620 W Marine View Drive
Everett, WA 98201
425-259-4099
John N. Smith, P.E.

SWPPP Preparation Date
March 1, 2012 Modification #1
9-14-12 in red text

Approximate Project Construction Dates
Begin Construction - 5/2012
End Construction - 12/2012

DAVID EVANS AND ASSOCIATES INC.

Kimberly-Clark

DAVID EVANS
AND ASSOCIATES INC.

MEMORANDUM

ATE: September 17, 2012

TO: Kimberly Clark Everett Demolition SWPPP

FROM: Ben Davis, PE, CESCL

SUBJECT: **Construction Stormwater SWPPP Modification #1**

PROJECT: CACI00000001 – DOE Constrcution Stormwater Permit Support

COPIES: file

Introduction

The purpose of this memorandum is to explain modifications to the Storm Water Pollution Prevention Plan (SWPPP) and the overall plan for construction stormwater management.

SWPPP Revisions

There are two modifications to the existing SWPPP and several temporary stormwater conveyance improvements necessary to implement the modifications described below.

1) The first modification is a gravity connection into the City of Everett Sanitary Sewer. The majority of catchbasins within the KC plant are tributary to a swale on the northern portion of the site adjacent to the secondary clarifiers. Water within the swale is pumped into the secondary clarifiers. This system will be maintained during demolition. The outlet from the secondary clarifiers has been re-routed to gravity drain into a sanitary sewer manhole north east of the treatment plant. This sanitary manhole gravity drains east into the City of Everett sanitary system. This is the preferred construction stormwater disposal method. Stormwater from areas south not directly tributary to the secondary clarifiers will be re-routed or pumped into this system for discharge into the sanitary sewer.
2) In order to implement the preferred stormwater disposal system a catchbasin west of the main office building on the south end of the site will be plugged with an inflatable plug and a temporary pipe will convey drainage into the adjacent sediment pond. Pumps are on-hand to convey water north into the secondary clarifiers. Temporary culverts or BMP C200 Interceptor Dike and Swale may also be utilized.
3) The second modification involves the installation of an ecology block barrier and BMP C235 Wattles (compost sock) in lieu of silt fence along the shoreline. In order to maintain a 25' shoreline buffer with no construction activity an ecology block barrier was chosen to better delineate this no work area. Wattles were chosen to provide filtration instead of silt fence because they better accommodates the variety of ground conditions on the boundary consisting of irregular pavement and gravel.

Attachments/Enclosures: None

Initials: BRD

File Name: P:\K\KMBY00000007\0600INFO\0640Permits\SWPPP Modification #1\9-17-12\Memorandum.docx

PUBLIC WORKS

EVERETT

June 12, 2012

Bryan Lust
Facilities Asset Engineer
Kimberly-Clark
2600 Federal Avenue
Everett, Washington 98201

Subject: **Discharge Authorization #254-12**
Valid from June 12, 2012 to June 11, 2013

Dear Mr. Lust:

Kimberly Clark is authorized to discharge wastewater associated with the site demolition project and stormwater from the site to the combined sewer system. The fee for this authorization is $500, for which we will invoice you.

This Discharge Authorization is contingent on the following conditions:

1) You must comply with the general use and discharge requirements of the Industrial Pretreatment Ordinance #3070-08 as amended (attached), as well as any applicable Federal and State regulations.

2) City of Everett personnel may take samples of the effluent for analysis and may inspect your site to verify compliance at any time.

3) All discharged water shall be routed through a treatment system to remove settleable solids and any free hydrocarbons.

4) For this Discharge Authorization, water shall be only discharged to the side sewer on the property immediately upstream of SMH G3 (see map).

5) At Kimberly-Clark's expense the City will set up a system to continuously meter and monitor KC discharge flow to the City's sewer system. The monitoring system will have the capability to shut off the flow, or inhibit motor starter operations based on current conditions within the city sewer system. The City alone will determine the conditions that flow will be accepted into the city system and consider such items as rainfall, dry and wet weather situations, system current capacity, and if trends toward a combined sewer overflow are occurring. The City will typically allow flow under normal operating conditions and will not unnecessarily prevent flow.

6) Everett's costs to install this system will include labor with overhead, and items such as a meter, PLC, radio antenna, power supply panel relays, terminals, and associated wiring and conduits. This system must be installed and operational prior to flow being discharged to the city. Everett will install this system within 15 working days of KC acceptance of this permit AND receipt of a plan from KC on the pumping system to be used. Once installed the City will invoice KC for the installation. Upon discharge completion the City will remove the monitoring and metering systems and keep.

7) Initial flow volume will be no more than 300 gpm during dry weather conditions. Wet weather flows may vary and will be as directed by the City. Flow modifications can only be approved by Rick Osborne or Will Pollock of the City.

8) The City contact for all operational and discharge coordination is Rick Osborne (desk 425-257-7230; cell 425-359-2101; email rosborne@ci.everett.wa.us) or his designee.

9) The City will bill monthly for the sewer discharge at the current ordinance rate for sewer from industrial users, the current 2012 rate is $5.1889 per 100 cubic feet per meter reading.

10) A report shall be sent at the end of the project with the total volume of water discharged and all analysis data to:

Gene Bennett
Industrial Waste Inspector
City of Everett
3200 Cedar Street
Everett, WA 98201

At that time you will be billed for the industrial surcharge of $0.19 per thousand gallons of flow.

11) The wastewater shall be sampled for the following constituents once per month and reported monthly to Gene Bennett, and is subject to the associated limits:

As	0.5	mg/L
Cd	0.24	"
Cr	5.0	"
Cu	3.0	"
Pb	1.89	"
Hg	0.1	"
Ni	2.83	"
Ag	0.49	"
Zn	4.0	"
CN-	0.65	"
Nonpolar FOG	200	"
pH	5.0 to 11.0	s.u.

12) The authority to discharge storm water to the combined sewer system is valid only during the demolition phase of the project. Once the demolition phase is complete and the property is graded, the storm water may not be discharged to the system.

Please contact Gene Bennett at 425-257-8240 if you have any questions.

Sincerely,

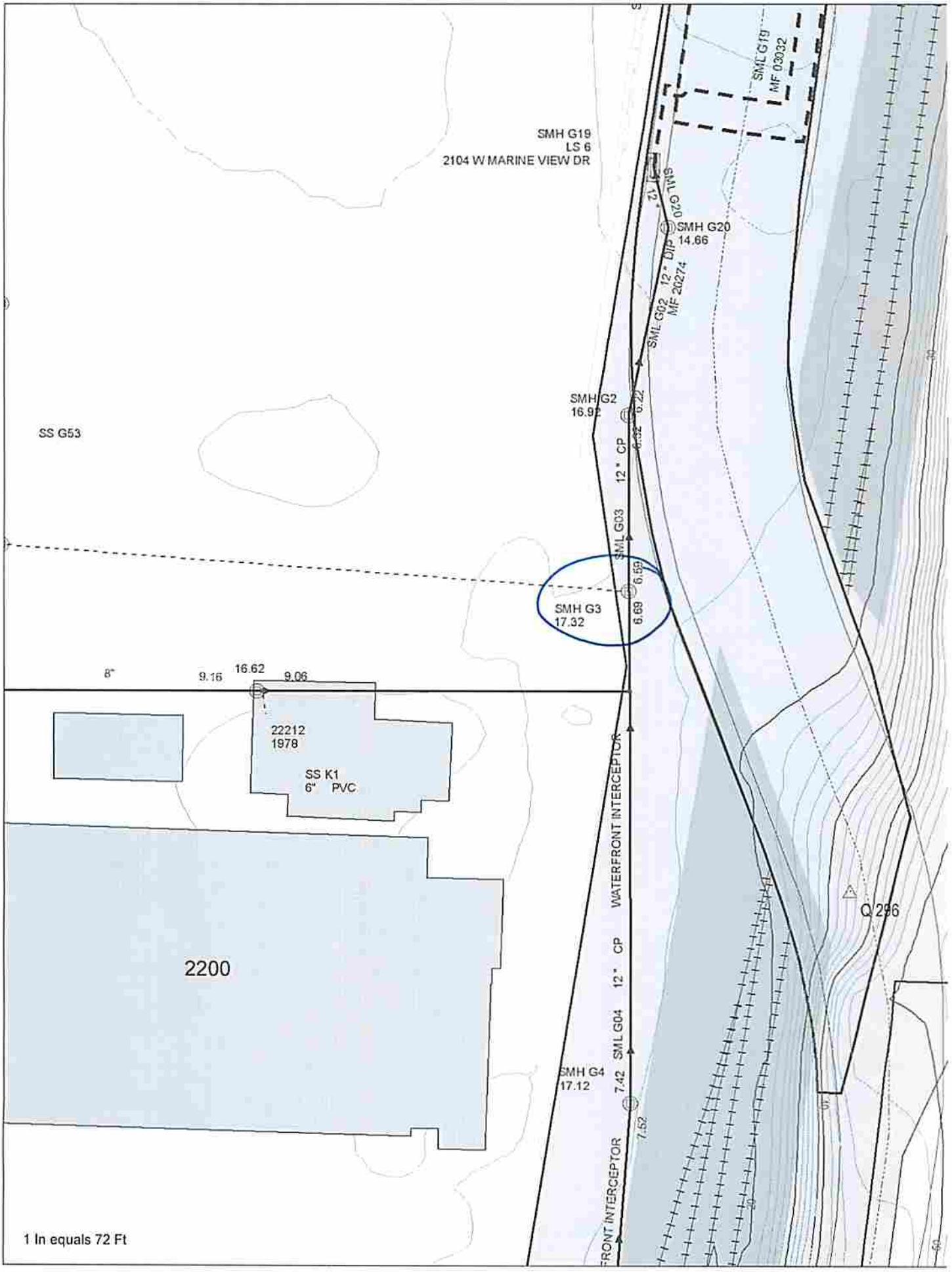
David H. Davis, PE
Public Works Director

Accepted By:

Kimberly Clark Corporation

Attachment: Map showing manhole G3
General Conditions
Pretreatment Ordinance

c:	Doug Knutson	DOE
	Bob Keller	TSG
	Rick Osborne	TSG
	Mark Sadler	Maintenance Superintendent
	Chron File	(1)
	IPT File	(1)


SMH G19
LS 6
2104 W MARINE VIEW DR
SML G19
MF 03032
SML G20
SMH G20
14.66
12" DIP
MF 20274
SML G02
SMH G2
16.92
6.22
SS G53
12" CP
SML G03
6.59
SMH G3
17.32
6.69
8"
9.16
16.62
9.06
22212
1978
SS K1
6" PVC
2200
WATERFRONT INTERCEPTOR
Q 296
12" CP
SML G04
SMH G4
17.12
7.42
7.52
1 In equals 72 Ft

A. Compliance

1. All discharges to the City sanitary sewer system shall be in accordance with the requirements and ordinances of the City.

2. All discharges and activities authorized by this authorization shall be consistent with the terms and conditions of this authorization. The discharge of any pollutant more frequently than or at a level in excess of that authorized by this authorization shall constitute a violation of the terms and conditions of this authorization.

3. The Permittee shall comply with all the general discharge prohibitions in Ordinance 3070-08 and is responsible to take whatever steps are necessary to ensure discharge requirements of this authorization are met.

4. Nothing in this authorization shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

5. All requirements of 40 CFR 403 are incorporated into this authorization by reference.

6. Sanitary sewage shall be disposed of in accordance with the requirements of the Snohomish County Health District.

B. Signatory Requirements

All reports and information submitted to the City shall be signed by an executive officer, or his/her designated official, testifying to the accuracy of the results and representativeness of the sample by making the following statement:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

C. Confidential Information

Except for data determined to be confidential under Section 7 of the City's Industrial Pretreatment Ordinance (No. 3070-08), all reports required by this authorization shall be available for public inspection at the office of the City of Everett, Department of Public Works.

D. Records Retention

The Permittee shall retain for a minimum of three years all records of monitoring activities and results, including all reports of recordings from continuous monitoring instrumentation. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the City.

E. Recording Of Results

For each measurement or sample taken, the Permittee shall record the following information:

1. The date, exact place, and time of sampling;
2. the date the analyses were performed;
3. who performed the analyses;
4. the analytical techniques or methods used;
5. the results of all the analysis and
6. provide certification of representativeness.

F. Representative Sampling

Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and the nature of the monitored discharge.

G. Test Procedures

All sampling and analytical methods used to meet the monitoring requirements specified in this authorization shall, unless approved otherwise in writing by the City, conform to the **Guidelines Establishing Test Procedures for the Analysis of Pollutants**, contained in 40 CFR Section 136. Where 40 CFR Section 136 does not include a sampling or analytical technique for the pollutant in question, sampling and analyses shall be performed in accordance with any other sampling and analyses procedures approved by the EPA Administrator.

H. Bypass

The intentional **bypass** of wastes from all or any portion of a treatment works to the extent that authorization effluent limitations cannot be met is prohibited unless the following four conditions are met:

1. Bypass is: (1) unavoidable to prevent loss of life, personal injury, or severe property damage; or (2) necessary to perform construction or maintenance related activities essential to meet the requirements of the Clean Water Act and authorized by administrative order;

2. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment down time, or temporary reduction or termination of production;

3. The Permittee submits notice of an unanticipated bypass within 24 hours. Where the Permittee knows or should have known in advance of the need for a bypass, this prior notification shall be submitted for approval to the City, if possible, at least 10 days before the date of bypass (or longer if specified in the special condition); and

4. This bypass is allowed under conditions determined to be necessary by the City to minimize any adverse effects. The public shall be notified and be given the opportunity to comment on bypass incidents of significant duration, to the extent feasible.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities that would cause them to become to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic caused by delays in production.

After consideration of the factors above and the adverse effects of the proposed bypass, the City may approve the request.

I. Right of Entry

The Permittee shall allow an authorized representative of the City, upon the presentation of credentials and such other documents as may be required by law and at reasonable hours:

1. To enter the Permittee's premises where a discharge source is located or where any records may be kept under the terms and conditions of the discharge authorization;

2. To have access to and copy any records that may be kept under terms and conditions of the discharge authorization;

3. To inspect any monitoring equipment or method required in the discharge authorization;

4. To inspect any collection, treatment, pollution management, or discharge facilities required under the discharge authorization;

5. To sample any discharge of pollutants. Sampling sites are to remain unobstructed at all times.

Reasonable hours, in regard to inspection and sampling, includes any time that the Permittee is operating any process which results in a process wastewater discharge to the City's sewerage system.

J. Severability

The provisions of this authorization are severable, and if any provision of this authorization, or the application of any provision of this authorization to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this authorization shall not be affected thereby.

K. Property rights

The issuance of this authorization does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State, or Local regulations.

L. Falsifying Information or Tampering With Monitoring Equipment

Knowingly making any false statement on any report or other document required by this authorization or knowingly rendering any monitoring device or method inaccurate, may result in punishment under the criminal laws of the City, as well as being subject to civil penalties and relief.

M. Enforcement Provision

The City may seek any or all of the remedies or penalties (including civil and judicial action) provided in the City ordinance, including recovery costs incurred by the City, in response to the following:

1. any violation by the Permittee of the provision of the Industrial Wastewater Discharge Authorization;

2. any violation by the Permittee of the provision of the City Code; or

3. any violation by the Permittee of any order of the City with respect to provisions set forth in the Industrial Wastewater Discharge Authorization of the City Code.

The range or severity or remedial actions taken by the City against the Permittee will be determined by, but not limited to, the nature, duration, frequency, etc., of the violation.

N. Duty to Reapply

The City shall notify the Permittee 180 days prior to the expiration of the Permitee's authorization. Within 90 days of the notification, the Permittee shall reapply for reissuance of the authorization on a form provided by the City.

O. New or Supplemental Application for Changes

The City may require the Permittee to submit a new application or supplement to the previous application where facility expansions, production increases, or process modifications will result in:

1. new or substantially increased discharges of pollutants,
2. a substantial increase in flow, or
3. violate the terms and conditions of the existing discharge authorization.

The Permittee shall notify the City 60 days prior to such changes. Formal written notification shall follow within 30 days. Submission of such an application does not relieve the discharger of the duty to comply with the existing authorization until it is modified or reissued.

P. Limitation Of Permit Transfer

Discharge authorizations are issued to a specific user for a specific operation and are not assignable to another User or transferable to any other location without the prior written approval of the City. Sale of a User shall obligate the purchaser to seek prior written approval of the City for continued discharge to the sewerage system.

Q. Emergency Suspension Of Service And Revocation Of Authorization

The City may, without advance notice, order the suspension of the wastewater treatment service and revoke the Wastewater Discharge Authorization from a Permittee when it appears to the City that an actual or threatened discharge:

1. presents or threatens an imminent or substantial danger to the health or welfare of persons or substantial danger to the environment, or

2. threatens to interfere with the operation of the POTW, or to violate any pretreatment limits imposed by the Code.

The Permittee notified of the City's suspension order shall immediately cease all discharges. In the event of failure of the Permittee to comply with suspension order, the City may immediately take all necessary steps to halt or prevent any further discharge by such Permittee into a POTW. See Ordinance 3070-08 Sections 9, 10, and 11.

R. Modification or Revision of the Authorization

This authorization may be modified, terminated, or revoked during its term for:

1. Failure of the Permittee to disclose fully all relevant facts or the misrepresentation of any relevant facts by the Permittee in the application or during the authorization issuance process;

2. A violation of any term or condition of the authorization;

3. EPA promulgating a new federal pretreatment standard;

4. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the authorization;

5. Information indicating that the permitted discharge poses a threat to human health or welfare;

6. A change in ownership or control of the source;

7. A change in City Ordinances or other just cause;

8. Incorporating special conditions resulting from the issuance of a special order;

Any authorization modification that results in new conditions in the authorization shall include a reasonable time schedule for compliance, if necessary. Authorization modification, revocation and reissuance, or termination may be initiated by the City or requested by any interested person.

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1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared as part of the DOE Construction Stormwater Discharge Permit for the Kimberly Clark Everett Pulp and Paper Mill, Demolition and Remediation project. The site address is 2600 Federal Avenue, Everett, Washington. Construction activities include disturbing up to 51 acres[1], demolition of some or all buildings, facilities and utilities in ten defined mill areas.

The existing KC Everett Mill comprises five tissue machines, tissue converting, a distribution warehouse, a sulfite pulp mill, two pulp dryers, a wastewater treatment facility, a biomass boiler, a chemical recovery boiler and three natural gas boilers. Support facilities include: a water filtration plant for treatment of water received from the City of Everett, railroad spur tracks, office/engineering facilities, storage facilities for wood chips and hog fuel, and semi-truck parking. The project end result consists of a clean, secure and marketable property.

Construction activities will include demolition of structures on the property, removing or capping of services/utilities and remediation activities for recognized environmental conditions (REC).

The purpose of this SWPPP is to describe the proposed construction activities and all temporary and permanent erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project. The objectives of the SWPPP are to:

1. Implement Best Management Practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. Prevent exceedences of surface water quality, ground water quality, or sediment management standards.

3. Prevent, during the construction phase, adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak flow rates and volumes of stormwater runoff at the Permittee's outfalls.

This SWPPP was prepared using the Ecology SWPPP Template downloaded from the Ecology website on March 1, 2012. This SWPPP was prepared based on the requirements set forth in the Construction Stormwater General Permit, *Stormwater Management Manual for Western Washington* (SWMMWW 2005). The report is divided into seven main sections with several

[1] Total property ownership is approximately 69 acres consisting of 58 acres of uplands, 10.7 acres of tide lands. The project limits are defined as 51 acres.

appendices that include stormwater related reference materials. The topics presented in the each of the main sections are:

- Section 1 – INTRODUCTION. This section provides a summary description of the project, and the organization of the SWPPP document.

- Section 2 – SITE DESCRIPTION. This section provides a detailed description of the existing site conditions, proposed construction activities, and calculated stormwater flow rates for existing conditions and post–construction conditions.

- Section 3 – CONSTRUCTION BMPs. This section provides a detailed description of the BMPs to be implemented based on the 12 required elements of the SWPPP (SWMMWW 2005).

- Section 4 – CONSTRUCTION PHASING AND BMP IMPLEMENTATION. This section provides a description of the timing of the BMP implementation in relation to the project schedule.

- Section 5 – POLLUTION PREVENTION TEAM. This section identifies the appropriate contact names (emergency and non-emergency), monitoring personnel, and the onsite temporary erosion and sedimentation control inspector

- Section 6 – INSPECTION AND MONITORING. This section provides a description of the inspection and monitoring requirements such as the parameters of concern to be monitored, sample locations, sample frequencies, and sampling methods for all stormwater discharge locations from the site.

- Section 7 – RECORDKEEPING. This section describes the requirements for documentation of the BMP implementation, site inspections, monitoring results, and changes to the implementation of certain BMPs due to site factors experienced during construction.

Supporting documentation and standard forms are provided in the following Appendices:

Appendix A – Site plans
Appendix B – Construction BMPs
Appendix C – Alternative Construction BMP list
Appendix D – General Permit
Appendix E – Site Log and Inspection Forms
Appendix F – Engineering Calculations
Appendix G – Handling and Disposal Plan for Soil
Appendix H – WA DOE Forms

2.0 Site Description

The site is located on the western waterfront in the City of Everett with adjacent property uses that include the Everett Naval Station to the north, Burlington Northern-Santa Fe railway to the east, Dunlap Towing to the southwest and the Port of Everett to the immediate south. Port Gardner Bay (East Waterway) is adjacent to the west. There are three main vehicle entrances and four rail spurs for access to the site. A site vicinity map is provided in Appendix A.

The site consists of approximately 69-acres made up of 11 tax parcels. The site is currently developed with a combination of buildings, storage areas and water and wastewater treatment facilities. Construction activities for this project will be limited to the area immediately west of the BNSF railroad tracks to within 25 feet of the shoreline of Port Gardner Bay. The site is gently sloped from east to west. Currently drainage from the majority of the site combines and is pumped into the onsite wastewater treatment facility located in the north portion of the site. The wastewater plant discharges into a deep water outfall (100) located in Port Gardner Bay. There is an emergency outfall (008) from the secondary clarifiers also. The soils are classified by the NRCS Soil Survey as predominately urban land with underlying Everett gravelly sandy loam. The site history also includes areas of fill.

2.1 Existing Conditions

The existing site is developed with the Kimberly Clark Everett Pulp and Paper Mill and comprises five tissue machines, tissue converting, a distribution warehouse, a sulfite pulp mill, two pulp dryers, a wastewater treatment facility, a biomass boiler, a chemical recovery boiler and three natural gas boilers. Support facilities include: a water filtration plant for treatment of water received from the City of Everett, railroad spur tracks, office/engineering facilities, storage facilities for wood chips and hog fuel, and semi-truck parking.

Runoff from the site currently drains east to west into a series of sumps and catch basins and is pumped into the onsite wastewater treatment facility. The site operates under a State of Washington Department of Ecology Industrial Waste Discharge Permit (No. WA-000062-1). The permit allows for treated water from the site to be discharged via deep water outfall (100) located in Port Gardner Bay (Possession Sound). Other outfalls (009, 010, and 011) can be used to discharge stormwater from parking lots and associated areas utilizing Best Management Practices (BMPs) for the stormwater runoff. Under emergency situations outfalls (003 and 008) can be utilized for stormwater discharge. See Appendix A.

There are no critical areas on the site such as high erosion risk areas, wetlands, streams, or steep slopes (potential landslide area). The site is located on the shoreline of Port Gardner Bay. The limits of work will be outside of a 25 foot shoreline buffer, except for the potential demolition of the Storage and Manufacturing Information Systems building, located in the southwest portion of the site, portions of which will require work within approximately 20 feet of the shoreline.

2.2 Proposed Construction Activities

The proposed project involves up to 51 acres[2] of soil disturbance for deconstruction and remediation activities.

Construction activities may include temporary erosion and sedimentation control installation, utility capping/removal/de-energizing, building demolition, concrete/asphalt paving removal, remediation activities for recognized environmental conditions (REC), and final site stabilization. The schedule and phasing of BMPs during construction is provided in Section 4.0.

Stormwater runoff volumes were calculated using the Western Washington Hydrology Model (WWHM). The temporary sedimentation ponds that will be installed and used during construction and will be designed using the 2-year storm event. Construction is estimated to occur over a one year time frame. The temporary sedimentation ponds were designed using WWHM where the treatment was sized using the 6-month treatment volume.

The following summarizes details regarding site areas:

- Total site area: 51 acres
- Percent impervious area before construction: 94%
- Percent impervious area after construction: up to 94 %
- Disturbed area during construction: up to 51 acres
- Disturbed area that is characterized as impervious (i.e., access roads, staging, parking): up to 48 acres
- 2-year stormwater runoff peak flow prior to construction (existing): 14.06 cfs
- 10-year stormwater runoff peak flow prior to construction (existing): 22.36 cfs
- 2-year stormwater runoff peak flow during construction: 14.06 cfs
- 10-year stormwater runoff peak flow during construction: 22.36 cfs
- 2-year stormwater runoff peak flow after construction without flow control: 2.96 cfs
- 10-year stormwater runoff peak flow after construction without flow control: 7.20 cfs

All stormwater flow calculations are provided in Appendix F.

[2] Total property ownership is approximately 69 acres consisting of 58 acres of uplands, 10.7 acres of tide lands. The project limits are defined as 51 acres.

3.0 Construction Stormwater BMPs

3.1 The 12 BMP Elements

3.1.1 Element #1 – 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. Areas that are to be preserved, as well as all sensitive areas and their buffers, shall be clearly delineated, both in the field and on the plans. The BMPs relevant to marking the clearing limits that will be applied for this project include:

High Visibility Plastic or Metal Fence (BMP C103)
Alternative BMP not included in the SWMMWW (2005)

Alternate BMPs for marking clearing limits are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the conditions of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

3.1.2 Element #2 – Establish Construction Access

Construction access or activities occurring on unpaved areas shall be minimized, yet where necessary, access points shall be stabilized to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning shall be employed to prevent sediment from entering state waters. All wash wastewater shall be controlled on site with measures described in Element #9. The specific BMPs related to establishing construction access that will be used on this project include:

Construction Road/Parking Area Stabilization (BMP C107)
Stabilized Construction Entrance (BMP C105)
Wheel Wash (BMP C106)
Alternative BMP not included in the SWMMWW (2005)

Alternate construction access BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective. To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

3.1.3 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 managed. The specific BMPs for flow control that shall be used on this project include:

Temporary Sediment Ponds (BMP C241)
Alternative BMP not included in the SWMMWW (2005)

Alternate flow control BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

The project site is located west of the Cascade Mountain Crest. As such, the project will comply with Minimum Requirement 7: Flow Control (SWMMWW 2005).

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).

3.1.4 Element #4 – Install Sediment Controls

All stormwater runoff from disturbed areas shall pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to an infiltration facility. The specific BMPs to be used for controlling sediment on this project include:

Compost Sock (BMP C233 silt fence alternative, Filtrexx® or SiltSoxx®)
Silt Fence (BMP C233)
Temporary Sediment Ponds (BMP C241)
Materials on Hand (BMP C150)
Alternative BMP not included in the SWMMWW (2005)

Alternate sediment control BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

In addition, sediment will be removed as needed 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 washoff of sediments from adjacent streets. Sediment-laden water will not be discharged onto level onsite vegetated areas (BMP C240) because no such vegetated areas are present on site.

In some cases, sediment discharge in concentrated runoff can be controlled using permanent stormwater BMPs (e.g., infiltration swales, ponds, trenches). Sediment loads can limit the effectiveness of some permanent stormwater BMPs, such as those used for infiltration or biofiltration; however, those BMPs designed to remove solids by settling (wet ponds or detention ponds) can be used during the construction phase. When permanent stormwater BMPs will be used to control sediment discharge during construction, the structure will 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 will be reestablished with vegetation per applicable design requirements.

The following BMPs will be implemented as end-of-pipe sediment controls as required to meet permitted turbidity limits in the site discharge(s). Prior to the implementation of these technologies, sediment sources and erosion control and soil stabilization BMP efforts will be maximized to reduce the need for end-of-pipe sedimentation controls.

1. Construction Stormwater Filtration (BMP C251)
2. Construction Stormwater Chemical Treatment (BMP C250) (implemented only with prior written approval from Ecology).
3. Discharge to City of Everett Sanitary Sewer (implemented only with prior written approval from the City of Everett)

3.1.5 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. The specific BMPs for soil stabilization that shall be used on this project include:

Temporary and Permanent Seeding (BMP C120)
Mulching (BMP C121)
Plastic Covering (BMP C123)
Dust Control (BMP C140)
Construction Road/Parking Area Stabilization (BMP C107)
Materials on Hand (BMP C150)
Alternative BMP not included in the SWMMWW (2005)

Alternate soil stabilization BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix

D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

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.

3.1.6 Element #6 – Protect Slopes

All cut and fill slopes will be designed, constructed, and protected in a manner than minimizes erosion. The following specific BMPs will be used to protect slopes for this project:

No BMPs to be implemented as the site is flat.

Alternate slope protection BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

3.1.7 Element #7 – Protect Drain Inlets

All storm drain inlets and culverts existing or made operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. However, the first priority is to keep all access roads clean of sediment and keep street wash water separate from entering storm drains until treatment can be provided. Storm Drain Inlet Protection (BMP C220) will 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:

Storm Drain Inlet Protection (BMP C220 or alternative Filtrexx® InletSoxx®)
Alternative BMP not included in the SWMMWW (2005)

If the BMP options listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D), or if no BMPs are listed above but deemed necessary during construction, the Certified Erosion and Sediment Control Lead shall implement one or more of the alternative BMP inlet protection options listed in Appendix C.

3.1.8 Element #8 – Stabilize Channels and Outlets

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts will be taken to prevent downstream erosion. The specific BMPs for channel and outlet stabilization that shall be used on this project include:

Outlet Protection (BMP C209)
Alternative BMP not included in the SWMMWW (2005)

Alternate channel and outlet stabilization BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

3.1.9 Element #9 – Control Pollutants

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

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

- All vehicles, equipment, and petroleum product storage/dispensing areas 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.

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 SWMMWW 2005

- 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).

- 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).

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 on-site 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.

As per the Federal regulations of the Clean Water Act (CWA) and according to Final Rule 40 CFR Part 112, as stated in the National Register, a Spill Prevention, Control, and Countermeasure (SPCC) Plan is required for construction activities. A SPCC Plan will be prepared by the contractor to address an approach to prevent, respond to, and report spills or releases to the environment that could result from construction activities. This Plan must:

- Be well thought out in accordance with good engineering;
- Achieve three objectives - prevent spills, contain a spill that occurs, and clean up the spill;
- Identify the name, location, owner, and type of facility;
- Include the date of initial operation and oil spill history;
- Name the designated person responsible;
- Show evidence of approval and certification by the person in authority; and
- Contain a facility analysis.

3.1.10 Element #10 – Control Dewatering

No dewatering is anticipated as part of this construction project. Contractor will develop dewatering plan if necessary given site specific construction needs.

Alternate dewatering control BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause an exceedence of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective.

3.1.11 Element #11 – Maintain BMPs

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs will be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency will be reduced to once every month.

All temporary erosion and sediment control BMPs shall be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.

3.1.12 Element #12 – Manage the Project

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

- Design the project to 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.

In addition, project management will incorporate the key components listed below:

As this project site is located west of the Cascade Mountain Crest, the project will be managed according to the following key project components:

Phasing of Construction

- The construction project is being phased to the extent practicable in order to prevent soil erosion, and, to the maximum extent possible, the transport of sediment from the site during construction.

- Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities during each phase of construction, per the Scheduling BMP (C 162).

Seasonal Work Limitations

- From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the site through a combination of the following:

  Site conditions including existing vegetative coverage, slope, soil type, and proximity to receiving waters; and

  Limitations on activities and the extent of disturbed areas; and

  Proposed erosion and sediment control measures.

- Based on the information provided and/or local weather conditions, the local permitting authority may expand or restrict the seasonal limitation on site disturbance.

- The following activities are exempt from the seasonal clearing and grading limitations:

  Routine maintenance and necessary repair of erosion and sediment control BMPs;

  Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and

  Activities where there is 100 percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

Coordination with Utilities and Other Jurisdictions

- Care has been taken to coordinate with utilities, other construction projects, and the local jurisdiction in preparing this SWPPP and scheduling the construction work.

Inspection and Monitoring

- All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to:

  Assess the site conditions and construction activities that could impact the quality of stormwater, and

  Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

- A Certified Erosion and Sediment Control Lead shall be on-site or on-call at all times.

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

Maintaining an Updated Construction SWPPP

- This SWPPP shall be retained on-site or within reasonable access to the site.

- The SWPPP shall be modified whenever there is a change in the 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 shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) days following the inspection.

3.2 Site Specific BMPs

Site specific BMPs are shown on the Figures and Details in Appendix A. These site specific figures will be updated regularly as conditions change.

4.0 Construction Phasing and BMP Implementation

The BMP implementation schedule will be driven by the construction schedule. The following provides a sequential list of the proposed construction schedule milestones and the corresponding BMP implementation schedule. The list contains key milestones such as wet season construction.

The BMP implementation schedule listed below is keyed to proposed phases of the construction project, and reflects differences in BMP installations and inspections that relate to wet season construction. The project site is located west of the Cascade Mountain Crest. As such, the dry season is considered to be from May 1 to September 30 and the wet season is considered to be from October 1 to April 30.

(Contractor to provide detailed project schedule and insert here.)

1.	Estimate of Construction start date:	__5/01/2012_
2.	Estimate of Construction finish date:	_12/31/2012_
3.	Mobilize equipment on site:	_____
4.	Mobilize and store all ESC and soil stabilization products (store materials on hand BMP C150):	_____
5.	Install ESC measures:	_____
6.	Begin clearing and demolition:	_____
7.	Excavate and install new utilities and services :	_____
8.	Begin implementing soil stabilization and sediment control BMPs throughout the site in preparation for wet season:	_____
9.	**Wet Season starts:**	**10 / 01 / 2012**
10.	Site inspections and monitoring conducted weekly and for applicable rain events as detailed in Section 6 of this SWPPP:	10 / 01 / 2012
11.	Implement Element #12 BMPs and manage site to minimize soil disturbance during the wet season	10 / 01 / 2012
12.	Install final stabilization:	_____
13.	**Dry Season starts:**	**05 / 01 / 2012**

5.0 Pollution Prevention Team

5.1 Roles and Responsibilities

The pollution prevention team consists of personnel responsible for implementation of the SWPPP, including the following:

- Certified Erosion and Sediment Control Lead (CESCL) – primary contractor contact, responsible for site inspections (BMPs, visual monitoring, sampling, etc.); to be called upon in case of failure of any ESC measures.

- Resident Engineer – For projects with engineered structures only (sediment ponds/traps, sand filters, etc.): site representative for the owner that is the project's supervising engineer responsible for inspections and issuing instructions and drawings to the contractor's site supervisor or representative

- Emergency Ecology Contact – individual to be contacted at Ecology in case of emergency.

- Emergency Owner Contact – individual that is the site owner or representative of the site owner to be contacted in the case of an emergency.

- Non-Emergency Ecology Contact – individual that is the site owner or representative of the site owner than can be contacted if required.

- Monitoring Personnel – personnel responsible for conducting water quality monitoring; for most sites this person is also the Certified Erosion and Sediment Control Lead.

5.2 Team Members

Names and contact information for those identified as members of the pollution prevention team are provided in the following table.

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	Keith Trosterud	716-998-6680
Resident Engineer	John Smith	425-259-4099
Emergency Ecology Contact	Kevin Fitzpatrick	425-649-7000
Emergency Owner Contact	Bryan Lust	425-259-5702
Non-Emergency Ecology Contact	Kevin Fitzpatrick	425-649-7000
Monitoring Personnel	Keith Trosterud	716-998-6680

6.0 Site Inspections and Monitoring

Monitoring includes visual inspection, monitoring for water quality parameters of concern, and documentation of the inspection and monitoring 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; and,
- Stormwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book. This SWPPP may function as the site log book if desired, or the forms may be separated and included in a separate site log book. However, if separated, the site log book but must be maintained on-site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

6.1 Site Inspection

All BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. The inspector will be a Certified Erosion and Sediment Control Lead (CESCL) per BMP C160. The name and contact information for the CESCL is provided in Section 5 of this SWPPP.

Site inspection will occur in all areas disturbed by construction activities and at all stormwater discharge points. Stormwater will be examined for the presence of suspended sediment, turbidity, discoloration, and oily sheen. The site inspector will 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 will be documented in the site log book or forms provided in this document. All new BMPs or design changes will be documented in the SWPPP as soon as possible.

6.1.1 Site Inspection Frequency

Site inspections will be conducted at least once a week and within 24 hours following any rainfall event which causes a discharge of stormwater from the site. For sites with temporary stabilization measures and on inactive status, the site inspection frequency can be reduced to once every month.

6.1.2 Site Inspection Documentation

The site inspector will record each site inspection using the site log inspection forms provided in Appendix E. The site inspection log forms may be separated from this SWPPP document, but will be maintained on-site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

6.2 Stormwater Quality Monitoring

The construction site is greater than one acre in size, and does not discharge to an impaired water body, and is therefore subject to the general water quality monitoring requirements set forth in the 2005 Construction Stormwater General Permit (Appendix D).

6.2.1 Turbidity Sampling

Monitoring requirements for the proposed project will include either turbidity or water transparency sampling to monitor site discharges for water quality compliance with the 2005 Construction Stormwater General Permit (Appendix D). Sampling will be conducted during normal working hours at all discharge points at least once per calendar week when stormwater discharges from the site.

Turbidity monitoring will follow the analytical methodologies described in Section S4 of the 2005 Construction Stormwater General Permit (Appendix D). The key benchmark values that require action are 25 NTU and 250 NTU. If the 25 NTU benchmark is exceeded, the following steps will be conducted:

1. Ensure all BMPs specified in this SWPPP are installed and functioning as intended.

2. Assess whether additional BMPs should be implemented, and document revisions to the SWPPP as necessary.

3. Sample discharge location daily until the analysis results are less than 25 NTU (turbidity).

If the turbidity is greater than 25 NTU but less than 250 NTU for more than 3 days, additional treatment BMPs will be implemented within 24 hours of the third consecutive sample that exceeded the benchmark value. Additional treatment BMPs to be considered will include, but are not limited to, off-site treatment, infiltration, filtration and chemical treatment.

If the 250 NTU benchmark for turbidity is exceeded at any time, the following steps will be conducted:

1. Notify Ecology by phone within 24 hours of analysis (see Section 5.0 of this SWPPP for contact information).

2. Continue daily sampling until the turbidity is less than 25 NTU.

3. Initiate additional treatment BMPs such as off-site treatment, infiltration, filtration and chemical treatment within 24 hours of the first exceedence.

4. Implement additional treatment BMPs as soon as possible, but within 7 days of the first exceedence.

5. Describe inspection results and remedial actions taken in the site log book and in monthly discharge monitoring reports as described in Section 7.0 of this SWPPP.

6.2.2 pH

No concrete will be poured for this project. However, sampling and monitoring for pH will occur during the phase of construction if concrete crushing will be conducted and discharges are documented to be below pH 8.5. Samples will be collected weekly at the sedimentation pond prior to discharge to surface water. Samples will be analyzed for pH using a calibrated pH meter and recorded in the site log book.

The key benchmark pH value for stormwater is a maximum of 8.5. If a pH greater than 8.5 is measured in the sedimentation trap/pond(s) that has the potential to discharge to surface water, the following steps will be conducted:

1. Prevent (detain) all discharges from leaving the site and entering surface waters or storm drains if the pH is greater than 8.5

2. Implement CO_2 sparging or dry ice treatment in accordance with Ecology BMP C252.

3. Describe inspection results and remedial actions that are taken in the site log book and in monthly discharge monitoring reports as described in Section 7.0 of this SWPPP.

7.0 Reporting and Recordkeeping

7.1 Recordkeeping

7.1.1 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; and,
- Stormwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book. A separate site log book is not required and this document may also serve as a log book. However, if extensive monitoring is anticipated a separate log book may be useful.

7.1.2 Records Retention

Records of all monitoring information (site log book, inspection reports/checklists, etc.), this Stormwater Pollution Prevention Plan, and any other documentation of compliance with permit requirements will be retained during the life of the construction project and for a minimum of three years following the termination of permit coverage in accordance with permit condition S5.C.

7.1.3 Access to Plans and Records

The Notice of Intent, SWPPP, General Permit, Notice of Authorization letter, and Site Log Book will be retained on site or within reasonable access to the site and will be made immediately available upon request to Ecology or the local jurisdiction. A copy of this SWPPP will be provided to Ecology within 14 days of receipt of a written request for the SWPPP from Ecology. Any other information requested by Ecology will be submitted within a reasonable time. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with permit condition S5.G.

7.1.4 Updating the SWPPP

In accordance with Conditions S3, S4.B, and S9.B.3 of the General Permit, this SWPPP will be modified if the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site or there has been a change in design, construction, operation, or maintenance at the site that has a significant effect on the discharge, or potential for discharge, of pollutants to the waters of the State. The SWPPP

will be modified within seven days of determination based on inspection(s) that additional or modified BMPs are necessary to correct problems identified, and an updated timeline for BMP implementation will be prepared.

7.2 Reporting

7.2.1 Discharge Monitoring Reports

Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period, the Permittee shall submit the form as required, with the words "No discharge" entered in the place of monitoring results. The DMR due date is 15 days following the end of each month.

7.2.2 Notification of Noncompliance

If any of the terms and conditions of the permit are not met, and it causes a threat to human health or the environment, the following steps will be taken in accordance with permit section S5.F:

1. Ecology will be immediately notified of the failure to comply.

2. Immediate action will be taken to control the noncompliance issue and to correct the problem. 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 exceedence.

3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

Any time turbidity sampling indicates turbidity is 250 NTU or greater, the Ecology regional office will be notified by phone within 24 hours of analysis as required by permit condition S5.A (see Section 5.0 of this SWPPP for contact information).

In accordance with permit condition S4.F.6.b, the Ecology regional office will be notified if chemical treatment other than CO_2 sparging is planned for adjustment of high pH water (see Section 5.0 of this SWPPP for contact information).

7.2.3 Permit Application and Changes

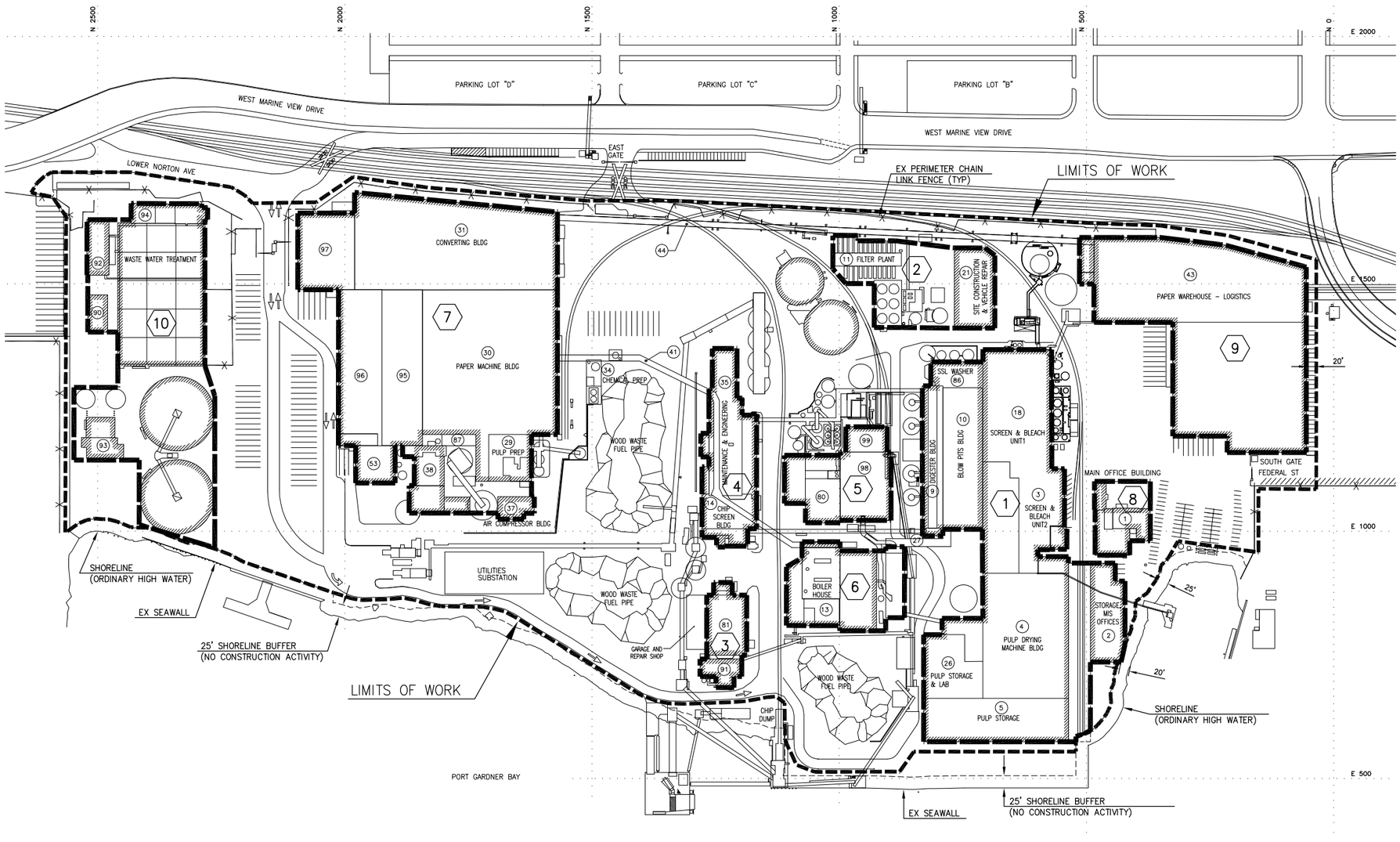
In accordance with permit condition S2.A, a complete application form (Notice of Intent) will be submitted to Ecology and the appropriate local jurisdiction (if applicable) to be covered by the General Permit.

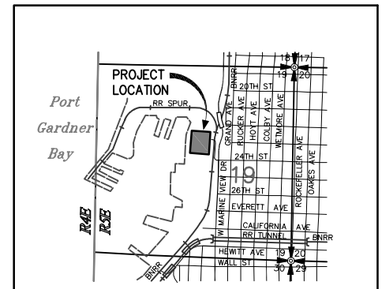
Appendix A – Site Plans

KIMBERLY-CLARK EVERETT PLANT
BUILDING DEMOLITION PLANS
A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

NORTH
0 120 240 480
SCALE: 1"=240'

CALL
2 BUSINESS DAYS
BEFORE YOU DIG
FOR UTILITY LOCATE
811





VICINITY MAP
SCALE: 1"=4000'

DEVELOPMENT DATA:

APPLICANT:	KIMBERLY-CLARK WORLDWIDE INC 2600 FEDERAL AVE. EVERETT, WASHINGTON 98201 425.259.5702 ATTENTION: BRYAN LUST, PROJECT ENGINEER
ENGINEER/PLANNER SURVEYOR:	DAVID EVANS and ASSOCIATES, INC. 1620 W. MARINE VIEW DR. SUITE 200 EVERETT, WASHINGTON 98201 425.259.4099 ATTENTION: JOHN SMITH, P.E. BOB HERMANN, P.L.S.

SITE DATA:

TAX PARCEL NUMBER:	29051900201500 29051900201300 29051900201100 29051900201000 29051900200900 29051900200200 29051900200100 00597761803000 00597761801000 00597761800600 00437461700200 00437461803901
PRESENT USE:	MANUFACTURING – PAPER PRODUCTS
EXISTING ZONING:	M-2 HEAVY MANUFACTURING
TOTAL AREA:	69.0 ACRES

CONSTRUCTION NOTES

(X) SYMBOL INDICATES PROPOSED SEQUENCE OF BUILDING DEMOLITION

1. SOME BUILDINGS OR FACILITIES MAYBE WITHDRAWN FROM DEMOLITION (SEE FIGURE 4) AND SEQUENCES MAY CHANGE.

FILEKEY	BUILDING NAME	YR CONSTRUCTED
EB 1	MAIN OFFICE BUILDING	1929
EB 2	STORAGE, MIS OFFICES	1930
EB 3	SCREEN AND BLEACH UNIT1	1930
EB 4	PULP DRYING MACHINE BLDG	1930
EB 5	PULP STORAGE	1930
EB 9	DIGESTER BLDG	1929, 35, 36
EB 10	BLOW PITS BLDG	1930
EB 11	FILTER PLANT	1930
EB 13	BOILER HOUSE	1940, 53, 54, 55
EB 14	CHIP SCREEN BLDG	1930
EB 18	SCREEN AND BLEACH UNIT 1	1936

FILEKEY	BUILDING NAME	YR CONSTRUCTED
EB 21	SITE CONSTRUCTION & VEHICLE REPAIR	1970
EB 26	PULP STORAGE & LAB	1930
EB 27	ACID FILTER BUILDING	1930
EB 29	PULP PREP	1955
EB 30	PAPER MACHINE BLDG	1953-1955
EB 31	CONVERTER BLDG	1953-1955
EB 34	CHEMICAL PREP	----
EB 35	MAINTENANCE & ENGINEERING	1954
EB 37	AIR COMPRESSOR BLDG	1990
EB 38	BROKE STORAGE BLDG & NO. 6 & 7 PULPERS	1984

FILEKEY	BUILDING NAME	YR CONSTRUCTED
EB 41	PIPE BRIDGE	----
EB 43	PAPER WAREHOUSE - LOGISTICS	1959, 1969
EB 44	PRODUCT CONVEYOR	----
EB 53	TMS CHEMICAL STORAGE BLDG	1984
EB 80	SSL RECOVERY, #10 BOILER	1973
EB 81	STORES/ RECEIVING	1965
EB 86	SSL WASHER	1973
EB 87	SECONDARY FIBER	1955
EB 90	ROLL STORAGE BLDG	1984
EB 91	SLUDGE DEWATERING	1979
EB 92	SECONDARY TREATMENT BLOWER BLDG.	1980

FILEKEY	BUILDING NAME	YR CONSTRUCTED
EB 93	SECONDARY TREATMENT PUMP BLDG.	1980
EB 94	SECONDARY TREATMENT CHEM. BLDG.	1980
EB 95	NO.5 PAPER MACHINE	1982
EB 96	PARENT ROLL STORAGE	1980
EB 97	CONVERTING ADDITION	1980
EB 98	NO. 14 BOILER	1994
EB 99	NO.14 TURBINE GENERATOR	1994

BUILDING DEMOLITION SITE PLAN
KIMBERLY-CLARK EVERETT PLANT
BUILDING DEMOLITION
KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

REVISIONS:	APPD.
REVISED DEMO SEQUENCE	5/22/12

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PROJECT NUMBER:
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OF 8

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A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

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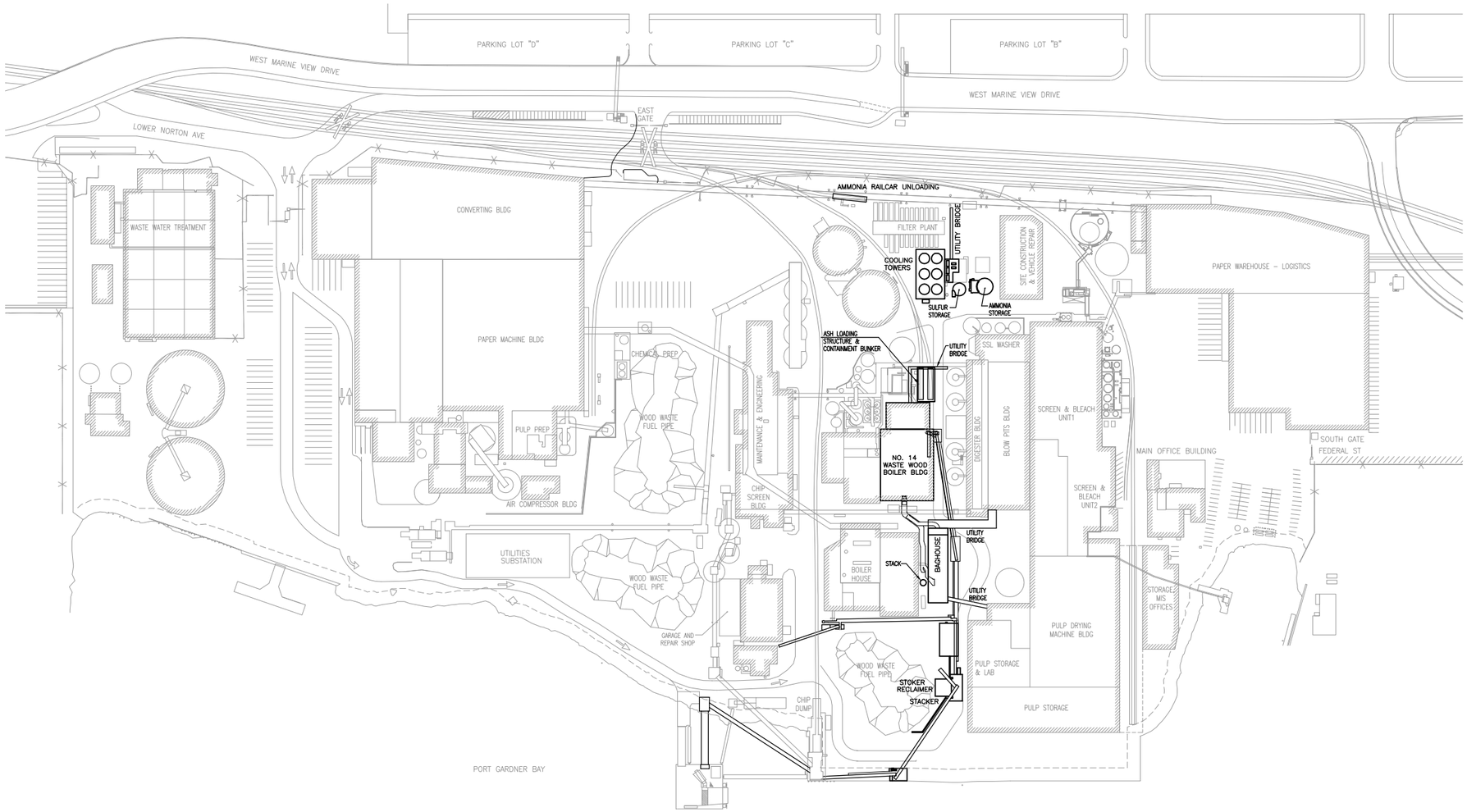

DEVELOPMENT DATA:

APPLICANT: KIMBERLY-CLARK WORLDWIDE INC
2600 FEDERAL AVE.
EVERETT, WASHINGTON 98201
425.259.5702
ATTENTION: BRYAN LUST, PROJECT ENGINEER

ENGINEER/PLANNER
SURVEYOR: DAVID EVANS and ASSOCIATES, INC.
1620 W. MARINE VIEW DR. SUITE 200
EVERETT, WASHINGTON 98201
425.259.4099
ATTENTION: JOHN SMITH, P.E.
BOB HERMANN, P.L.S.

DEMOLITION NOTES

1. THE REMOVAL OF THE P.U.D. ASSETS SHOWN ON THIS DRAWING SHALL BE ACCOUNTED FOR SEPARATELY PER BIDDER'S INSTRUCTIONS.

2. IN GENERAL THE P.U.D. ASSETS INCLUDE:
   A. HOG FUEL BARGE UNLOADING
   B. HOG FUEL DELIVERY (GREEN CONVEYORS)
   C. SLUDGE FUEL DELIVERY (GREEN CONVEYORS)
   D. BOILER, BUILDING & CONTENTS
   E. TURBINE GENERATOR, BUILDING & CONTENTS
   F. BAG HOUSE, DUCTING & STACK (175'±)
   G. ASH LOADING, STRUCTURE & CONTAINMENT BUNKER
   H. COOLING TOWERS & PUMP BUILDING
   I. SULFUR STORAGE
   J. AMMONIA STORAGE (AQUEOUS)
   K. AMMONIA RAILCAR UNLOADING

P.U.D. ASSET DEMOLITION PLAN

KIMBERLY-CLARK EVERETT PLANT
BUILDING DEMOLITION

KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

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OF 8

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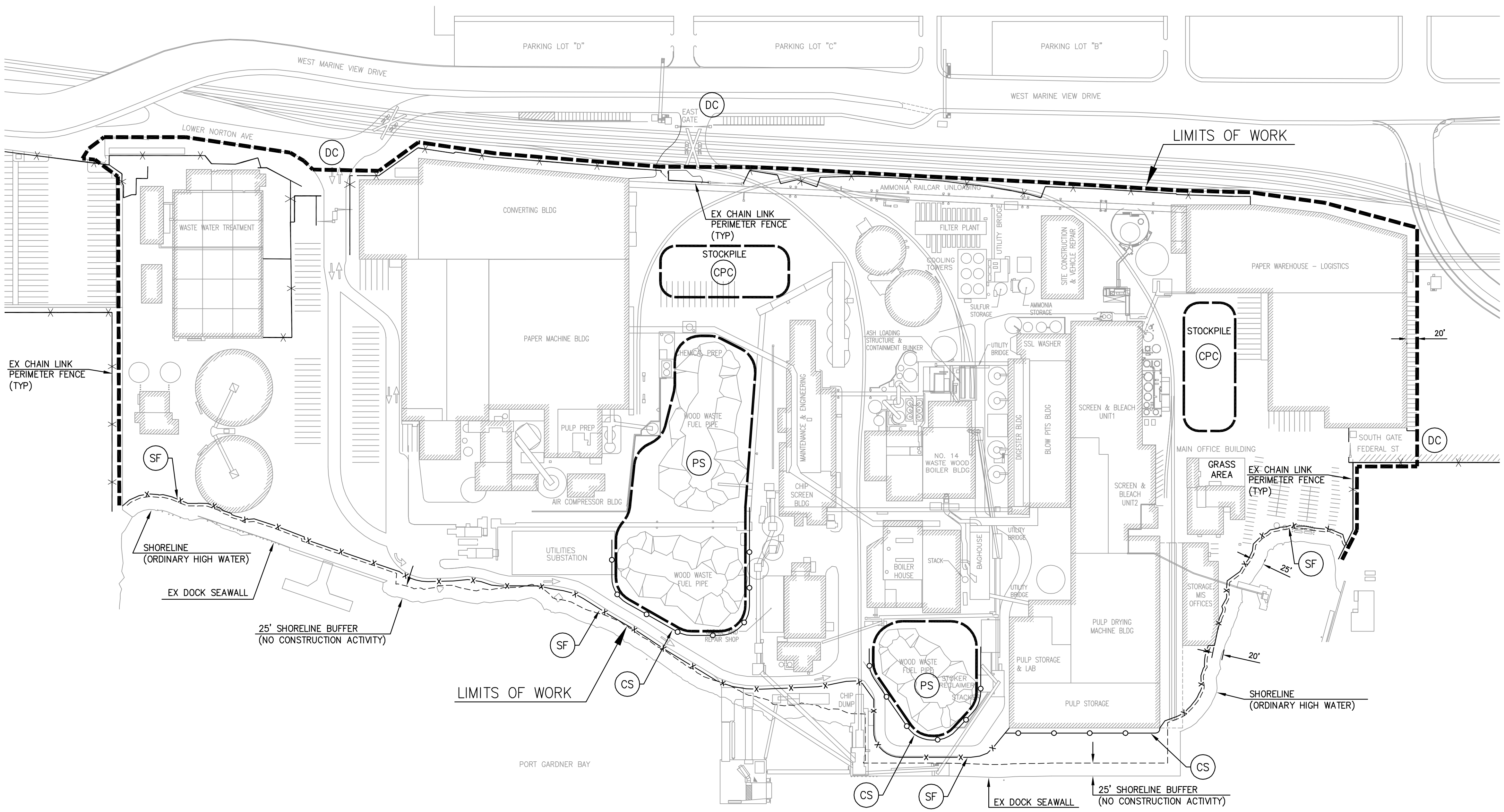

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2600 FEDERAL AVE.
EVERETT, WASHINGTON 98201
425.259.5702
ATTENTION: BRYAN LUST, PROJECT ENGINEER

ENGINEER/PLANNER SURVEYOR: DAVID EVANS and ASSOCIATES, INC.
1620 W. MARINE VIEW DR. SUITE 200
EVERETT, WASHINGTON 98201
425.259.4099
ATTENTION: JOHN SMITH, P.E.
BOB HERMANN, P.L.S.

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL MAINTAIN EXISTING PERIMETER FENCE AS WORK LIMITS.
2. SEDIMENT TRAPS TO BE REMOVED AS THE LAST STAGE OF CONSTRUCTION AFTER TRIBUTARY AREAS HAVE BEEN STABILIZED.
3. KIMBERLY–CLARK'S "GENERAL TERMS AND CONDITIONS" WILL APPLY TO ALL CONTRACTORS IN ALL SCOPES OF THE PROJECT.
4. ASBESTOS CONTROL – ASBESTOS CONTAINING MATERIAL (ACM) MAY BE ENCOUNTERED DURING DEMOLITION OF BUILDING IN THE FORM OF ASBESTOS CEMENT PIPE, PIPE INSULATION, OR AS INSULATION IN THE BUILDING. IT IS IMPERATIVE THAT ASBESTOS FIBER RELEASE BE CONTROLLED. THE CONTRACTOR SHALL HAVE ALL ASBESTOS REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY A STATE LICENSED ASBESTOS CONTRACTOR IN ACCORDANCE WITH THE PRACTICES SPECIFIED BY THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY, THE SNOHOMISH COUNTY SOLID WASTE DIVISION AND ALL OTHER PERINENT STATE AND FEDERAL REGULATIONS. ONLY EMPLOYEES CERTIFIED BY THE STATE OF WASHINGTON AS A CERTIFIED ASBESTOS WORKER MAY WORK ON ACM DURING CONSTRUCTION, DEMOLITION, REPAIR, MAINTENANCE, RENOVATION, SALVAGE OR DISPOSAL OF ACM.
5. CONDITIONS AFTER DEMOLITION WILL CONSIST OF CONCRETE/ASPHALT SURFACES AND TWO (2) HYDROSEEDED AREAS.

EROSION CONTROL MONITORING PLAN

1. OBSERVE EROSION CONTROL MEASURES AT THE BEGINNING AND END OF EACH DAY. REPAIR AND OR REPLACE AS NECESSARY TO ASSURE PROPER FUNCTION.
2. OBSERVE COLLECTION FACILITIES DURING PERIODS OF HEAVY RAINFALL AND WET WEATHER CONDITIONS.
3. OBSERVE AND MONITOR STABILIZATION TECHNIQUES. MAKE REPAIRS AND/OR ALTERATIONS AS NECESSARY TO PREVENT EROSION.
4. COMPLY WITH ALL DOE AND COE REQUIREMENTS FOR DISCHARGE OF CONSTRUCTION STORMWATER.

CERTIFIED EROSION CONTROL SPECIALIST:

TO BE PROVIDED BY CONTRACTOR

STANDARD PRACTICE CODING SYSTEM:

CONTRACTOR TO INSTALL AND MAINTAIN ALL EROSION CONTROL BMP'S AS SHOWN ON THIS PLAN IN ACCORDANCE WITH DEPARTMENT OF ECOLOGY STORMWATER POLLUTION PREVENTION REQUIREMENTS SUMMARIZED ON SHEET C5. IF BMP INSTALLATION AND MAINTENANCE IS INADEQUATE TO MEET THESE REQUIREMENTS CONTRACTOR TO PROVIDE ADDITIONAL BMP'S AT NO ADDITIONAL COST TO OWNER.

CODE	BMPs
CE	CONSTRUCTION ENTRANCE (D.O.E. BMP C105)
CPC	CLEAR PLASTIC COVERING (D.O.E. BMP C123)
CS	COMPOST SOCK (WSDOT STD PLAN I–30.40–00)
DC	DUST CONTROL (D.O.E. BMP C140)
IP	CATCH BASIN/INLET SEDIMENT PROTECTION (WSDOT STD PLAN I–40.20–00)
MU	MULCH AND/OR MATTING (D.O.E. BMP C121)
PS	PERMANENT SEEDING (D.O.E. BMP C120)
SF	SILT FENCE (D.O.E. BMP C233)
WW	WHEEL WASH (D.O.E. BMP C106)

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TESC / SWPPP PLAN

KIMBERLY-CLARK EVERETT PLANT BUILDING DEMOLITION

KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

JOHN N. SMITH — STATE OF WASHINGTON — 37234 — PROFESSIONAL ENGINEER

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

REVISIONS: APPD.

DATE: FEB, 2012
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SCALE: 1"=240'

PROJECT NUMBER: KMBY00000007

DRAWING FILE: ecFG003KMBY00000007

SHEET NO. Fig 3 OF 8

A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

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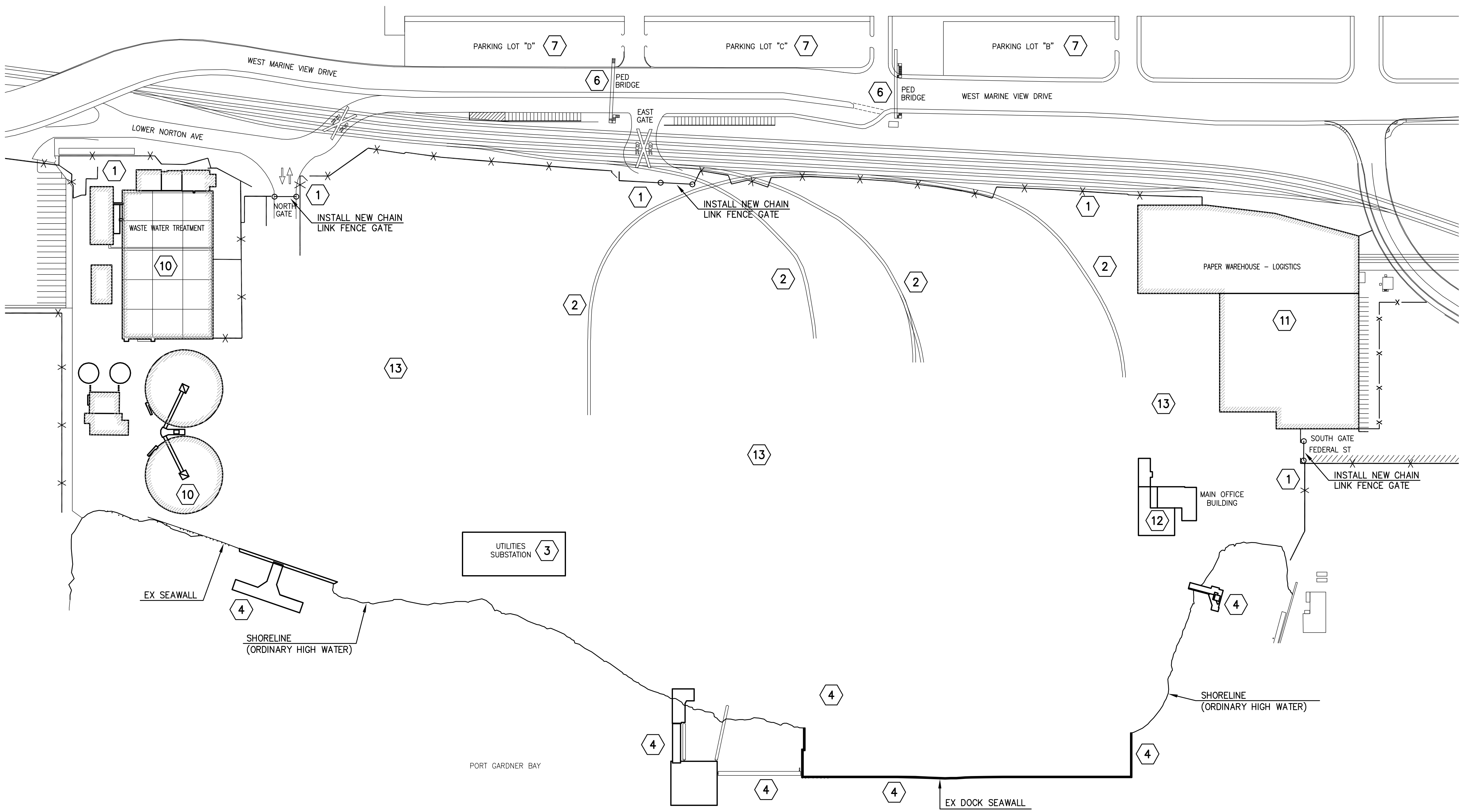

DEVELOPMENT DATA:

APPLICANT:	KIMBERLY-CLARK WORLDWIDE INC 2600 FEDERAL AVE. EVERETT, WASHINGTON 98201 425.259.5702 ATTENTION: BRYAN LUST, PROJECT ENGINEER
ENGINEER/PLANNER SURVEYOR:	DAVID EVANS and ASSOCIATES, INC. 1620 W. MARINE VIEW DR. SUITE 200 EVERETT, WASHINGTON 98201 425.259.4099 ATTENTION: JOHN SMITH, P.E. BOB HERMANN, P.L.S.

NOTES:

STRUCTURES TO REMAIN AFTER SITE DEMOLITION MAY INCLUDE:

1. SECURITY FENCES & GATES
2. RAILROAD SPURS & SWITCHES AT GRADE
3. P.U.D. SUBSTATION & POWER POLES/FOUNDATIONS
4. OVERWATER DOCKS, PIERS, SEAWALLS & RELATED BRACING
5. INWATER OUTFALLS
6. PEDESTRIAN OVERPASSES
7. PARKING LOT LIGHT POLES
8. OUTFALL 100 PIPING (AFTER ISOLATION/BLANKING) ON SITE PROPERTY
9. OUTFALL 100 CITY OF EVERETT OWNED PIPING & STRUCTURES
10. WASTEWATER TREATMENT (SUBJECT TO ALTERNATE #1)
11. DISTRIBUTION WAREHOUSE SHEEL (SUBJECT TO ALTERNATE #2)
12. SOUTH OFFICE BUILDING (SUBJECT TO ALTERNATE #3)
13. CONCRETE & ASPHALT SURFACES (SUBJECT TO ALTERNATE #4)

SITE CONDITIONS AFTER DEMOLITION

KIMBERLY-CLARK EVERETT PLANT BUILDING DEMOLITION

KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

JOHN N. SMITH STATE OF WASHINGTON 37234 REGISTERED PROFESSIONAL ENGINEER

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

REVISIONS: APPD.

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PROJECT NUMBER: KMBY00000007

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SHEET NO. Fig 4 OF 8

A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

THIS STORMWATER POLLUTION PREVENTION PLAN IS PROVIDED IN ACCORDANCE WITH THE TERMS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR CONSTRUCTION ACTIVITIES FOR THIS PROJECT. THE CONTRACTOR IS ADVISED THAT THE PROJECT AREA DRAINS TO WETLANDS AND/OR STATE WATERS AND THAT THE CONTRACTOR IS RESPONSIBLE TO PROTECT THE RECEIVING WATERS FROM DELETERIOUS EFFECTS OF CONSTRUCTION.

THE CONTRACTOR IS REQUIRED TO HAVE A COPY OF THE NPDES PERMIT AS WELL AS THE SWPPP ON SITE AT ALL TIMES.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE EROSION CONTROL MEASURES SHOWN OR DESCRIBED IN THE CONTRACT DOCUMENTS AND ANY ADDITIONAL MEASURES THAT MAY BE REQUIRED BY THE CONTRACTORS MEANS AND METHODS OF CONSTRUCTION AS NEEDED TO CONTROL EROSION AND SEDIMENT AT THE CONSTRUCTION SITE AND TO PREVENT VIOLATION OF SURFACE WATER QUALITY, GROUND WATER QUALITY, OR SEDIMENT MANAGEMENT STANDARDS. EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION AND UNTIL ALL DISTURBED EARTH IS STABILIZED IN FINISH GRADES.

THE FOLLOWING DESCRIBES HOW THE CONSTRUCTION SWPPP ADDRESSEES EACH OF THE 12 REQUIRED ELEMENTS. REFER TO THESE PLANS FOR DRAWINGS OF THE PROJECT, VICINITY MAP, SITE MAP, CONVEYANCE SYSTEMS, EROSION AND SEDIMENT CONTROL MEASURES, AND EROSION AND SEDIMENT CONTROL DETAILS.

ELEMENT #1: PRESERVE VEGETATION/MARK CLEARING LIMITS

1. PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES (INCLUDING CLEARING AND GRADING) CLEARLY MARK ALL CLEARING LIMITS AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA AS SHOWN ON THE DRAWINGS.
2. SILT FENCE, GEOTEXTILE ENCASED BARRIERS, CONSTRUCTION FENCE, ORANGE PLASTIC FENCE, OR OTHER APPROVED MEASURES MAY BE USED TO MARK THE CLEARING LIMITS AT THE CONTRACTOR'S OPTION.
3. THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION SHALL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C103: HIGH VISIBILITY PLASTIC OR METAL FENCE

ELEMENT #2: ESTABLISH CONSTRUCTION ACCESS

1. CONSTRUCTION VEHICLE ACCESS AND EXIT SHALL BE LIMITED TO ONE ROUTE. REFER TO SHEET 1 OF THESE PLANS FOR THE CONSTRUCTION ENTRANCE LOCATION. ALL ACCESS/EXIT POINTS SHALL BE STABILIZED WITH QUARRY SPALLS, CRUSHED ROCK OR OTHER EQUIVALENT BMP, TO MINIMIZE THE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.
2. IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVE IN PREVENTING SEDIMENT FROM BEING TRACKED ONTO PUBLIC ROADS, WHEEL WASH OR TIRE BATHS SHALL BE LOCATED ON SITE.
3. IF SEDIMENT IS TRACKED OFF SITE, PUBLIC 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.
4. STREET WASHING IS ALLOWED ONLY AFTER SEDIMENT IS REMOVED AS DESCRIBED ABOVE. STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON SITE OR OTHERWISE BE PREVENTED FROM FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C105: STABILIZED CONSTRUCTION ENTRANCE
BMP C106: WHEEL WASH
BMP C107: CONSTRUCTION ROAD/PARKING AREA STABILIZATION

ELEMENT #3: CONTROL FLOW RATES

1. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C240: SEDIMENT TRAP

ELEMENT #4: INSTALL SEDIMENT CONTROLS

1. THE DUFF LAYER, NATIVE SOIL, AND NATURAL VEGETATION SHALL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICABLE.
2. SEDIMENT CONTROL BMPs SHALL BE CONSTRUCTED AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPs SHALL BE FUNCTIONAL BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.
3. PRIOR TO LEAVING THE CONSTRUCTION SITE, STORMWATER RUNOFF FROM DISTURBED AREAS SHALL PASS THROUGH AN APPROPRIATE SEDIMENT REMOVAL BMP. RUNOFF FROM FULL STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST MEET THE FLOW CONTROL PERFORMANCE STANDARD OF ELEMENT #3.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C150: MATERIALS ON HAND
BMP C233: SILT FENCE
BMP C220: STORM DRAIN INLET PROTECTION
BMP C240: SEDIMENT TRAP

ELEMENT #5: STABILIZE SOILS

1. EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FORM EROSIVE FORCES OF RAINDROPS. FLOWING WATER, AND WIND.
2. TO PREVENT EROSION, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW:
DURING THE WET SEASON (OCTOBER 1 – APRIL 30): 2 DAYS
DURING THE DRY SEASON (MAY 1 – SEPT. 30): 7 DAYS
THIS STABILIZATION REQUIREMENT APPLIES TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT. THESE TIMES MAY BE ADJUSTED BY THE LOCAL PERMITTING AUTHORITY IF IT CAN BE SHOWN THAT SITE CONDITIONS OR THE AVERAGE TIME BETWEEN STORM EVENTS JUSTIFIES A DIFFERENT STANDARD.
3. SOILS SHALL BE STABILIZED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.
4. SOIL STOCKPILES SHALL BE STABILIZED FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, BE LOCATED AWAY FROM STORM DRAIN INLETS, WATERWAYS, AND DRAINAGE CHANNELS.
5. APPLICABLE BMPs INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED AND DUST CONTROL. SELECT SOIL STABILIZATION MEASURES SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, ESTIMATED DURATION OF USE, AND THE POTENTIAL WATER QUALITY IMPACTS.
6. REMOVE ALL TESC MEASURES AS SOON AS PRACTICAL AFTER ESTABLISHMENT OF UNIFORM GRASS GROWTH OR INSTALLATION OF OTHER PERMANENT STABILIZATION MEASURES. REPAIR ANY DAMAGE TO STABILIZED SURFACES AFTER REMOVAL OF TESC MEASURES.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C107: CONSTRUCTION ROAD/PARKING AREA STABILIZATION
BMP C120: TEMPORARY AND PERMANENT SEEDING
BMP C121: MULCHING
BMP C123: PLASTIC COVERING
BMP C140: DUST CONTROL
BMP C150: MATERIALS ON HAND

ELEMENT #6: PROTECT SLOPES

1. DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (e.g., TRACK WALKING).
2. OFF–SITE STORMWATER RUN–ON OR GROUNDWATER SHALL BE DIVERTED AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES, AND/OR SWALES. OFF–SITE STORMWATER SHOULD BE MANAGED SEPARATELY FROM STORMWATER GENERATED ON THE SITE.
3. DO NOT CLEAR AND GRUB SLOPES GREATER THAN 4 (HORIZONTAL):1 (VERTICAL) UNLESS FURTHER WORK RESULTING IN STABILIZATION OF THE SLOPES TO BE CLEARED AND GRUBBED IS SCHEDULED.
4. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.
5. CHECK DAMS SHALL BE PLACED AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C120: TEMPORARY AND PERMANENT SEEDING
BMP C150: MATERIALS ON HAND

ELEMENT #7: PROTECT DRAIN INLETS

1. ALL STORM DRAIN INLETS OPERABLE DURING CONSTRUCTION AND ALL INLETS WITHIN 200' DOWNSTREAM OF THE PROJECT SITE SHALL BE PROTECTED WITH CATCH BASIN FILTERS SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT. CATCH BASIN FILTERS IN THE ROADWAY WILL BE OIL/SEDIMENT FILTERS AND CATCH BASIN FILTERS OUTSIDE OF THE ROADWAY WILL BE SEDIMENT FILTERS.
2. APPROACH ROADS SHALL BE KEPT CLEAN. SEDIMENT AND STREET WASH WATER SHALL NOT BE ALLOWED TO ENTER STORM DRAINS WITHOUT PRIOR AND ADEQUATE TREATMENT.
3. INLET PROTECTION DEVICES SHOULD BE CLEANED OR REMOVED AND REPLACED WHEN SEDIMENT HAS FILLED ONE–THIRD OF THE AVAILABLE STORAGE (OR WHEN FILLED WITH SIX–INCHES OF SEDIMENT).

BMPs TO BE USED:
BMP C220: STORM DRAIN INLET PROTECTION

ELEMENT #8: STABILIZE CHANNELS AND OUTLETS

1. ALL TEMPORARY ON–SITE CONVEYANCE CHANNELS SHALL BE DESIGNED, CONSTRUCTED AND STABILIZED TO PREVENT EROSION FROM THE EXPECTED PEAK 10 MINUTE VELOCITY OF FLOW FROM A TYPE 1A, 10–YR, 24–HR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10–YR, 1–HR FLOW RATE INDICATED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED.
2. STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES, AND DOWNSTREAM REACHES SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C209: OUTLET PROTECTION

ELEMENT #9: CONTROL POLLUTANTS

1. 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.
2. COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ON–SITE FUELING TANKS SHALL INCLUDE SECONDARY CONTAINMENT.
3. MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES SHALL BE CONDUCTED USING SPILL PREVENTION AND CONTROL MEASURES. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.
4. WHEEL WASH OR TIRE BATH WASTEWATER SHALL BE DISCHARGED TO A SEPARATE ON–SITE TREATMENT SYSTEM OR TO THE SANITARY SEWER WITH LOCAL SEWER DISTRICT APPROVAL.
5. APPLICATION OF 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 REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES SHALL BE FOLLOWED.
6. BMPs SHALL BE USED TO PREVENT OR TREAT CONTAMINATION OF STORMWATER RUNOFF BY pH MODIFYING SOURCES. THESE SOURCES INCLUDE, BUT ARE NOT LIMITED TO: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, AND CONCRETE PUMPING AND MIXER WASHOUT WATERS. PERMITTEES SHALL ADJUST THE pH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.
7. PERMITTEES SHALL OBTAIN WRITTEN APPROVAL FROM ECOLOGY PRIOR TO USING CHEMICAL TREATMENT, OTHER THAN CARBON DIOXIDE OR DRY ICE TO ADJUST pH.

SUGGESTED BMPs/BMPs TO BE USED:
BMP C151: CONCRETE HANDLING
BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION
BMP C153: MATERIAL DELIVERY, STORAGE & CONTAINMENT

ELEMENT #10: CONTROL DEWATERING

1. FOUNDATION, VAULT, AND TRENCH DE–WATERING WATER, WHICH HAVE 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.

2. CLEAN, NON–TURBID DE–WATERING WATER, SUCH AS WELL–POINT GROUND WATER, CAN BE DISCHARGED TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT #8, PROVIDED THE DE–WATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. CLEAN DE–WATERING WATER SHOULD NOT BE ROUTED THROUGH STORMWATER SEDIMENT PONDS.

3. OTHER DE–WATERING DISPOSAL OPTIONS MAY INCLUDE:
a) INFILTRATION.
b) TRANSPORT OFF SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.
c) ECOLOGY APPROVED ON–SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.
d) SANITARY SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.
e) USE OF A SEDIMENTATION BAG (DIRTBAG OR APPROVED EQUAL) WITH OUTFALL TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DE–WATERING.

4. HIGHLY TURBID CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM SHALL BE HANDLED SEPARATELY FROM STORMWATER.

ELEMENT #11: MAINTAIN BMPs

1. INSPECT EROSION CONTROL DEVICES ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. MAKE NECESSARY REPAIRS AND MAINTENANCE TO ENSURE CONTINUED PERFORMANCE OF EROSION AND SEDIMENT CONTROLS.

2. WHEN SEDIMENT ACCUMULATION IN SEDIMENTATION STRUCTURES, OTHER THAN INLET PROTECTION DEVICES, HAS REACHED A POINT ONE–THIRD DEPTH OF SEDIMENT STRUCTURE OR DEVICE, OR IF FLOW THROUGH THE DEVICE IS REDUCED BY MORE THAN ONE–THIRD CAPACITY, THE CONTRACTOR SHALL REMOVE AND REPLACE DISPOSABLE DEVICES OR CLEAN AND DISPOSE OF SEDIMENT.

3. TEMPORARY EROSION AND SEDIMENT CONTROL 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 REMOVED OR STABILIZED ON SITE. DISTURBED SOILS SHALL BE PERMANENTLY STABILIZED.

ELEMENT #12: MANAGE THE PROJECT

1. PHASING OF CONSTRUCTION:
a) DEVELOPMENT PROJECTS SHALL BE PHASED WHERE FEASIBLE IN ORDER TO PREVENT, TO THE MAXIMUM EXTENT PRACTICABLE, THE TRANSPORT OF SEDIMENT FROM THE DEVELOPMENT SITE DURING CONSTRUCTION. REVEGETATION OF EXPOSED AREAS AND MAINTENANCE OF THAT VEGETATION SHALL BE AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.
b) CLEARING AND GRADING ACTIVITIES FOR DEVELOPMENTS SHALL BE PERMITTED ONLY IF CONDUCTED PURSUANT TO AN APPROVED SITE DEVELOPMENT PLAN (e.g., SUBDIVISION APPROVAL) THAT ESTABLISHES APPROVED AREAS OF CLEARING, GRADING, CUTTING AND FILLING. WHEN ESTABLISHING THESE PERMITTED CLEARING AND GRADING AREAS, CONSIDERATION SHOULD BE GIVEN TO MINIMIZING REMOVAL OF EXISTING TREES AND MINIMIZING DISTURBANCE AND COMPACTION OF NATIVE SOILS EXCEPT AS NEEDED FOR BUILDING PURPOSES. THESE PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS AS MAY BE REQUIRED BY LOCAL JURISDICTIONS, SHALL BE DELINEATED ON THE SITE PLANS AND THE DEVELOPMENT SITE.

2. SEASONAL WORK LIMITATIONS:
FROM OCTOBER 1 THROUGH APRIL 30, CLEARING, GRADING, AND OTHER SOIL DISTURBING ACTIVITIES SHALL ONLY BE PERMITTED IF SHOWN TO THE SATISFACTION OF THE LOCAL PERMITTING AUTHORITY THAT THE TRANSPORT OF SEDIMENT FROM THE CONSTRUCTION SITE TO RECEIVING WATERS WILL BE PREVENTED THROUGH A COMBINATION OF THE FOLLOWING:
a) SITE CONDITIONS INCLUDING EXISTING VEGETATIVE COVERAGE, SLOPE, SOIL TYPE, AND PROXIMITY TO RECEIVING WATERS; AND
b) LIMITATIONS ON ACTIVITIES AND THE EXTEND OF DISTURBED AREAS; AND
c) PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

BASED ON THE INFORMATION PROVIDED AND LOCAL WEATHER CONDITIONS, THE LOCAL PERMITTING AUTHORITY MAY EXPAND OR RESTRICT THE SEASONAL LIMITATION ON SITE DISTURBANCE. THE LOCAL PERMITTING AUTHORITY SHALL TAKE ENFORCEMENT ACTION – SUCH AS NOTICE OF VIOLATION, ADMINISTRATIVE ORDER, PENALTY, OR STOP–WORK ORDER UNDER THE FOLLOWING CIRCUMSTANCES:
- IF, DURING THE COURSE OF ANY CONSTRUCTION ACTIVITY OR SOIL DISTURBANCE DURING THE SEASONAL LIMITATION PERIOD, SEDIMENT LEAVES THE CONSTRUCTION SITE CAUSING A VIOLATION OF THE SURFACE WATER QUALITY STANDARD; OR
- IF CLEARING AND GRADING LIMITS OR EROSION AND SEDIMENT CONTROLS MEASURES SHOWN IN THE APPROVED PLAN ARE NOT MAINTAINED.

THE FOLLOWING ACTIVITIES ARE EXEMPT FROM THE SEASONAL CLEARING AND GRADING LIMITATIONS:
a) ROUTINE MAINTENANCE AND NECESSARY REPAIR OF EROSION AND SEDIMENT CONTROL BMPs;
b) ROUTINE MAINTENANCE OF PUBLIC FACILITIES OR EXISTING UTILITY STRUCTURES THAT DO NOT EXPOSE THE SOIL OR RESULT IN THE REMOVAL OF THE VEGETATIVE COVER TO SOIL; AND
c) ACTIVITIES WHERE THERE IS ONE HUNDRED PERCENT INFILTRATION OF SURFACE WATER RUNOFF WITHIN THE SITE IN APPROVED AND INSTALLED EROSION AND SEDIMENT CONTROL FACILITIES.

3. COORDINATE WITH UTILITIES AND OTHER CONTRACTORS
THE PRIMARY PROJECT PROPONENT SHALL EVALUATE, WITH INPUT FROM UTILITIES AND OTHER CONTRACTORS, THE STORMWATER MANAGEMENT REQUIREMENTS FOR THE ENTIRE PROJECT, INCLUDING THE UTILITIES, WHEN PREPARING THE CONSTRUCTION SWPPP.

4. INSPECTION AND MONITORING:
a) A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL SHALL BE IDENTIFIED AT THE PRE–CONSTRUCTION MEETING AND SHALL BE ON–SITE OR ON–CALL AT ALL TIMES. EMERGENCY CONTACT INFORMATION SHALL BE KEPT ON–SITE. CERTIFICATION MAY BE THROUGH THE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL CERTIFICATION PROGRAM OFFERED BY WSDOT, ASSOCIATED GENERAL CONTRACTORS OF WASHINGTON – EDUCATION FOUNDATION, OR ANY EQUIVALENT LOCAL OR NATIONAL CERTIFICATION AND/OR TRAINING PROGRAM.
b) IF INSPECTION AND/OR WATER MONITORING OF SITE RUNOFF REVEALS THAT THE BMPs IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, THE CONTRACTOR SHALL IMMEDIATELY ADD BMPs TO THE SWPPP AS NECESSARY.

4. THE CONSTRUCTION SWPPP SHALL BE RETAINED ON–SITE. THE CONTRACTOR'S TESC RECORD OF RAINFALL, TESC MEASURES, AND INSPECTION SHALL BECOME PART OF THE SWPPP. THE CONSTRUCTION SWPPP SHALL BE MODIFIED BY THE CONTRACTOR'S TESC RECORD WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP.

NPDES PERMIT REQUIREMENTS

SITE LOG BOOK

A SITE LOG BOOK SHALL CONTAIN A RECORD OF THE IMPLEMENTATION OF THE SWPPP AND OTHER PERMIT REQUIREMENTS INCLUDING THE INSTALLATION AND MAINTENANCE OF BMPs, SITE INSPECTIONS AND STORMWATER MONITORING.

SITE INSPECTIONS

SITE INSPECTIONS SHALL INCLUDE ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, ALL BMPs, AND ALL STORMWATER DISCHARGE POINTS. STORMWATER SHALL BE VISUALLY EXAMINED FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. INSPECTORS SHALL EVALUATE THE EFFECTIVENESS OF BMPs AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPs TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES.

BASED ON THE RESULTS OF THE INSPECTION, THE CONTRACTOR SHALL CORRECT THE PROBLEMS IDENTIFIED AS FOLLOWS:
A. MAKE APPROPRIATE CORRECTION WITHIN 7 DAYS OF TEH INSPECTION; AND
B. FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPs AS SOON AS POSSIBLE, BUT NO LATER THAN 10 DAYS OF TEH INSPECTION; AND
C. DOCUMENT BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK.

SITE INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THE SITE. THE INSPECTION FREQUENCY FOR TEMPORARILY STABILIZED, INACTIVE SITE MAY BE REDUCED TO ONCE EVERY CALENDAR MONTH.

THE INSPECTOR SHALL SUMMARIZE THE RESULTS OF EACH INSPECTION IN AN INSPECTION REPORT OR CHECKLIST AND BE ENTERED INTO, OR ATTACHED TO, THE SITE LOG BOOK. AT A MINIMUM, EACH INSPECTION REPORT OR CHECKLIST SHALL INCLUDE:
a. INSPECTION DATE AND TIME.
b. WEATHER INFORMATION, GENERAL CONDITIONS DURING INSPECTION AND APPROXIMATE AMOUNT OF PRECIPITATION SINCE THE LAST INSPECTION, AND WITHIN THE LAST 24 HOURS.
c. A SUMMARY OR LIST OF ALL BMPs WHICH HAVE BEEN IMPLEMENTED, INCLUDING OBSERVATIONS OF ALL EROSION/SEDIMENT CONTROL STRUCTURES OR PRACTICES.
d. THE FOLLOWING SHALL BE NOTED:
  i. LOCATIONS OF BMPs INSPECTED,
  ii. LOCATIONS OF BMPs THAT NEED MAINTENANCE,
  iii. THE REASON MAINTENANCE IS NEEDED,
  iv. LOCATIONS OF BMPs THAT FAILED TO OPERATE AS DESIGNED OR INTENDED, AND
  v. LOCATIONS WHERE ADDITIONAL OR DIFFERENT BMPs ARE NEEDED, AND THE REASON(S) WHY.
e. A DESCRIPTION OF STORMWATER DISCHARGED FROM THE SITE. THE INSPECTOR SHALL NOTE THE PRESENCE OF SUSPENDED SEDIMENT, TURBID WATER, DISCOLORATION, AND/OR OIL SHEEN, AS APPLICABLE.
f. ANY WATER QUALITY MONITORING PERFORMED DURING INSPECTION.
g. GENERAL COMMENTS AND NOTES, INCLUDING A BRIEF DESCRIPTION OF ANY BMP REPAIRS, MAINTENANCE OR INSTALLATION MADE AS A RESULT OF THE INSPECTION.
h.
i. NAME, TITLE, AND SIGNATURE OF TEH PERSON CONDUCTING SITE INSPECTION; AND THE FOLLOWING STATEMENT: "I CERTIFY THAT THIS REPORT IS TRUE, ACCURATE, AND COMPLETE, TO THE BEST OF MY KNOWLEDGE AND BELIEF".

C. TURBIDITY/TRANSPARENCY SAMPLING REQUIREMENTS

1. SAMPLING METHODS/EFFECTIVE DATES
  a. BEGINNING OCTOBER 1, 2006, IF CONSTRUCTION ACTIVITY WILL INVOLVE THE DISTURBANCE OF 5 ACRES OR MORE, THE PERMITTEE SHALL CONDUCT TURBIDITY SAMPLING PER CONDITION S4.C.

2. SAMPLING FREQUENCY
  a. SAMPLING SHALL BE CONDUCTED AT LEAST ONCE EVERY CALENDAR WEEK, WHEN THERE IS A DISCHARGE OF STORMWATER (OR AUTHORIZED NON–STORMWATER) FROM THE SITE. SAMPLES SHALL BE REPRESENTATIVE OF THE FLOW AND CHARACTERISTICS OF THE DISCHARGE.
  b. WHEN THERE IS NO DISCHARGE DURING A CALENDAR WEEK, SAMPLING IS NOT REQUIRED.
  c. SAMPLING IS NOT REQUIRED OUTSIDE OF NORMAL WORKING HOURS OR DURING UNSAFE CONDITIONS. IF A PERMITTEE IS UNABLE TO SAMPLE DURING A MONITORING PERIOD, THE DISCHARGE MONITORING REPORT (DMR) SHALL INCLUDE A BRIEF EXPLANATION.

3. SAMPLING LOCATIONS
  a. SAMPLING IS REQUIRED AT ALL DISCHARGE POINTS WHERE STORMWATER (OR AUTHORIZED NON–STORMWATER) IS DISCHARGED OFF–SITE.
  b. ALL SAMPLING POINT(S) SHALL BE IDENTIFIED ON THE SWPPP SITE MAP AND BE CLEARLY MARKED IN THE FIELD WITH A FLAG, TAPE, STAKE OR OTHER VISIBLE MARKER.

4. SAMPLING AND ANALYSIS METHODS
  a. TURBIDITY ANALYSIS SHALL BE PERFORMED WITH A CALIBRATED TURBIDITY METER (TURBIDIMETER), EITHER ON–SITE OR AT AN ACCREDITED LAB. THE RESULTS SHALL BE RECORDED IN THE SITE LOG BOOK IN NEPHELOMETRIC TURBIDITY UNITS (NTU).
  b. TRANSPARENCY ANALYSIS SHALL BE PERFORMED ON–SITE WITH A 1 ¾ INCH DIAMETER, 60 CENTIMETER (CM) LONG TRANSPARENCY TUBE. THE RESULTS SHALL BE RECORDED IN THE SITE LOG BOOK IN CENTIMETERS (CM). TRANSPARENCY TUBES ARE AVAILABLE FROM: http://watermonitoringequip.com/pages/stream.html

PARAMETER	UNITS	ANALYTICAL METHOD	SAMPLING FREQUENCY	BENCHMARK VALUE
TURBIDITY	NTU	SM2130 OR EPA 180.1	WEEKLY, IF DISCHARGING	25 NTU
TRANSPARENCY	CM	MANUFACTURER INSTRUCTIONS, OR ECOLOGY GUIDANCE	WEEKLY, IF DISCHARGING	31 CM

5. TURBIDITY/TRANSPARENCY BENCHMARK VALUES
THE BENCHMARK VALUE FOR TURBIDITY IS 25 NTU (NEPHELOMETRIC TURBIDITY UNITS); AND THE BENCHMARK VALUE FOR TRANSPARENCY IS 31 CM.
  a. TURBIDITY 26 – 249 NTU, OR TRANSPARENCY 30–7 CM:
  IF DISCHARGE TURBIDITY IS GREATER THAN 25 NTU, BUT LESS THAN 250 NTU; OR IF DISCHARGE TRANSPARENCY IS LESS THAN 31 CM, BUT GREATER THAN 6 CM, THE CESCL SHALL:
    i. REVIEW THE SWPPP FOR COMPLIANCE WITH CONDITION S9 AND MAKE APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE DISCHARGE THAT EXCEEDED THE BENCHMARK; AND
    II. FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPs AS SOON AS POSSIBLE, BUT WITHIN 10 DAYS OF THE DISCHARGE THAT EXCEEDED THE BENCHMARK; AND
    III. DOCUMENT BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK.

  b. TURBIDITY 250 NTU OR GREATER, OR TRANSPARENCY 6 CM OR LESS:
  IF DISCHARGE IS GREATER THAN OR EQUAL TO 250 NTU; OR IF DISCHARGE TRANSPARENCY IS LESS THAN OR EQUAL TO 6 CM, THE CESCL SHALL:
    i. NOTIFY ECOLOGY BY PHONE IN ACCORDANCE WITH CONDITION S5.A.; AND
    ii. REVIEW THE SWPPP FOR COMPLIANCE WITH CONDITION S9 AND MAKE APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE DISCHARGE THAT EXCEEDED THE BENCHMARK; AND
    iii. FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPs AS SOON AS POSSIBLE, BUT WITHIN 10 DAYS OF DISCHARGE THAT EXCEEDED THE BENCHMARK;
    iv. DOCUMENT BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK; AND
    v. CONTINUE TO SAMPLE DISCHARGES DAILY UNTIL:
      1. TURBIDITY IS 25 NTU (OR LOWER); OR
      2. TRANSPARENCY IS 31 CM OR (OR GREATER); OR
      3. THE CESCL HAS DEMONSTRATED COMPLIANCE WITH THE WATER QUALITY STANDARD FOR TURBIDITY:
        a .NO MORE THAN 5 NTU OVER BACKGROUND TURBIDITY, IF BACKGROUND IS LESS THAN 50 NTU, OR
        b.NO MORE THAN 10 % OVER BACKGROUND TURBIDITY, IF BACKGROUND IS 50 NTU OR GREATER; OR
      4. THE DISCHARGE STOPS OR IS ELIMINATED

NOTE: ALL SECTIONS REFERENCED IN THE SAMPLING REQUIREMENTS CAN BE LOCATED IN THE NPDES PERMIT.

TESC / SWPPP NOTES
KIMBERLY-CLARK EVERETT PLANT
BUILDING DEMOLITION
KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

JOHN N. SMITH 37234

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

REVISIONS: **APPD.**

DATE: FEB, 2012
DESIGN: JNS
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A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

STANDARD PRACTICE CODING SYSTEM:

CONTRACTOR TO INSTALL AND MAINTAIN ALL EROSION CONTROL BMP'S AS SHOWN ON THIS PLAN IN ACCORDANCE WITH DEPARTMENT OF ECOLOGY STORMWATER POLLUTION PREVENTION REQUIREMENTS SUMMARIZED ON SHEET C5. IF BMP INSTALLATION AND MAINTENANCE IS INADEQUATE TO MEET THESE REQUIREMENTS CONTRACTOR TO PROVIDE ADDITIONAL BMP'S AT NO ADDITIONAL COST TO OWNER.

CODE	BMPs
TT	TEMPORARY TANK (21,000 GAL)
CE	CONSTRUCTION ENTRANCE (D.O.E. BMP C105)
CPC	CLEAR PLASTIC COVERING (D.O.E. BMP C123)
CS	COMPOST SOCK (D.O.E. BMP C233)
DC	DUST CONTROL (D.O.E. BMP C140)
IP	CATCH BASIN/INLET SEDIMENT PROTECTION (D.O.E. BMP C220)
MU	MULCH AND/OR MATTING (D.O.E. BMP C121)
PS	PERMANENT SEEDING (D.O.E. BMP C120)
SB	TEMPORARY SEDIMENT POND OR BASIN (D.O.E. BMP C241)
SF	SILT FENCE (D.O.E. BMP C233)
WW	WHEEL WASH (D.O.E. BMP C106)

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL MAINTAIN EXISTING PERIMETER FENCE AS WORK LIMITS.
2. SEDIMENT TRAPS TO BE REMOVED AS THE LAST STAGE OF CONSTRUCTION AFTER TRIBUTARY AREAS HAVE BEEN STABILIZED.
3. KIMBERLY-CLARK'S "GENERAL TERMS AND CONDITIONS" WILL APPLY TO ALL CONTRACTORS IN ALL SCOPES OF THE PROJECT.
4. ASBESTOS CONTROL – ASBESTOS CONTAINING MATERIAL (ACM) MAY BE ENCOUNTERED DURING DEMOLITION OF BUILDING IN THE FORM OF ASBESTOS CEMENT PIPE, PIPE INSULATION, OR AS INSULATION IN THE BUILDING. IT IS IMPERATIVE THAT ASBESTOS FIBER RELEASE BE CONTROLLED. THE CONTRACTOR SHALL HAVE ALL ASBESTOS REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY A STATE LICENSED ASBESTOS CONTRACTOR IN ACCORDANCE WITH THE PRACTICES SPECIFIED BY THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY, THE SNOHOMISH COUNTY SOLID WASTE DIVISION AND ALL OTHER PERINENT STATE AND FEDERAL REGULATIONS. ONLY EMPLOYEES CERTIFIED BY THE STATE OF WASHINGTON AS A CERTIFIED ASBESTOS WORKER MAY WORK ON ACM DURING CONSTRUCTION, DEMOLITION, REPAIR, MAINTENANCE, RENOVATION, SALVAGE OR DISPOSAL OF ACM.
5. CONDITIONS AFTER DEMOLITION WILL CONSIST OF CONCRETE/ASPHALT SURFACES AND TWO (2) HYDROSEEDED AREAS.

EROSION CONTROL MONITORING PLAN

1. OBSERVE EROSION CONTROL MEASURES AT THE BEGINNING AND END OF EACH DAY. REPAIR AND OR REPLACE AS NECESSARY TO ASSURE PROPER FUNCTION.
2. OBSERVE COLLECTION FACILITIES DURING PERIODS OF HEAVY RAINFALL AND WET WEATHER CONDITIONS.
3. OBSERVE AND MONITOR STABILIZATION TECHNIQUES. MAKE REPAIRS AND/OR ALTERATIONS AS NECESSARY TO PREVENT EROSION.
4. COMPLY WITH ALL DOE AND COE REQUIREMENTS FOR DISCHARGE OF CONSTRUCTION STORMWATER.

CERTIFIED EROSION CONTROL SPECIALIST:

TO BE PROVIDED BY CONTRACTOR

DEVELOPMENT DATA:

APPLICANT: KIMBERLY-CLARK WORLDWIDE INC
2600 FEDERAL AVE.
EVERETT, WASHINGTON 98201
425.259.5702
ATTENTION: BRYAN LUST, PROJECT ENGINEER

ENGINEER/PLANNER SURVEYOR: DAVID EVANS and ASSOCIATES, INC.
1620 W. MARINE VIEW DR. SUITE 200
EVERETT, WASHINGTON 98201
425.259.4099
ATTENTION: JOHN SMITH, P.E.
BOB HERMANN, P.L.S.

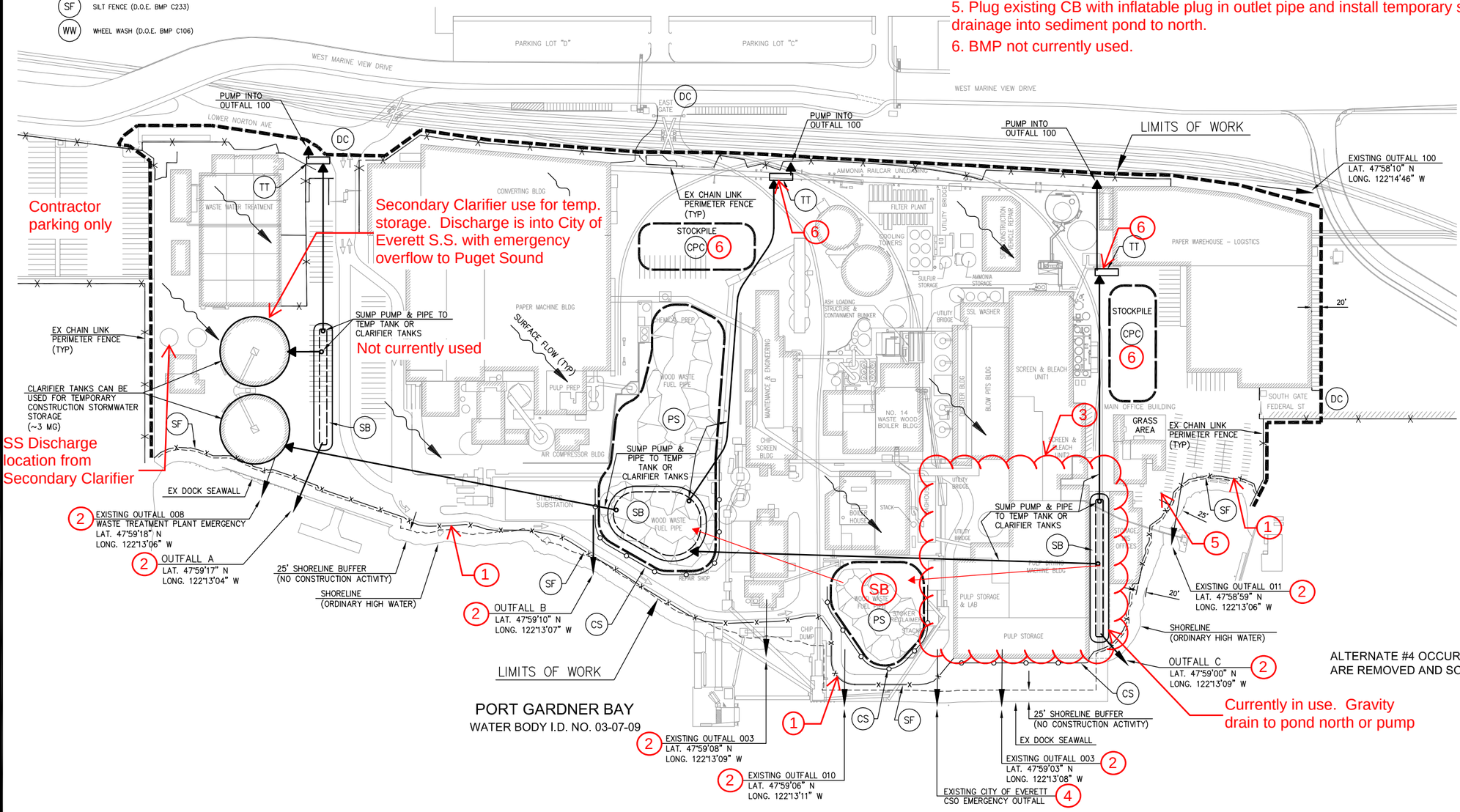
NORTH

0 60 120 240

SCALE: 1"=120'

CALL 2 BUSINESS DAYS BEFORE YOU DIG FOR UTILITY LOCATE 811

SWPPP MODIFICATION #1
1. Ecology block barrier and BMP C235 Wattles (compost sock) installed in lieu as equivalent to silt fence.
2. Discharge location not used. These locations will be monitored to verify no water is leaving the site.
3. Demolition currently occurring in this location. Stormwater will be stored in train rail pit that will serve as a BMP C241 and will drain or be pumped into storm system tributary to secondary clarifier.
4. City of Everett owned discharge pipe. No site drainage is tributary to this outfall.
5. Plug existing CB with inflatable plug in outlet pipe and install temporary storm drain pipe to direct drainage into sediment pond to north.
6. BMP not currently used.



ALTERNATE #4 OCCURS WHEN CONCRETE / ASPHALT ARE REMOVED AND SOILS ARE EXPOSED.

ALTERNATE #4 - TESC / SWPPP PLAN

KIMBERLY-CLARK EVERETT PLANT
BUILDING DEMOLITION

KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

REVISIONS: APPD.

DATE: FEB, 2012
DESIGN: JNS
DRAWN: CLK
CHECKED:
REVISION NUMBER:

SCALE: 1"=120'

PROJECT NUMBER: KMBY00000007

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A PORTION OF THE SW QUARTER OF SECTION 19, T 29 N, R 5 E, WM

CONSTRUCTION NOTES

1. IT IS ANTICIPATED A SIGNIFICANT AMOUNT OF RECYCLEABLE MATERIALS WILL BE LOADED ONTO RAILROAD CARS AND HAULED OFFSITE BY RAIL.
2. IT IS ANTICIPATED THAT THE TOTAL DAILY TRUCK TRIPS WILL BE SIMILAR TO THE CURRENT NUMBER OF APPROXIMATELY 4 TO 6 TRUCKS/HR

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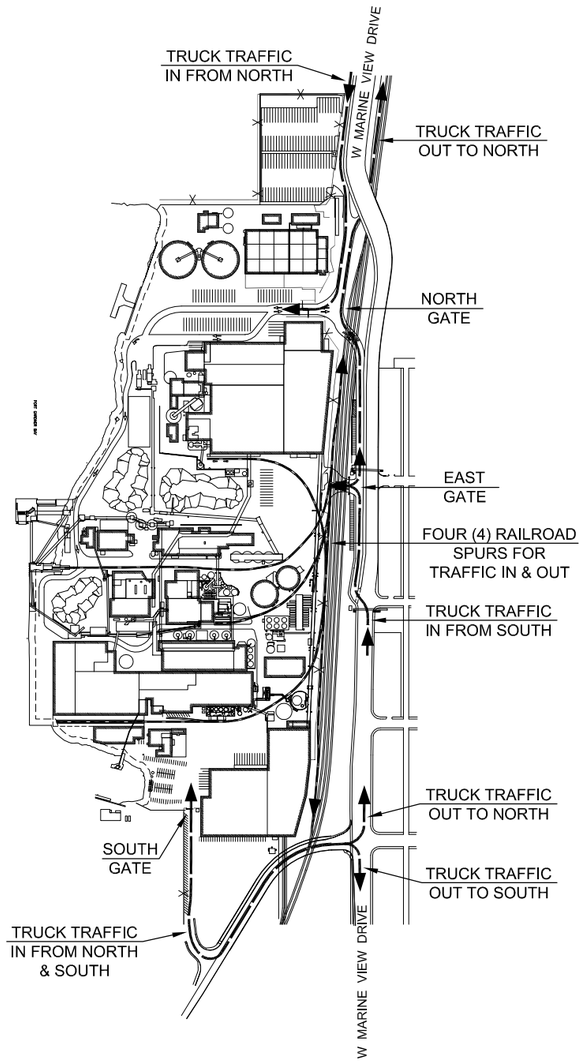
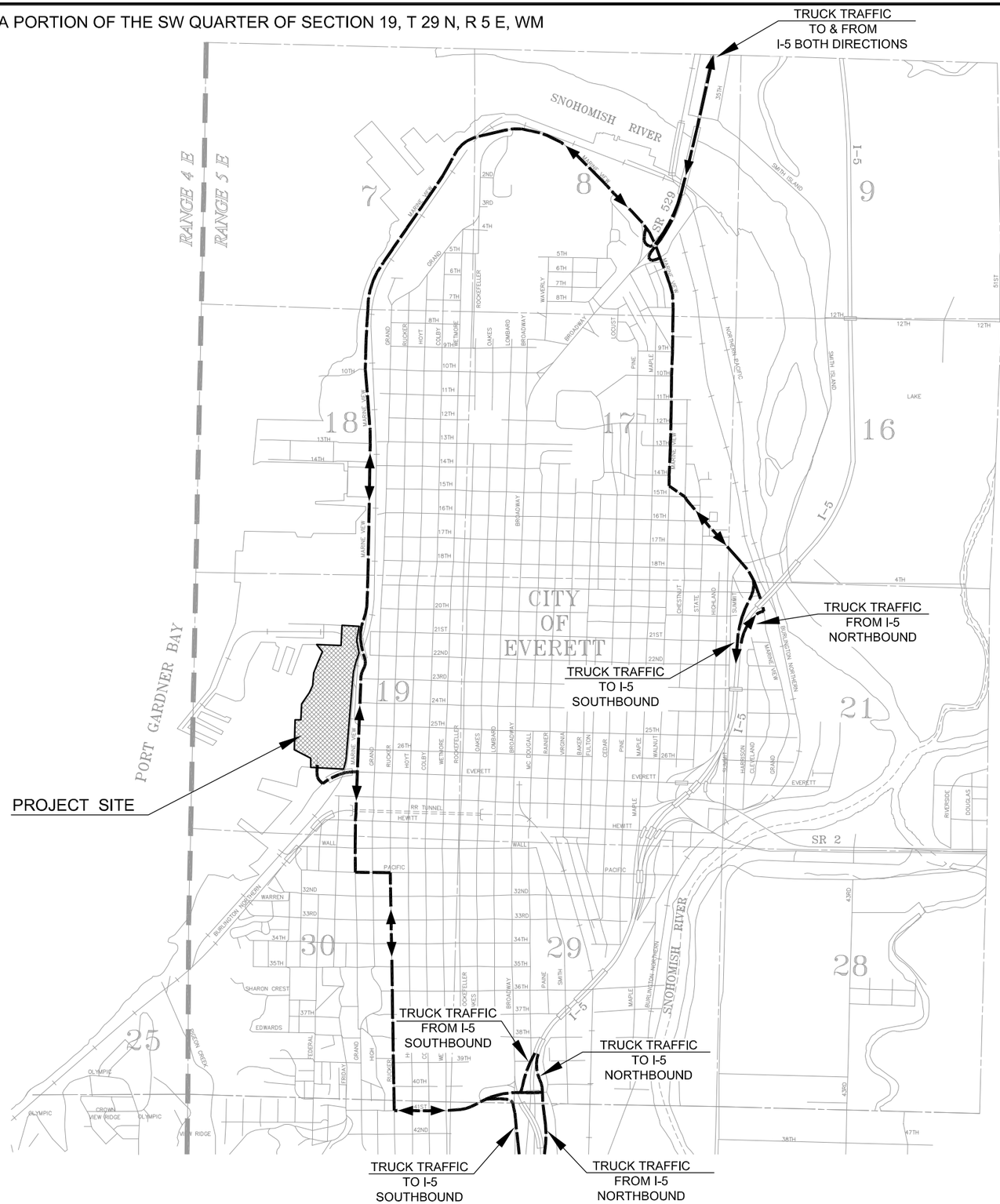


SITE HAUL PLAN
SCALE: 1"=600'



NORTH
0 1200 2400 4800

TRUCK HAUL ROUTES
SCALE: 1"=2400'

HAUL ROUTE EXHIBIT
KIMBERLY-CLARK EVERETT PLANT BUILDING DEMOLITION
KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
Phone: 425.259.4099

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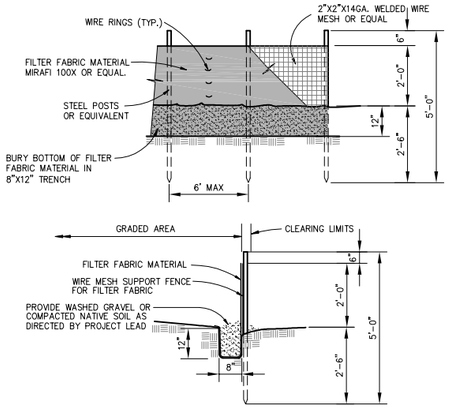

DETAIL - FILTER FABRIC SILT FENCE

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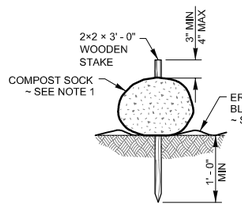

NOTES

1. Compost Sock shall be in accordance with Standard Specification 9-14.5(6). Compost Sock shall be a minimum of 8" in diameter or sized to suit conditions as specified by the Engineer or Contract.
2. Compost material to be dispersed on site, as determined by the Engineer.
3. When placing Compost Sock on slopes, use Erosion Control Blanket if specified by the Engineer and in accordance with Standard Specification 9-14.5(2). See Standard Plan I-60.10.
4. Always install Compost Sock perpendicular to slope and along contour lines.
5. Remove sediment from the up slope side of the Compost Sock when accumulation has reached 1/2 of the effective height of the Compost Sock.
6. Live stakes can be used in addition to wooden stakes and shall be in accordance with Standard Specification 9-14.6(1). See plans for species selection and spacing.

DETAIL - COMPOST SOCK

REF: WSDOT STD PLAN I-30.40-00

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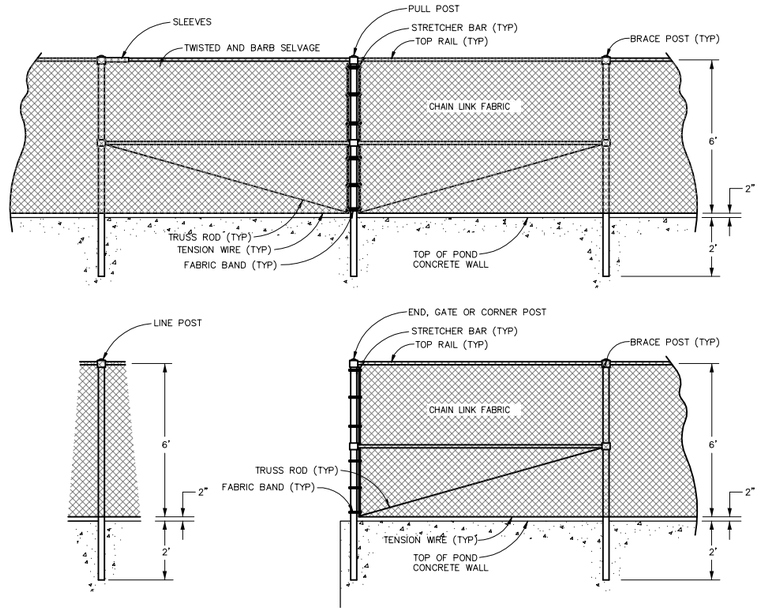


MEMBER SCHEDULE

BRACE RAIL AND TOP RAIL		LINE AND BRACE POST		END, CORNER AND PULL POST		GATE POST		ALL POSTS
ROUND		ROUND		ROUND		ROUND		
I.D. PIPE (INCHES)	WEIGHT PER FOOT (POUNDS)	I.D. PIPE (INCHES)	WEIGHT PER FOOT (POUNDS)	I.D. PIPE (INCHES)	WEIGHT PER FOOT (POUNDS)	I.D. PIPE (INCHES)	WEIGHT PER FOOT (POUNDS)	LENGTH
1 1/4	2.27	2	3.65	2 1/2	5.79	3 1/2	9.1	8'-2"

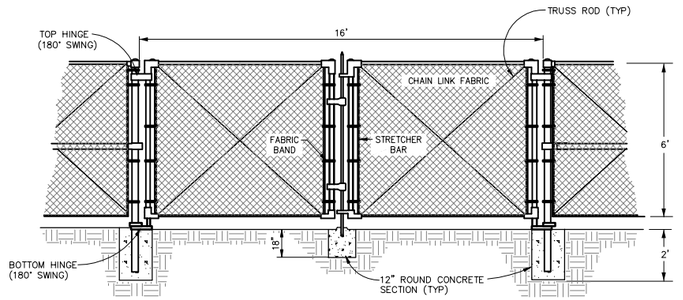
NOTES:

1. ALL POSTS SHALL BE SPACES AT 10 FEET MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. TOP AND BOTTOM TENSION WIRES SHALL BE PLACED WITHIN THE LIMITS OF THE FIRST FULL FABRIC WEAVE.
3. DETAILS ARE ILLUSTRATIVE AND SHALL NOT LIMIT HARDWARE DESIGN OR POST SELECTION OF ANY PARTICULAR FENCE TYPE.

DETAIL - CHAIN LINK FENCE

REF: WSDOT STD PLAN L-20.10-01

NOT TO SCALE



DETAIL - CHAIN LINK FENCE GATE

REF: WSDOT STD PLAN L-30.10-01

NOT TO SCALE

TESC / SWPPP DETAILS

KIMBERLY-CLARK EVERETT PLANT BUILDING DEMOLITION

KIMBERLY-CLARK WORLDWIDE INC
EVERETT, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Drive, Suite 200
Everett Washington 98201
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REVISIONS: APPD.

DATE: FEB, 2012
DESIGN: JNS
DRAWN: CLK
CHECKED:
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER: KMBY00000007

DRAWING FILE: ecFG006KMBY00000007

SHEET NO.

Fig 6

OF 8

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Appendix B – Construction BMPs

BMP C103: High Visibility Plastic or Metal Fence

Purpose

Fencing is intended to: (1) restrict clearing to approved limits; (2) prevent disturbance of sensitive areas, their buffers, and other areas required to be left undisturbed; (3) limit construction traffic to designated construction entrances or roads; and, (4) protect areas where marking with survey tape may not provide adequate protection.

Conditions of Use

To establish clearing limits, plastic or metal fence may be used:

- At the boundary of sensitive areas, their buffers, and other areas required to be left uncleared.
- As necessary to control vehicle access to and on the site.

Design and Installation Specifications

- High visibility plastic fence shall be composed of a high-density polyethylene material and shall be at least four feet in height. Posts for the fencing shall be steel or wood and placed every 6 feet on center (maximum) or as needed to ensure rigidity. The fencing shall be fastened to the post every six inches with a polyethylene tie. On long continuous lengths of fencing, a tension wire or rope shall be used as a top stringer to prevent sagging between posts. The fence color shall be high visibility orange. The fence tensile strength shall be 360 lbs./ft. using the ASTM D4595 testing method.
- Metal fences shall be designed and installed according to the manufacturer's specifications.
- Metal fences shall be at least 3 feet high and must be highly visible.
- Fences shall not be wired or stapled to trees.

Maintenance Standards

- If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.

BMP C105: Stabilized Construction Entrance

Purpose

Construction entrances are stabilized to reduce the amount of sediment transported onto paved roads by vehicles or equipment by constructing a stabilized pad of quarry spalls at entrances to construction sites.

Conditions of Use

Construction entrances shall be stabilized wherever traffic will be leaving a construction site and traveling on paved roads or other paved areas within 1,000 feet of the site.

On large commercial, highway, and road projects, the designer should include enough extra materials in the contract to allow for additional stabilized entrances not shown in the initial Construction SWPPP. It is difficult to determine exactly where access to these projects will take place; additional materials will enable the contractor to install them where needed.

Design and Installation Specifications

- See Figure 4.2 for details. Note: the 100' minimum length of the entrance shall be reduced to the maximum practicable size when the size or configuration of the site does not allow the full length (100').
- A separation geotextile shall be placed under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile shall meet the following standards:

Grab Tensile Strength (ASTM D4751)	200 psi min.
Grab Tensile Elongation (ASTM D4632)	30% max.
Mullen Burst Strength (ASTM D3786-80a)	400 psi min.
AOS (ASTM D4751)	20-45 (U.S. standard sieve size)

- Consider early installation of the first lift of asphalt in areas that will paved; this can be used as a stabilized entrance. Also consider the installation of excess concrete as a stabilized entrance. During large concrete pours, excess concrete is often available for this purpose.
- Hog fuel (wood-based mulch) may be substituted for or combined with quarry spalls in areas that will not be used for permanent roads. Hog fuel is generally less effective at stabilizing construction entrances and should be used only at sites where the amount of traffic is very limited. Hog fuel is not recommended for entrance stabilization in urban areas. The effectiveness of hog fuel is highly variable and it generally requires more maintenance than quarry spalls. The inspector may at any time require the use of quarry spalls if the hog fuel is not preventing sediment from being tracked onto pavement or if the hog fuel is being carried onto pavement. Hog fuel is prohibited in permanent roadbeds because organics in the subgrade soils cause degradation of the subgrade support over time.
- Fencing (see BMPs C103 and C104) shall be installed as necessary to restrict traffic to the construction entrance.

- Whenever possible, the entrance shall be constructed on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance.

Maintenance Standards

- Quarry spalls (or hog fuel) shall be added if the pad is no longer in accordance with the specifications.
- If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash.
- Any sediment that is tracked onto pavement shall be removed by shoveling or street sweeping. The sediment collected by sweeping shall be removed or stabilized on site. The pavement shall not be cleaned by washing down the street, except when sweeping is ineffective and there is a threat to public safety. If it is necessary to wash the streets, the construction of a small sump shall be considered. The sediment would then be washed into the sump where it can be controlled.
- Any quarry spalls that are loosened from the pad, which end up on the roadway shall be removed immediately.
- If vehicles are entering or exiting the site at points other than the construction entrance(s), fencing (see BMPs C103 and C104) shall be installed to control traffic.
- Upon project completion and site stabilization, all construction accesses intended as permanent access for maintenance shall be permanently stabilized.

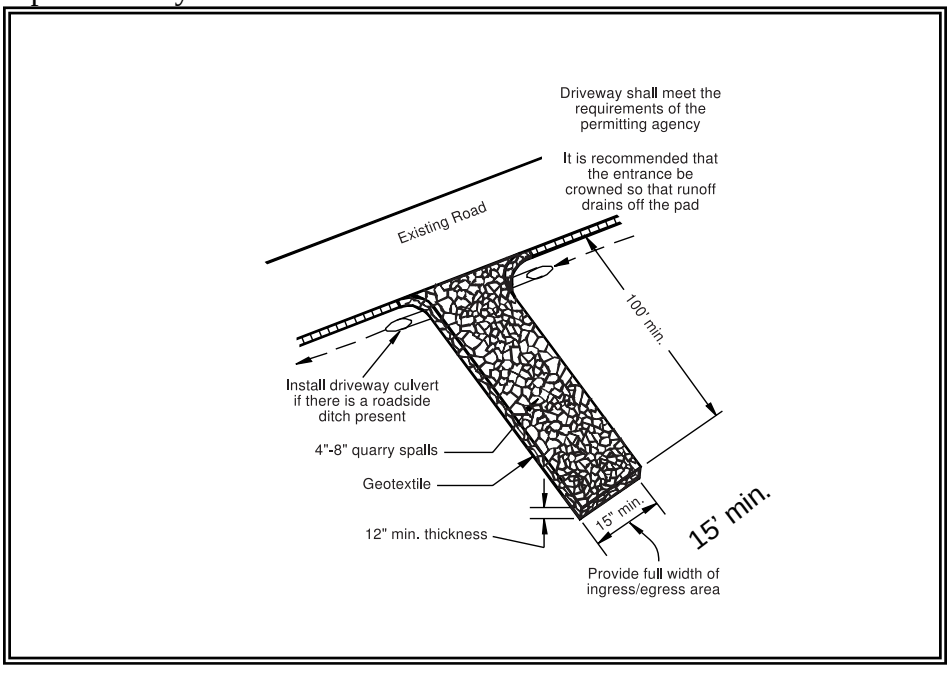


Figure 4.2 – Stabilized Construction Entrance

BMP C106: Wheel Wash

Purpose

Wheel washes reduce the amount of sediment transported onto paved roads by motor vehicles.

Conditions of Use

When a stabilized construction entrance (see BMP C105) is not preventing sediment from being tracked onto pavement.

- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct drainage to a large 10-foot x 10-foot sump can be very effective.

Design and Installation Specifications

Suggested details are shown in Figure 4.3. The Local Permitting Authority may allow other designs. A minimum of 6 inches of asphalt treated base (ATB) over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.

Use a low clearance truck to test the wheel wash before paving. Either a belly dump or lowboy will work well to test clearance.

Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.

Midpoint spray nozzles are only needed in extremely muddy conditions.

Wheel wash systems should be designed with a small grade change, 6 to 12 inches for a 10-foot-wide pond, to allow sediment to flow to the low side of pond to help prevent re-suspension of sediment. A drainpipe with a 2- to 3-foot riser should be installed on the low side of the pond to allow for easy cleaning and refilling. Polymers may be used to promote coagulation and flocculation in a closed-loop system. Polyacrylamide (PAM) added to the wheel wash water at a rate of 0.25 - 0.5 pounds per 1,000 gallons of water increases effectiveness and reduces cleanup time. If PAM is already being used for dust or erosion control and is being applied by a water truck, the same truck can be used to change the wash water.

Maintenance Standards

The wheel wash should start out the day with fresh water.

The wash water should be changed a minimum of once per day. On large earthwork jobs where more than 10-20 trucks per hour are expected, the wash water will need to be changed more often.

Wheel wash or tire bath wastewater shall be discharged to a separate on-site treatment system, such as closed-loop recirculation or land application, or to the sanitary sewer with proper local sewer district approval.

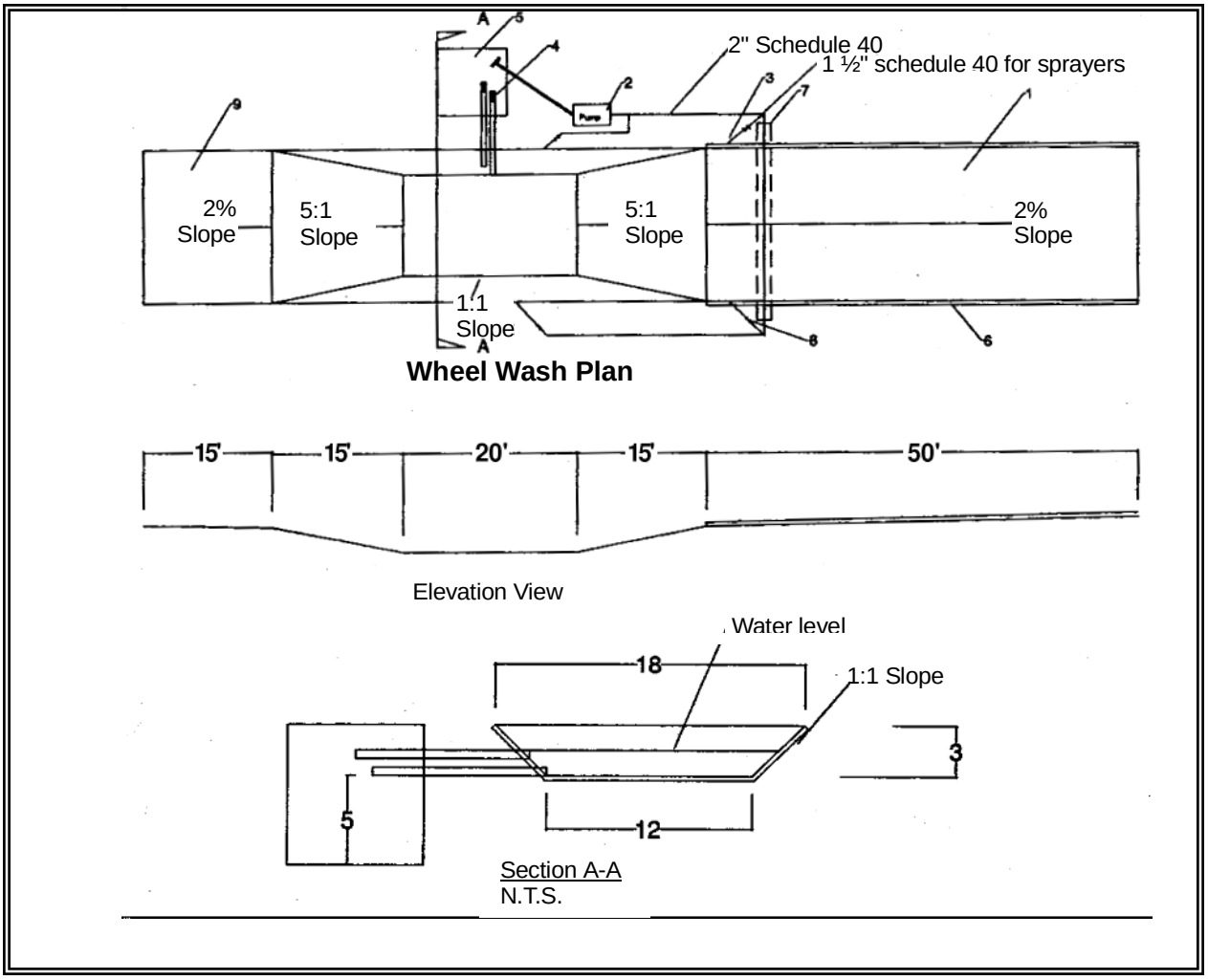


Figure 4.3 Wheel Wash

Notes:

1. Asphalt construction entrance 6 in. asphalt treated base (ATB).
2. 3-inch trash pump with floats on the suction hose.
3. Midpoint spray nozzles, if needed.
4. 6-inch sewer pipe with butterfly valves. Bottom one is a drain. Locate top pipe's invert 1 foot above bottom of wheel wash.
5. 8 foot x 8 foot sump with 5 feet of catch. Build so can be cleaned with trackhoe.
6. Asphalt curb on the low road side to direct water back to pond.
7. 6-inch sleeve under road.
8. Ball valves.
9. 15 foot. ATB apron to protect ground from splashing water.

BMP C107: Construction Road/Parking Area Stabilization

Purpose

Stabilizing subdivision roads, parking areas, and other onsite vehicle transportation routes immediately after grading reduces erosion caused by construction traffic or runoff.

Conditions of Use

- Roads or parking areas shall be stabilized wherever they are constructed, whether permanent or temporary, for use by construction traffic.
- Fencing (see BMPs C103 and C104) shall be installed, if necessary, to limit the access of vehicles to only those roads and parking areas that are stabilized.

Design and Installation Specifications

- On areas that will receive asphalt as part of the project, install the first lift as soon as possible.
- A 6-inch depth of 2- to 4-inch crushed rock, gravel base, or crushed surfacing base course shall be applied immediately after grading or utility installation. A 4-inch course of asphalt treated base (ATB) may also be used, or the road/parking area may be paved. It may also be possible to use cement or calcium chloride for soil stabilization. If cement or cement kiln dust is used for roadbase stabilization, pH monitoring and BMPs are necessary to evaluate and minimize the effects on stormwater. If the area will not be used for permanent roads, parking areas, or structures, a 6-inch depth of hog fuel may also be used, but this is likely to require more maintenance. Whenever possible, construction roads and parking areas shall be placed on a firm, compacted subgrade.
- Temporary road gradients shall not exceed 15 percent. Roadways shall be carefully graded to drain. Drainage ditches shall be provided on each side of the roadway in the case of a crowned section, or on one side in the case of a super-elevated section. Drainage ditches shall be directed to a sediment control BMP.
- Rather than relying on ditches, it may also be possible to grade the road so that runoff sheet-flows into a heavily vegetated area with a well-developed topsoil. Landscaped areas are not adequate. If this area has at least 50 feet of vegetation, then it is generally preferable to use the vegetation to treat runoff, rather than a sediment pond or trap. The 50 feet shall not include wetlands. If runoff is allowed to sheetflow through adjacent vegetated areas, it is vital to design the roadways and parking areas so that no concentrated runoff is created.
- Storm drain inlets shall be protected to prevent sediment-laden water entering the storm drain system (see BMP C220).

Maintenance Standards

- Inspect stabilized areas regularly, especially after large storm events.
- Crushed rock, gravel base, hog fuel, etc. shall be added as required to maintain a stable driving surface and to stabilize any areas that have eroded.
- Following construction, these areas shall be restored to pre-construction condition or better to prevent future erosion.

BMP C120: Temporary and Permanent Seeding

Purpose

Seeding is intended to reduce erosion by stabilizing exposed soils. A well-established vegetative cover is one of the most effective methods of reducing erosion.

Conditions of Use

- Seeding may be used throughout the project on disturbed areas that have reached final grade or that will remain unworked for more than 30 days.
- Channels that will be vegetated should be installed before major earthwork and hydroseeded with a Bonded Fiber Matrix. The vegetation should be well established (i.e., 75 percent cover) before water is allowed to flow in the ditch. With channels that will have high flows, erosion control blankets should be installed over the hydroseed. If vegetation cannot be established from seed before water is allowed in the ditch, sod should be installed in the bottom of the ditch over hydromulch and blankets.
- Retention/detention ponds should be seeded as required.
- Mulch is required at all times because it protects seeds from heat, moisture loss, and transport due to runoff.
- All disturbed areas shall be reviewed in late August to early September and all seeding should be completed by the end of September. Otherwise, vegetation will not establish itself enough to provide more than average protection.
- At final site stabilization, all disturbed areas not otherwise vegetated or stabilized shall be seeded and mulched. Final stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as pavement, riprap, gabions or geotextiles) which will prevent erosion.

Design and Installation Specifications

- Seeding should be done during those seasons most conducive to growth and will vary with the climate conditions of the region. Local experience should be used to determine the appropriate seeding periods.
- The optimum seeding windows for western Washington are April 1 through June 30 and September 1 through October 1. Seeding that occurs between July 1 and August 30 will require irrigation until 75 percent grass cover is established. Seeding that occurs between October 1 and March 30 will require a mulch or plastic cover until 75 percent grass cover is established.
- To prevent seed from being washed away, confirm that all required surface water control measures have been installed.

- The seedbed should be firm and rough. All soil should be roughened no matter what the slope. If compaction is required for engineering purposes, slopes must be track walked before seeding. Backblading or smoothing of slopes greater than 4:1 is not allowed if they are to be seeded.
- New and more effective restoration-based landscape practices rely on deeper incorporation than that provided by a simple single-pass rototilling treatment. Wherever practical the subgrade should be initially ripped to improve long-term permeability, infiltration, and water inflow qualities. At a minimum, permanent areas shall use soil amendments to achieve organic matter and permeability performance defined in engineered soil/landscape systems. For systems that are deeper than 8 inches the rototilling process should be done in multiple lifts, or the prepared soil system shall be prepared properly and then placed to achieve the specified depth.
- Organic matter is the most appropriate form of "fertilizer" because it provides nutrients (including nitrogen, phosphorus, and potassium) in the least water-soluble form. A natural system typically releases 2-10 percent of its nutrients annually. Chemical fertilizers have since been formulated to simulate what organic matter does naturally.
- In general, 10-4-6 N-P-K (nitrogen-phosphorus-potassium) fertilizer can be used at a rate of 90 pounds per acre. Slow-release fertilizers should always be used because they are more efficient and have fewer environmental impacts. It is recommended that areas being seeded for final landscaping conduct soil tests to determine the exact type and quantity of fertilizer needed. This will prevent the over-application of fertilizer. Fertilizer should not be added to the hydromulch machine and agitated more than 20 minutes before it is to be used. If agitated too much, the slow-release coating is destroyed.
- There are numerous products available on the market that take the place of chemical fertilizers. These include several with seaweed extracts that are beneficial to soil microbes and organisms. If 100 percent cottonseed meal is used as the mulch in hydroseed, chemical fertilizer may not be necessary. Cottonseed meal is a good source of long-term, slow-release, available nitrogen.
- Hydroseed applications shall include a minimum of 1,500 pounds per acre of mulch with 3 percent tackifier. Mulch may be made up of 100 percent: cottonseed meal; fibers made of wood, recycled cellulose, hemp, and kenaf; compost; or blends of these. Tackifier shall be plant-based, such as guar or alpha plantago, or chemical-based such as polyacrylamide or polymers. Any mulch or tackifier product used shall be installed per manufacturer's instructions. Generally, mulches come in 40-50 pound bags. Seed and fertilizer are added at time of application.

- Mulch is always required for seeding. Mulch can be applied on top of the seed or simultaneously by hydroseeding.
- On steep slopes, Bonded Fiber Matrix (BFM) or Mechanically Bonded Fiber Matrix (MBFM) products should be used. BFM/MBFM products are applied at a minimum rate of 3,000 pounds per acre of mulch with approximately 10 percent tackifier. Application is made so that a minimum of 95 percent soil coverage is achieved. Numerous products are available commercially and should be installed per manufacturer's instructions. Most products require 24-36 hours to cure before a rainfall and cannot be installed on wet or saturated soils. Generally, these products come in 40-50 pound bags and include all necessary ingredients except for seed and fertilizer.

BFMs and MBFMs have some advantages over blankets:

- No surface preparation required;
- Can be installed via helicopter in remote areas;
- On slopes steeper than 2.5:1, blanket installers may need to be roped and harnessed for safety;
- They are at least $1,000 per acre cheaper installed.

In most cases, the shear strength of blankets is not a factor when used on slopes, only when used in channels. BFMs and MBFMs are good alternatives to blankets in most situations where vegetation establishment is the goal.

- When installing seed via hydroseeding operations, only about 1/3 of the seed actually ends up in contact with the soil surface. This reduces the ability to establish a good stand of grass quickly. One way to overcome this is to increase seed quantities by up to 50 percent.
- Vegetation establishment can also be enhanced by dividing the hydromulch operation into two phases:
    1. Phase 1- Install all seed and fertilizer with 25-30 percent mulch and tackifier onto soil in the first lift;
    2. Phase 2- Install the rest of the mulch and tackifier over the first lift.

An alternative is to install the mulch, seed, fertilizer, and tackifier in one lift. Then, spread or blow straw over the top of the hydromulch at a rate of about 800-1000 pounds per acre. Hold straw in place with a standard tackifier. Both of these approaches will increase cost moderately but will greatly improve and enhance vegetative establishment. The increased cost may be offset by the reduced need for:

1. Irrigation
2. Reapplication of mulch
3. Repair of failed slope surfaces

This technique works with standard hydromulch (1,500 pounds per acre minimum) and BFM/MBFMs (3,000 pounds per acre minimum).

- Areas to be permanently landscaped shall provide a healthy topsoil that reduces the need for fertilizers, improves overall topsoil quality, provides for better vegetal health and vitality, improves hydrologic characteristics, and reduces the need for irrigation. This can be accomplished in a number of ways:

  Recent research has shown that the best method to improve till soils is to amend these soils with compost. The optimum mixture is approximately two parts soil to one part compost. This equates to 4 inches of compost mixed to a depth of 12 inches in till soils. Increasing the concentration of compost beyond this level can have negative effects on vegetal health, while decreasing the concentrations can reduce the benefits of amended soils. Please note: The compost should meet specifications for Grade A quality compost in Ecology Publication 94-038.

  Other soils, such as gravel or cobble outwash soils, may require different approaches. Organics and fines easily migrate through the loose structure of these soils. Therefore, the importation of at least 6 inches of quality topsoil, underlain by some type of filter fabric to prevent the migration of fines, may be more appropriate for these soils.

  Areas that already have good topsoil, such as undisturbed areas, do not require soil amendments.

- Areas that will be seeded only and not landscaped may need compost or meal-based mulch included in the hydroseed in order to establish vegetation. Native topsoil should be re-installed on the disturbed soil surface before application.
- Seed that is installed as a temporary measure may be installed by hand if it will be covered by straw, mulch, or topsoil. Seed that is installed as a permanent measure may be installed by hand on small areas (usually less than 1 acre) that will be covered with mulch, topsoil, or erosion blankets. The seed mixes listed below include recommended mixes for both temporary and permanent seeding. These mixes, with the exception of the wetland mix, shall be applied at a rate of 120 pounds per acre. This rate can be reduced if soil amendments or slow-release fertilizers are used. Local suppliers or the local conservation district should be consulted for their recommendations because the appropriate mix depends on a variety of factors, including location, exposure, soil type, slope, and expected foot traffic. Alternative seed mixes approved by the local authority may be used.

Table 4.1 represents the standard mix for those areas where just a temporary vegetative cover is required.

Table 4.1
Temporary Erosion Control Seed Mix

	% Weight	% Purity	% Germination
Chewings or annual blue grass *Festuca rubra var. commutata* or *Poa anna*	40	98	90
Perennial rye - *Lolium perenne*	50	98	90
Redtop or colonial bentgrass *Agrostis alba* or *Agrostis tenuis*	5	92	85
White dutch clover *Trifolium repens*	5	98	90

Table 4.2 provides just one recommended possibility for landscaping seed.

Table 4.2
Landscaping Seed Mix

	% Weight	% Purity	% Germination
Perennial rye blend *Lolium perenne*	70	98	90
Chewings and red fescue blend *Festuca rubra var. commutata* or *Festuca rubra*	30	98	90

This turf seed mix in Table 4.3 is for dry situations where there is no need for much water. The advantage is that this mix requires very little maintenance.

Table 4.3
Low-Growing Turf Seed Mix

	% Weight	% Purity	% Germination
Dwarf tall fescue (several varieties) *Festuca arundinacea var.*	45	98	90
Dwarf perennial rye (Barclay) *Lolium perenne var. barclay*	30	98	90
Red fescue *Festuca rubra*	20	98	90
Colonial bentgrass *Agrostis tenuis*	5	98	90

Table 4.4 presents a mix recommended for bioswales and other intermittently wet areas.

Table 4.4
Bioswale Seed Mix*

	% Weight	% Purity	% Germination
Tall or meadow fescue *Festuca arundinacea* or *Festuca elatior*	75-80	98	90
Seaside/Creeping bentgrass *Agrostis palustris*	10-15	92	85
Redtop bentgrass *Agrostis alba* or *Agrostis gigantea*	5-10	90	80

** Modified Briargreen, Inc. Hydroseeding Guide Wetlands Seed Mix*

The seed mix shown in Table 4.5 is a recommended low-growing, relatively non-invasive seed mix appropriate for very wet areas that are not regulated wetlands. Other mixes may be appropriate, depending on the soil type and hydrology of the area. Recent research suggests that bentgrass (agrostis sp.) should be emphasized in wet-area seed mixes. Apply this mixture at a rate of 60 pounds per acre.

Table 4.5
Wet Area Seed Mix*

	% Weight	% Purity	% Germination
Tall or meadow fescue *Festuca arundinacea* or *Festuca elatior*	60-70	98	90
Seaside/Creeping bentgrass *Agrostis palustris*	10-15	98	85
Meadow foxtail *Alepocurus pratensis*	10-15	90	80
Alsike clover *Trifolium hybridum*	1-6	98	90
Redtop bentgrass *Agrostis alba*	1-6	92	85

** Modified Briargreen, Inc. Hydroseeding Guide Wetlands Seed Mix*

The meadow seed mix in Table 4.6 is recommended for areas that will be maintained infrequently or not at all and where colonization by native plants is desirable. Likely applications include rural road and utility right-of-way. Seeding should take place in September or very early October in order to obtain adequate establishment prior to the winter months. The appropriateness of clover in the mix may need to be considered, as this can be a fairly invasive species. If the soil is amended, the addition of clover may not be necessary.

Table 4.6
Meadow Seed Mix

	% Weight	% Purity	% Germination
Redtop or Oregon bentgrass *Agrostis alba* or *Agrostis oregonensis*	20	92	85
Red fescue *Festuca rubra*	70	98	90
White dutch clover *Trifolium repens*	10	98	90

Maintenance Standards

- Any seeded areas that fail to establish at least 80 percent cover (100 percent cover for areas that receive sheet or concentrated flows) shall be reseeded. If reseeding is ineffective, an alternate method, such as sodding, mulching, or nets/blankets, shall be used. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the local authority when sensitive areas would otherwise be protected.

- After adequate cover is achieved, any areas that experience erosion shall be reseeded and protected by mulch. If the erosion problem is drainage related, the problem shall be fixed and the eroded area reseeded and protected by mulch.
- Seeded areas shall be supplied with adequate moisture, but not watered to the extent that it causes runoff.

BMP C121: Mulching

Purpose

The purpose of mulching soils is to provide immediate temporary protection from erosion. Mulch also enhances plant establishment by conserving moisture, holding fertilizer, seed, and topsoil in place, and moderating soil temperatures. There is an enormous variety of mulches that can be used. Only the most common types are discussed in this section.

Conditions of Use

As a temporary cover measure, mulch should be used:

- On disturbed areas that require cover measures for less than 30 days.
- As a cover for seed during the wet season and during the hot summer months.
- During the wet season on slopes steeper than 3H:1V with more than 10 feet of vertical relief.
- Mulch may be applied at any time of the year and must be refreshed periodically.

Design and Installation Specifications

For mulch materials, application rates, and specifications, see Table 4.7. Note: Thicknesses may be increased for disturbed areas in or near sensitive areas or other areas highly susceptible to erosion.

Mulch used within the ordinary high-water mark of surface waters should be selected to minimize potential flotation of organic matter. Composted organic materials have higher specific gravities (densities) than straw, wood, or chipped material.

Maintenance Standards

- The thickness of the cover must be maintained.
- Any areas that experience erosion shall be remulched and/or protected with a net or blanket. If the erosion problem is drainage related, then the problem shall be fixed and the eroded area remulched.

Table 4.7
Mulch Standards and Guidelines

Mulch Material	Quality Standards	Application Rates	Remarks
Straw	Air-dried; free from undesirable seed and coarse material.	2"-3" thick; 5 bales per 1000 sf or 2-3 tons per acre	Cost-effective protection when applied with adequate thickness. Hand-application generally requires greater thickness than blown straw. The thickness of straw may be reduced by half when used in conjunction with seeding. In windy areas straw must be held in place by crimping, using a tackifier, or covering with netting. Blown straw always has to be held in place with a tackifier as even light winds will blow it away. Straw, however, has several deficiencies that should be considered when selecting mulch materials. It often introduces and/or encourages the propagation of weed species and it has no significant long-term benefits. Straw should be used only if mulches with long-term benefits are unavailable locally. It should also not be used within the ordinary high-water elevation of surface waters (due to flotation).
Hydromulch	No growth inhibiting factors.	Approx. 25-30 lbs per 1000 sf or 1500 - 2000 lbs per acre	Shall be applied with hydromulcher. Shall not be used without seed and tackifier unless the application rate is at least doubled. Fibers longer than about ¾-1 inch clog hydromulch equipment. Fibers should be kept to less than ¾ inch.
Composted Mulch and Compost	No visible water or dust during handling. Must be purchased from supplier with Solid Waste Handling Permit (unless exempt).	2" thick min.; approx. 100 tons per acre (approx. 800 lbs per yard)	More effective control can be obtained by increasing thickness to 3". Excellent mulch for protecting final grades until landscaping because it can be directly seeded or tilled into soil as an amendment. Composted mulch has a coarser size gradation than compost. It is more stable and practical to use in wet areas and during rainy weather conditions.
Chipped Site Vegetation	Average size shall be several inches. Gradations from fines to 6 inches in length for texture, variation, and interlocking properties.	2" minimum thickness	This is a cost-effective way to dispose of debris from clearing and grubbing, and it eliminates the problems associated with burning. Generally, it should not be used on slopes above approx. 10% because of its tendency to be transported by runoff. It is not recommended within 200 feet of surface waters. If seeding is expected shortly after mulch, the decomposition of the chipped vegetation may tie up nutrients important to grass establishment.
Wood-based Mulch	No visible water or dust during handling. Must be purchased from a supplier with a Solid Waste Handling Permit or one exempt from solid waste regulations.	2” thick; approx. 100 tons per acre (approx. 800 lbs. per cubic yard)	This material is often called “hog or hogged fuel.” It is usable as a material for Stabilized Construction Entrances (BMP C105) and as a mulch. The use of mulch ultimately improves the organic matter in the soil. Special caution is advised regarding the source and composition of wood-based mulches. Its preparation typically does not provide any weed seed control, so evidence of residual vegetation in its composition or known inclusion of weed plants or seeds should be monitored and prevented (or minimized).

BMP C123: Plastic Covering

Purpose

Plastic covering provides immediate, short-term erosion protection to slopes and disturbed areas.

Conditions of Use

- Plastic covering may be used on disturbed areas that require cover measures for less than 30 days, except as stated below.
- Plastic is particularly useful for protecting cut and fill slopes and stockpiles. Note: The relatively rapid breakdown of most polyethylene sheeting makes it unsuitable for long-term (greater than six months) applications.
- Clear plastic sheeting can be used over newly-seeded areas to create a greenhouse effect and encourage grass growth if the hydroseed was installed too late in the season to establish 75 percent grass cover, or if the wet season started earlier than normal. Clear plastic should not be used for this purpose during the summer months because the resulting high temperatures can kill the grass.
- Due to rapid runoff caused by plastic sheeting, this method shall not be used upslope of areas that might be adversely impacted by concentrated runoff. Such areas include steep and/or unstable slopes.
- While plastic is inexpensive to purchase, the added cost of installation, maintenance, removal, and disposal make this an expensive material, up to $1.50-2.00 per square yard.
- Whenever plastic is used to protect slopes, water collection measures must be installed at the base of the slope. These measures include plastic-covered berms, channels, and pipes used to covey clean rainwater away from bare soil and disturbed areas. At no time is clean runoff from a plastic covered slope to be mixed with dirty runoff from a project.
- Other uses for plastic include:
    1. Temporary ditch liner;
    2. Pond liner in temporary sediment pond;
    3. Liner for bermed temporary fuel storage area if plastic is not reactive to the type of fuel being stored;
    4. Emergency slope protection during heavy rains; and,
    5. Temporary drainpipe (“elephant trunk”) used to direct water.

Design and Installation Specifications

- Plastic slope cover must be installed as follows:
  1. Run plastic up and down slope, not across slope;
  2. Plastic may be installed perpendicular to a slope if the slope length is less than 10 feet;
  3. Minimum of 8-inch overlap at seams;
  4. On long or wide slopes, or slopes subject to wind, all seams should be taped;
  5. Place plastic into a small (12-inch wide by 6-inch deep) slot trench at the top of the slope and backfill with soil to keep water from flowing underneath;
  6. Place sand filled burlap or geotextile bags every 3 to 6 feet along seams and pound a wooden stake through each to hold them in place;
  7. Inspect plastic for rips, tears, and open seams regularly and repair immediately. This prevents high velocity runoff from contacting bare soil which causes extreme erosion;
  8. Sandbags may be lowered into place tied to ropes. However, all sandbags must be staked in place.
- Plastic sheeting shall have a minimum thickness of 0.06 millimeters.
- If erosion at the toe of a slope is likely, a gravel berm, riprap, or other suitable protection shall be installed at the toe of the slope in order to reduce the velocity of runoff.

Maintenance Standards

- Torn sheets must be replaced and open seams repaired.
- If the plastic begins to deteriorate due to ultraviolet radiation, it must be completely removed and replaced.
- When the plastic is no longer needed, it shall be completely removed.
- Dispose of old tires appropriately.

BMP C140: Dust Control

Purpose

Dust control prevents wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

Conditions of Use

- In areas (including roadways) subject to surface and air movement of dust where on-site and off-site impacts to roadways, drainage ways, or surface waters are likely.

Design and Installation Specifications

- Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original ground cover as long as practical.
- Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- Sprinkle the site with water until surface is wet. Repeat as needed. To prevent carryout of mud onto street, refer to Stabilized Construction Entrance (BMP C105).
- Irrigation water can be used for dust control. Irrigation systems should be installed as a first step on sites where dust control is a concern.
- Spray exposed soil areas with a dust palliative, following the manufacturer's instructions and cautions regarding handling and application. Used oil is prohibited from use as a dust suppressant. Local governments may approve other dust palliatives such as calcium chloride or PAM.
- PAM (BMP C126) added to water at a rate of 0.5 lbs. per 1,000 gallons of water per acre and applied from a water truck is more effective than water alone. This is due to the increased infiltration of water into the soil and reduced evaporation. In addition, small soil particles are bonded together and are not as easily transported by wind. Adding PAM may actually reduce the quantity of water needed for dust control, especially in eastern Washington. Since the wholesale cost of PAM is about $ 4.00 per pound, this is an extremely cost-effective dust control method.

Techniques that can be used for unpaved roads and lots include:

- Lower speed limits. High vehicle speed increases the amount of dust stirred up from unpaved roads and lots.
- Upgrade the road surface strength by improving particle size, shape, and mineral types that make up the surface and base materials.

- Add surface gravel to reduce the source of dust emission. Limit the amount of fine particles (those smaller than .075 mm) to 10 to 20 percent.
- Use geotextile fabrics to increase the strength of new roads or roads undergoing reconstruction.
- Encourage the use of alternate, paved routes, if available.
- Restrict use by tracked vehicles and heavy trucks to prevent damage to road surface and base.
- Apply chemical dust suppressants using the admix method, blending the product with the top few inches of surface material. Suppressants may also be applied as surface treatments.
- Pave unpaved permanent roads and other trafficked areas.
- Use vacuum street sweepers.
- Remove mud and other dirt promptly so it does not dry and then turn into dust.
- Limit dust-causing work on windy days.
- Contact your local Air Pollution Control Authority for guidance and training on other dust control measures. Compliance with the local Air Pollution Control Authority constitutes compliance with this BMP.

Maintenance Standards Respray area as necessary to keep dust to a minimum.

BMP C150: Materials On Hand

Purpose

Quantities of erosion prevention and sediment control materials can be kept on the project site at all times to be used for emergency situations such as unexpected heavy summer rains. Having these materials on-site reduces the time needed to implement BMPs when inspections indicate that existing BMPs are not meeting the Construction SWPPP requirements. In addition, contractors can save money by buying some materials in bulk and storing them at their office or yard.

Conditions of Use

- Construction projects of any size or type can benefit from having materials on hand. A small commercial development project could have a roll of plastic and some gravel available for immediate protection of bare soil and temporary berm construction. A large earthwork project, such as highway construction, might have several tons of straw, several rolls of plastic, flexible pipe, sandbags, geotextile fabric and steel "T" posts.
- Materials are stockpiled and readily available before any site clearing, grubbing, or earthwork begins. A large contractor or developer could keep a stockpile of materials that are available to be used on several projects.
- If storage space at the project site is at a premium, the contractor could maintain the materials at their office or yard. The office or yard must be less than an hour from the project site.

Design and Installation Specifications

Depending on project type, size, complexity, and length, materials and quantities will vary. A good minimum that will cover numerous situations includes:

Material	Measure	Quantity
Clear Plastic, 6 mil	100 foot roll	1-2
Drainpipe, 6 or 8 inch diameter	25 foot section	4-6
Sandbags, filled	each	25-50
Straw Bales for mulching,	approx. 50# each	10-20
Quarry Spalls	ton	2-4
Washed Gravel	cubic yard	2-4
Geotextile Fabric	100 foot roll	1-2
Catch Basin Inserts	each	2-4
Steel "T" Posts	each	12-24

Maintenance Standards

- All materials with the exception of the quarry spalls, steel "T" posts, and gravel should be kept covered and out of both sun and rain.
- Re-stock materials used as needed.

BMP C151: Concrete Handling

Purpose

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. This BMP is intended to minimize and eliminate concrete process water and slurry from entering waters of the state.

Conditions of Use

Any time concrete is used, these management practices shall be utilized. Concrete construction projects include, but are not limited to, the following:

- Curbs
- Sidewalks
- Roads
- Bridges
- Foundations
- Floors
- Runways

Design and Installation Specifications

- Concrete truck chutes, pumps, and internals shall be washed out only into formed areas awaiting installation of concrete or asphalt.
- Unused concrete remaining in the truck and pump shall be returned to the originating batch plant for recycling.
- Hand tools including, but not limited to, screeds, shovels, rakes, floats, and trowels shall be washed off only into formed areas awaiting installation of concrete or asphalt.
- Equipment that cannot be easily moved, such as concrete pavers, shall only be washed in areas that do not directly drain to natural or constructed stormwater conveyances.
- Washdown from areas such as concrete aggregate driveways shall not drain directly to natural or constructed stormwater conveyances.
- When no formed areas are available, washwater and leftover product shall be contained in a lined container. Contained concrete shall be disposed of in a manner that does not violate groundwater or surface water quality standards.

Maintenance Standards

Containers shall be checked for holes in the liner daily during concrete pours and repaired the same day.

BMP C152: Sawcutting and Surfacing Pollution Prevention

Purpose

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate the water quality standards in the receiving water. This BMP is intended to minimize and eliminate process water and slurry from entering waters of the State.

Conditions of Use

Anytime sawcutting or surfacing operations take place, these management practices shall be utilized. Sawcutting and surfacing operations include, but are not limited to, the following:

- Sawing
- Coring
- Grinding
- Roughening
- Hydro-demolition
- Bridge and road surfacing

Design and Installation Specifications

- Slurry and cuttings shall be vacuumed during cutting and surfacing operations.
- Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight.
- Slurry and cuttings shall not drain to any natural or constructed drainage conveyance.
- Collected slurry and cuttings shall be disposed of in a manner that does not violate groundwater or surface water quality standards.
- Process water that is generated during hydro-demolition, surface roughening or similar operations shall not drain to any natural or constructed drainage conveyance and shall be disposed of in a manner that does not violate groundwater or surface water quality standards.
- Cleaning waste material and demolition debris shall be handled and disposed of in a manner that does not cause contamination of water. If the area is swept with a pick-up sweeper, the material must be hauled out of the area to an appropriate disposal site.

Maintenance Standards

Continually monitor operations to determine whether slurry, cuttings, or process water could enter waters of the state. If inspections show that a violation of water quality standards could occur, stop operations and immediately implement preventive measures such as berms, barriers, secondary containment, and vacuum trucks.

BMP C153: Material Delivery, Storage and Containment

Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, and installing secondary containment.

Conditions of Use

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Petroleum products such as fuel, oil and grease
- Soil stabilizers and binders (e.g. Polyacrylamide)
- Fertilizers, pesticides and herbicides
- Detergents
- Asphalt and concrete compounds
- Hazardous chemicals such as acids, lime, adhesives, paints, solvents and curing compounds
- Any other material that may be detrimental if released to the environment

Design and Installation Specifications

The following steps should be taken to minimize risk:

- Temporary storage area should be located away from vehicular traffic, near the construction entrance(s), and away from waterways or storm drains.
- Material Safety Data Sheets (MSDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers.
- Hazardous material storage on-site should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- During the wet weather season (Oct 1 – April 30), consider storing materials in a covered area.
- Materials should be stored in secondary containments, such as earthen dike, horse trough, or even a children's wading pool for non-reactive materials such as detergents, oil, grease, and paints. Small amounts of material may be secondarily contained in "bus boy" trays or concrete mixing trays.
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and, when possible, in secondary containment.

- If drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids to reduce corrosion. Domed plastic covers are inexpensive and snap to the top of drums, preventing water from collecting.

Material Storage Areas and Secondary Containment Practices:

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall not be overfilled. Containers and drums shall be stored in temporary secondary containment facilities.
- Temporary secondary containment facilities shall provide for a spill containment volume able to contain precipitation from a 25 year, 24 hour storm event, plus 10% of the total enclosed container volume of all containers, or 110% of the capacity of the largest container within its boundary, whichever is greater.
- Secondary containment facilities shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- Secondary containment facilities shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as hazardous waste unless testing determines them to be non-hazardous.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- During the wet weather season (Oct 1 – April 30), each secondary containment facility shall be covered during non-working days, prior to and during rain events.
- Keep material storage areas clean, organized and equipped with an ample supply of appropriate spill clean-up material (spill kit).
- The spill kit should include, at a minimum:
    - 1-Water Resistant Nylon Bag
    - 3-Oil Absorbent Socks 3”x 4’
    - 2-Oil Absorbent Socks 3”x 10’
    - 12-Oil Absorbent Pads 17”x19”
    - 1-Pair Splash Resistant Goggles
    - 3-Pair Nitrile Gloves
    - 10-Disposable Bags with Ties
    - Instructions

BMP C160: Certified Erosion and Sediment Control Lead

Purpose

The project proponent designates at least one person as the responsible representative in charge of erosion and sediment control (ESC), and water quality protection. The designated person shall be the Certified Erosion and Sediment Control Lead (CESCL) who is responsible for ensuring compliance with all local, state, and federal erosion and sediment control and water quality requirements.

Conditions of Use

A CESCL shall be made available on projects one acre or larger that discharge stormwater to surface waters of the state

- The CESCL shall:
  - Have a current certificate proving attendance in an erosion and sediment control training course that meets the minimum ESC training and certification requirements established by Ecology (see details below).

    Ecology will maintain a list of ESC training and certification providers at: www.ecy.wa.gov/programs/wq/stormwater.

    OR

  - Be a Certified Professional in Erosion and Sediment Control (CPESC); for additional information go to: www.cpesc.net

Specifications

- Certification shall remain valid for three years.
- The CESCL shall have authority to act on behalf of the contractor or developer and shall be available, on call, 24 hours per day throughout the period of construction.
- The Construction SWPPP shall include the name, telephone number, fax number, and address of the designated CESCL.
- A CESCL may provide inspection and compliance services for multiple construction projects in the same geographic region.

Duties and responsibilities of the CESCL 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 logs, and inspection reports. Inspection reports should include:
    - Inspection date/time.
    - Weather information; general conditions during inspection and approximate amount of precipitation since the last inspection.
    - A summary or list of all BMPs implemented, including observations of all erosion/sediment control structures or practices. The following shall be noted:

      1) Locations of BMPs inspected,

      2) Locations of BMPs that need maintenance,

      3) Locations of BMPs that failed to operate as designed or intended, and

      4) Locations of where additional or different BMPs are required.
    - Visual monitoring results, including a description of discharged stormwater. The presence of suspended sediment, turbid water, discoloration, and oil sheen shall be noted, as applicable.
    - Any water quality monitoring performed during inspection.
    - General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.
- Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the owner.

Minimum Requirements for ESC Training and Certification Courses

General Requirements

1. The course shall teach the construction stormwater pollution prevention guidance provided in the most recent version of:
    a. The Washington State Dept. of Ecology Stormwater Management Manual for Western Washington,
    b. Other equivalent stormwater management manuals approved by Ecology.

2. Upon completion of course, each attendee shall receive documentation of certification, including, at a minimum, a wallet-sized card that certifies completion of the course. Certification shall remain valid for three years. Recertification may be obtained by completing the 8-hour refresher course or by taking the initial 16-hour training course again.

3. The initial certification course shall be a minimum of 16 hours (with a reasonable time allowance for lunch, breaks, and travel to and from field) and include a field element and test.
    a. The field element must familiarize students with the proper installation, maintenance and inspection of common erosion and sediment control BMPs including, but not limited to, blankets, check dams, silt fence, straw mulch, plastic, and seeding.
    b. The test shall be open book and a passing score is not required for certification. Upon completion of the test, the correct answers shall be provided and discussed.

4. The refresher course shall be a minimum of 8 hours and include a test.
    a. The refresher course shall include:
        i. Applicable updates to the Stormwater Management Manual that is used to teach the course, including new or updated BMPs; and
        ii. Applicable changes to the NPDES General Permit for Construction Activities.
    b. The refresher course test shall be open book and a passing score is not required for certification. Upon completion of the test, the correct answers shall be provided and discussed.
    c. The refresher course may be taught using an alternative format (e.g. internet, CD ROM, etc.) if the module is approved by Ecology.

Required Course Elements

1. Erosion and Sedimentation Impacts
    a. Examples/Case studies

2. Erosion and Sedimentation Processes
    a. Definitions
    b. Types of erosion
    c. Sedimentation
        i. Basic settling concepts
        ii. Problems with clays/turbidity

3. Factors Influencing Erosion Potential
    a. Soil
    b. Vegetation
    c. Topography
    d. Climate

4. Regulatory Requirements
    a. NPDES - Construction Stormwater General Permit
    b. Local requirements and permits
    c. Other regulatory requirements

5. Stormwater Pollution Prevention Plan (SWPPP)
    a. SWPPP is a living document – should be revised as necessary
    b. 12 Elements of a SWPPP; discuss suggested BMPs (with examples)
        1. Mark Clearing Limits
        2. Establish Construction Access
        3. Control Flow Rates
        4. Install Sediment Controls
        5. Stabilize Soils
        6. Protect Slopes
        7. Protect Drain Inlets
        8. Stabilize Channels and Outlets
        9. Control Pollutants
        10. Control De-watering
        11. Maintain BMPs
        12. Manage the Project

6. Monitoring/Reporting/Recordkeeping
    a. Site inspections/visual monitoring
        i. Disturbed areas
        ii. BMPs
        iii. Stormwater discharge points
    b. Water quality sampling/analysis
        i. Turbidity
        ii. pH
    c. Monitoring frequency
        i. Set by NPDES permit
        ii. Inactive sites - reduced frequency

d. Adaptive Management
    i. When monitoring indicates problem, take appropriate action (e.g. install/maintain BMPs)
    ii. Document the corrective action(s) in SWPPP
e. Reporting
    i. Inspection reports/checklists
    ii. Discharge Monitoring Reports (DMR)
    iii. Non-compliance notification

Instructor Qualifications

1. Instructors must be qualified to effectively teach the required course elements.

2. At a minimum, instructors must have:

    a. Current certification as a Certified Professional in Erosion and Sediment Control (CPESC), or
    b. Completed a training program for teaching the required course elements, or
    c. The academic credentials and instructional experience necessary for teaching the required course elements.

3. Instructors must demonstrate competent instructional skills and knowledge of the applicable subject matter.

BMP C162: Scheduling

Purpose

Sequencing a construction project reduces the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking.

Conditions of Use

The construction sequence schedule is an orderly listing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. This type of schedule guides the contractor on work to be done before other work is started so that serious erosion and sedimentation problems can be avoided.

Following a specified work schedule that coordinates the timing of land-disturbing activities and the installation of control measures is perhaps the most cost-effective way of controlling erosion during construction. The removal of surface ground cover leaves a site vulnerable to accelerated erosion. Construction procedures that limit land clearing, provide timely installation of erosion and sedimentation controls, and restore protective cover quickly can significantly reduce the erosion potential of a site.

Design Considerations

- Avoid rainy periods.
- Schedule projects to disturb only small portions of the site at any one time. Complete grading as soon as possible. Immediately stabilize the disturbed portion before grading the next portion. Practice staged seeding in order to revegetate cut and fill slopes as the work progresses.

BMP C209: Outlet Protection

Purpose

Outlet protection prevents scour at conveyance outlets and minimizes the potential for downstream erosion by reducing the velocity of concentrated stormwater flows.

Conditions of use

Outlet protection is required at the outlets of all ponds, pipes, ditches, or other conveyances, and where runoff is conveyed to a natural or manmade drainage feature such as a stream, wetland, lake, or ditch.

Design and Installation Specifications

The receiving channel at the outlet of a culvert shall be protected from erosion by rock lining a minimum of 6 feet downstream and extending up the channel sides a minimum of 1–foot above the maximum tailwater elevation or 1-foot above the crown, whichever is higher. For large pipes (more than 18 inches in diameter), the outlet protection lining of the channel is lengthened to four times the diameter of the culvert.

- Standard wingwalls, and tapered outlets and paved channels should also be considered when appropriate for permanent culvert outlet protection. (See WSDOT Hydraulic Manual, available through WSDOT Engineering Publications).
- Organic or synthetic erosion blankets, with or without vegetation, are usually more effective than rock, cheaper, and easier to install. Materials can be chosen using manufacturer product specifications. ASTM test results are available for most products and the designer can choose the correct material for the expected flow.
- With low flows, vegetation (including sod) can be effective.
- The following guidelines shall be used for riprap outlet protection:
    1. If the discharge velocity at the outlet is less than 5 fps (pipe slope less than 1 percent), use 2-inch to 8-inch riprap. Minimum thickness is 1-foot.
    2. For 5 to 10 fps discharge velocity at the outlet (pipe slope less than 3 percent), use 24-inch to 4-foot riprap. Minimum thickness is 2 feet.
    3. For outlets at the base of steep slope pipes (pipe slope greater than 10 percent), an engineered energy dissipater shall be used.
- Filter fabric or erosion control blankets should always be used under riprap to prevent scour and channel erosion.
- New pipe outfalls can provide an opportunity for low-cost fish habitat improvements. For example, an alcove of low-velocity water can be created by constructing the pipe outfall and associated energy dissipater back from the stream edge and digging a channel, over-widened to the upstream side, from the outfall. Overwintering juvenile and migrating adult salmonids may use the alcove as shelter during

high flows. Bank stabilization, bioengineering, and habitat features may be required for disturbed areas. See Volume V for more information on outfall system design.

Maintenance Standards

- Inspect and repair as needed.
- Add rock as needed to maintain the intended function.
- Clean energy dissipater if sediment builds up.

BMP C220: Storm Drain Inlet Protection

Purpose To prevent coarse sediment from entering drainage systems prior to permanent stabilization of the disturbed area.

Conditions of Use Where storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area. Protection should be provided for all storm drain inlets downslope and within 500 feet of a disturbed or construction area, unless the runoff that enters the catch basin will be conveyed to a sediment pond or trap. Inlet protection may be used anywhere to protect the drainage system. It is likely that the drainage system will still require cleaning.

Table 4.9 lists several options for inlet protection. All of the methods for storm drain inlet protection are prone to plugging and require a high frequency of maintenance. Drainage areas should be limited to 1 acre or less. Emergency overflows may be required where stormwater ponding would cause a hazard. If an emergency overflow is provided, additional end-of-pipe treatment may be required.

Table 4.9
Storm Drain Inlet Protetion

Type of Inlet Protection	Emergency Overflow	Applicable for Paved/ Earthen Surfaces	Conditions of Use
Drop Inlet Protection			
Excavated drop inlet protection	Yes, temporary flooding will occur	Earthen	Applicable for heavy flows. Easy to maintain. Large area Requirement: 30' X 30'/acre
Block and gravel drop inlet protection	Yes	Paved or Earthen	Applicable for heavy concentrated flows. Will not pond.
Gravel and wire drop inlet protection	No		Applicable for heavy concentrated flows. Will pond. Can withstand traffic.
Catch basin filters	Yes	Paved or Earthen	Frequent maintenance required.
Curb Inlet Protection			
Curb inlet protection with a wooden weir	Small capacity overflow	Paved	Used for sturdy, more compact installation.
Block and gravel curb inlet protection	Yes	Paved	Sturdy, but limited filtration.
Culvert Inlet Protection			
Culvert inlet sediment trap			18 month expected life.

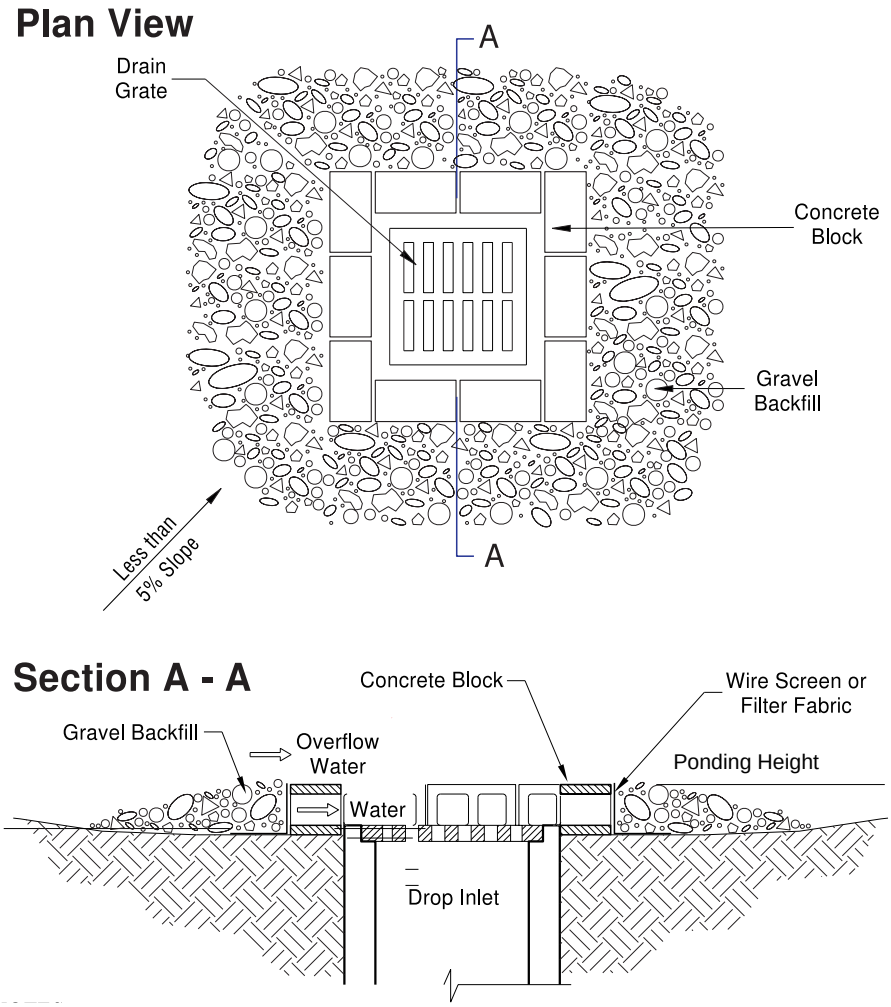
Design and Installation Specifications

Excavated Drop Inlet Protection - An excavated impoundment around the storm drain. Sediment settles out of the stormwater prior to entering the storm drain.

- Depth 1-2 ft as measured from the crest of the inlet structure.
- Side Slopes of excavation no steeper than 2:1.
- Minimum volume of excavation 35 cubic yards.
- Shape basin to fit site with longest dimension oriented toward the longest inflow area.
- Install provisions for draining to prevent standing water problems.
- Clear the area of all debris.
- Grade the approach to the inlet uniformly.
- Drill weep holes into the side of the inlet.
- Protect weep holes with screen wire and washed aggregate.
- Seal weep holes when removing structure and stabilizing area.
- It may be necessary to build a temporary dike to the down slope side of the structure to prevent bypass flow.

Block and Gravel Filter - A barrier formed around the storm drain inlet with standard concrete blocks and gravel. See Figure 4.14.

- Height 1 to 2 feet above inlet.
- Recess the first row 2 inches into the ground for stability.
- Support subsequent courses by placing a 2x4 through the block opening.
- Do not use mortar.
- Lay some blocks in the bottom row on their side for dewatering the pool.
- Place hardware cloth or comparable wire mesh with ½-inch openings over all block openings.
- Place gravel just below the top of blocks on slopes of 2:1 or flatter.
- An alternative design is a gravel donut.
- Inlet slope of 3:1.
- Outlet slope of 2:1.
- 1-foot wide level stone area between the structure and the inlet.
- Inlet slope stones 3 inches in diameter or larger.
- Outlet slope use gravel ½- to ¾-inch at a minimum thickness of 1-foot.



Notes:
1. Drop inlet sediment barriers are to be used for small, nearly level drainage areas. (less than 5%)
2. Excavate a basin of sufficient size adjacent to the drop inlet.
3. The top of the structure (ponding height) must be well below the ground elevation downslope to prevent runoff from bypassing the inlet. A temporary dike may be necessary on the dowslope side of the structure.

Figure 4.14 – Block and Gravel Filter

Gravel and Wire Mesh Filter - A gravel barrier placed over the top of the inlet. This structure does not provide an overflow.

- Hardware cloth or comparable wire mesh with ½-inch openings.
- Coarse aggregate.
- Height 1-foot or more, 18 inches wider than inlet on all sides.
- Place wire mesh over the drop inlet so that the wire extends a minimum of 1-foot beyond each side of the inlet structure.
- If more than one strip of mesh is necessary, overlap the strips.
- Place coarse aggregate over the wire mesh.
- The depth of the gravel should be at least 12 inches over the entire inlet opening and extend at least 18 inches on all sides.

Catchbasin Filters - Inserts should be designed by the manufacturer for use at construction sites. The limited sediment storage capacity increases the amount of inspection and maintenance required, which may be daily for heavy sediment loads. The maintenance requirements can be reduced by combining a catchbasin filter with another type of inlet protection. This type of inlet protection provides flow bypass without overflow and therefore may be a better method for inlets located along active rights-of-way.

- 5 cubic feet of storage.
- Dewatering provisions.
- High-flow bypass that will not clog under normal use at a construction site.
- The catchbasin filter is inserted in the catchbasin just below the grating.

Curb Inlet Protection with Wooden Weir – Barrier formed around a curb inlet with a wooden frame and gravel.

- Wire mesh with ½-inch openings.
- Extra strength filter cloth.
- Construct a frame.
- Attach the wire and filter fabric to the frame.
- Pile coarse washed aggregate against wire/fabric.
- Place weight on frame anchors.

Block and Gravel Curb Inlet Protection – Barrier formed around an inlet with concrete blocks and gravel. See Figure 4.14.

- Wire mesh with ½-inch openings.
- Place two concrete blocks on their sides abutting the curb at either side of the inlet opening. These are spacer blocks.
- Place a 2x4 stud through the outer holes of each spacer block to align the front blocks.
- Place blocks on their sides across the front of the inlet and abutting the spacer blocks.
- Place wire mesh over the outside vertical face.
- Pile coarse aggregate against the wire to the top of the barrier.

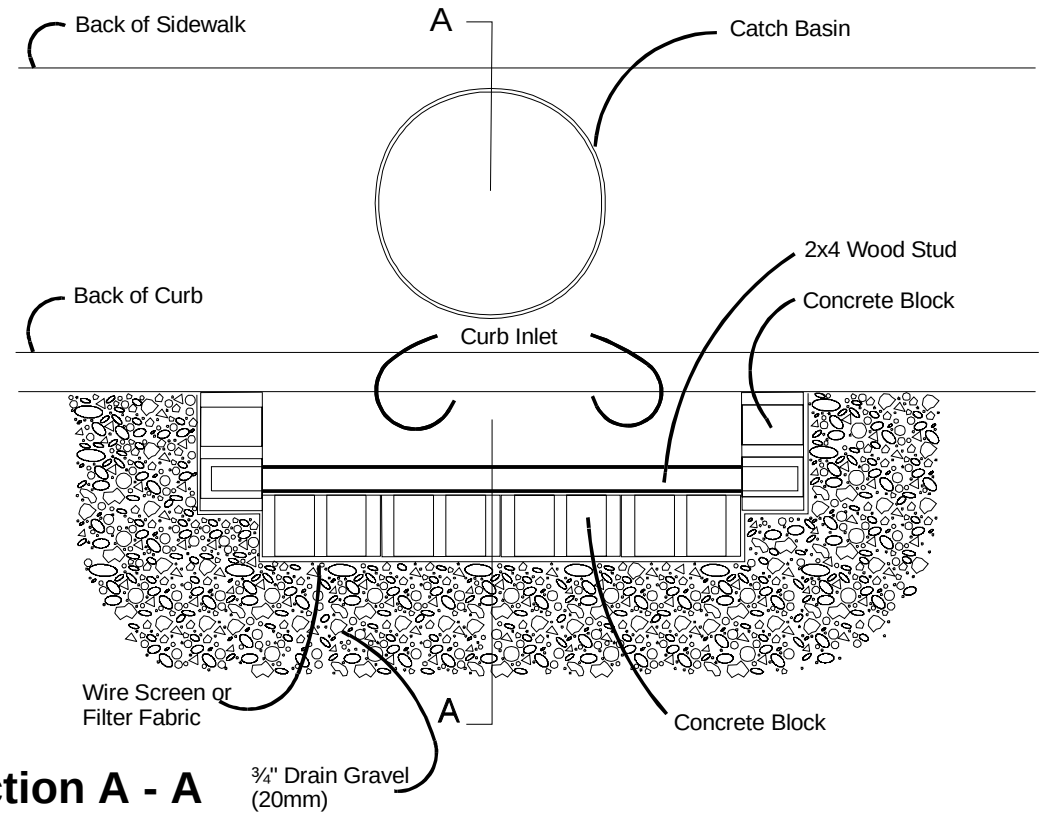
Curb and Gutter Sediment Barrier – Sandbag or rock berm (riprap and aggregate) 3 feet high and 3 feet wide in a horseshoe shape. See Figure 4.16.

- Construct a horseshoe shaped berm, faced with coarse aggregate if using riprap, 3 feet high and 3 feet wide, at least 2 feet from the inlet.
- Construct a horseshoe shaped sedimentation trap on the outside of the berm sized to sediment trap standards for protecting a culvert inlet.

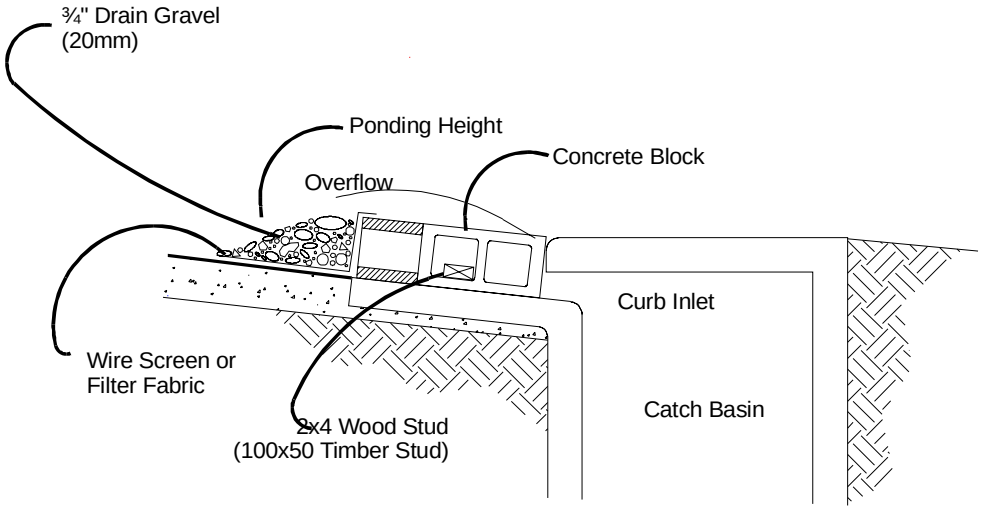
Maintenance Standards

- Catch basin filters should be inspected frequently, especially after storm events. If the insert becomes clogged, it should be cleaned or replaced.
- For systems using stone filters: If the stone filter becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of gravel at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.
- Do not wash sediment into storm drains while cleaning. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize as appropriate.

Plan View



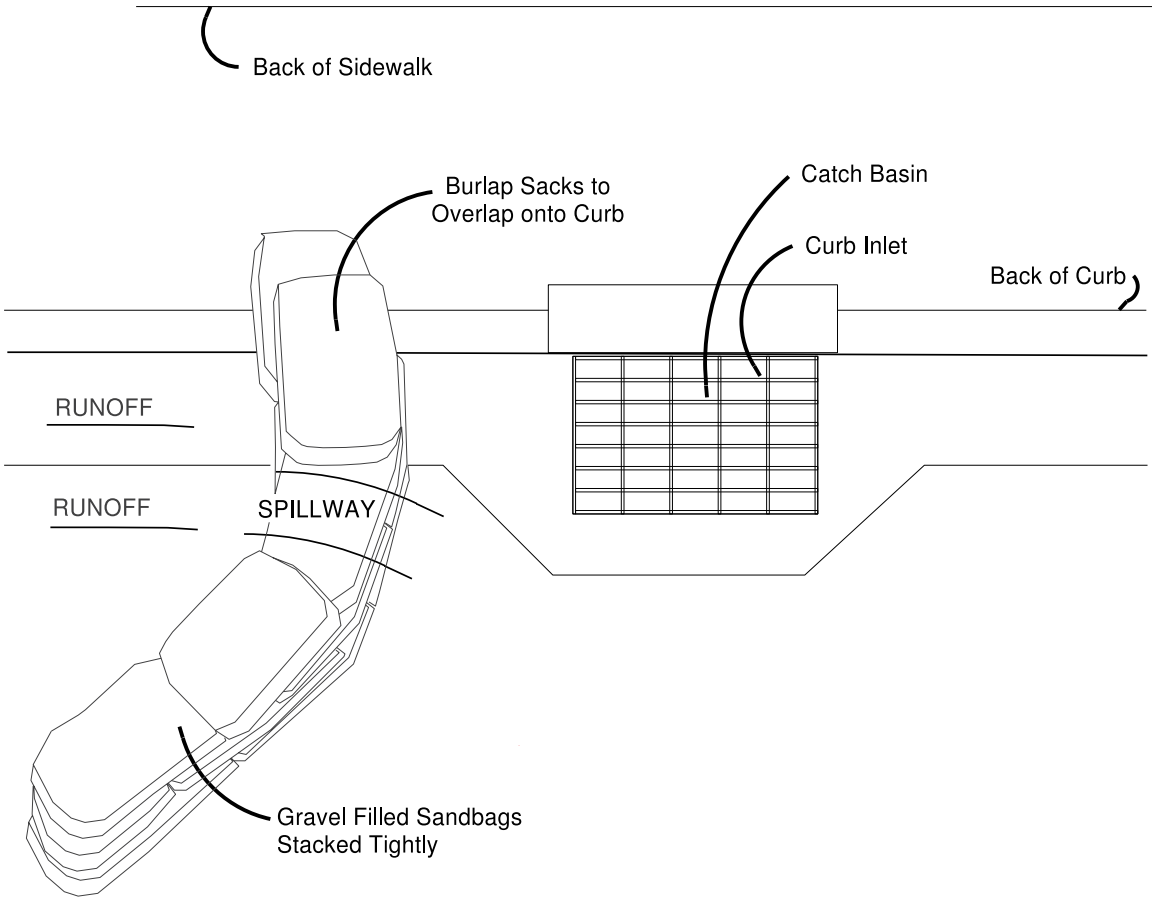
Section A - A



NOTES:
1. Use block and gravel type sediment barrier when curb inlet is located in gently sloping street segment, where water can pond and allow sediment to separate from runoff.
2. Barrier shall allow for overflow from severe storm event.
3. Inspect barriers and remove sediment after each storm event. Sediment and gravel must be removed from the traveled way immediately.

Figure 4.15 – Block and Gravel Curb Inlet Protection

Plan View



NOTES:
1. Place curb type sediment barriers on gently sloping street segments, where water can pond and allow sediment to separate from runoff.
2. Sandbags of either burlap or woven `geotextile' fabric, are filled with gravel, layered and packed tightly.
3. Leave a one sandbag gap in the top row to provide a spillway for overflow.
4. Inspect barriers and remove sediment after each storm event. Sediment and gravel must be removed from the traveled way immediately.

Figure 4.16 – Curb and Gutter Barrier

BMP C233: Silt Fence

Purpose

Use of a silt fence reduces the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow. See Figure 4.19 for details on silt fence construction.

Conditions of Use

Silt fence may be used downslope of all disturbed areas.

- Silt fence is not intended to treat concentrated flows, nor is it intended to treat substantial amounts of overland flow. Any concentrated flows must be conveyed through the drainage system to a sediment pond. The only circumstance in which overland flow can be treated solely by a silt fence, rather than by a sediment pond, is when the area draining to the fence is one acre or less and flow rates are less than 0.5 cfs.
- Silt fences should not be constructed in streams or used in V-shaped ditches. They are not an adequate method of silt control for anything deeper than sheet or overland flow.

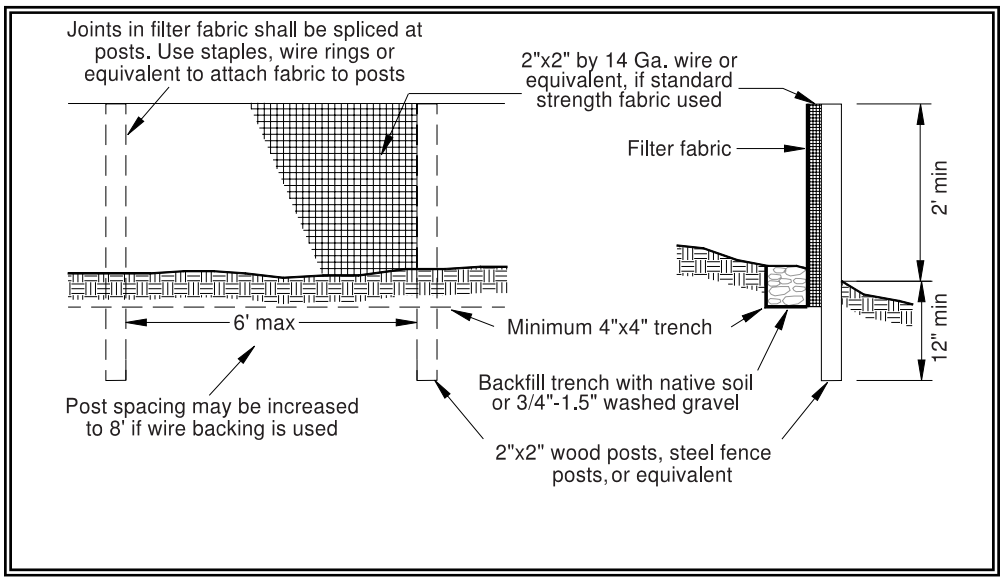


Figure 4.19 – Silt Fence

Design and Installation Specifications

- Drainage area of 1 acre or less or in combination with sediment basin in a larger site.
- Maximum slope steepness (normal (perpendicular) to fence line) 1:1.
- Maximum sheet or overland flow path length to the fence of 100 feet.
- No flows greater than 0.5 cfs.
- The geotextile used shall meet the following standards. All geotextile properties listed below are minimum average roll values (i.e., the test result for any sampled roll in a lot shall meet or exceed the values shown in Table 4.10):

Table 4.10 Geotextile Standards	
Polymeric Mesh AOS (ASTM D4751)	0.60 mm maximum for slit film wovens (#30 sieve). 0.30 mm maximum for all other geotextile types (#50 sieve). 0.15 mm minimum for all fabric types (#100 sieve).
Water Permittivity (ASTM D4491)	0.02 sec^{-1} minimum
Grab Tensile Strength (ASTM D4632)	180 lbs. Minimum for extra strength fabric. 100 lbs minimum for standard strength fabric.
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

- Standard strength fabrics shall be supported with wire mesh, chicken wire, 2-inch x 2-inch wire, safety fence, or jute mesh to increase the strength of the fabric. Silt fence materials are available that have synthetic mesh backing attached.
- Filter fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0°F. to 120°F.
- 100 percent biodegradable silt fence is available that is strong, long lasting, and can be left in place after the project is completed, if permitted by local regulations.
- Standard Notes for construction plans and specifications follow. Refer to Figure 4.19 for standard silt fence details.

  The contractor shall install and maintain temporary silt fences at the locations shown in the Plans. The silt fences shall be constructed in the areas of clearing, grading, or drainage prior to starting those activities. A silt fence shall not be considered temporary if the silt fence must function beyond the life of the contract. The silt fence shall prevent soil carried by runoff water from going beneath, through, or over the top of the silt fence, but shall allow the water to pass through the fence.

  The minimum height of the top of silt fence shall be 2 feet and the maximum height shall be 2½ feet above the original ground surface.

  The geotextile shall be sewn together at the point of manufacture, or at an approved location as determined by the Engineer, to form geotextile lengths as required. All sewn seams shall be located at a support post. Alternatively, two sections of silt fence can be overlapped, provided the Contractor can demonstrate, to the satisfaction of the Engineer, that the overlap is long enough and that the adjacent fence sections are close enough together to prevent silt laden water from escaping through the fence at the overlap.

The geotextile shall be attached on the up-slope side of the posts and support system with staples, wire, or in accordance with the manufacturer's recommendations. The geotextile shall be attached to the posts in a manner that reduces the potential for geotextile tearing at the staples, wire, or other connection device. Silt fence back-up support for the geotextile in the form of a wire or plastic mesh is dependent on the properties of the geotextile selected for use. If wire or plastic back-up mesh is used, the mesh shall be fastened securely to the up-slope of the posts with the geotextile being up-slope of the mesh back-up support.

The geotextile at the bottom of the fence shall be buried in a trench to a minimum depth of 4 inches below the ground surface. The trench shall be backfilled and the soil tamped in place over the buried portion of the geotextile, such that no flow can pass beneath the fence and scouring can not occur. When wire or polymeric back-up support mesh is used, the wire or polymeric mesh shall extend into the trench a minimum of 3 inches.

The fence posts shall be placed or driven a minimum of 18 inches. A minimum depth of 12 inches is allowed if topsoil or other soft subgrade soil is not present and a minimum depth of 18 inches cannot be reached. Fence post depths shall be increased by 6 inches if the fence is located on slopes of 3:1 or steeper and the slope is perpendicular to the fence. If required post depths cannot be obtained, the posts shall be adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.

Silt fences shall be located on contour as much as possible, except at the ends of the fence, where the fence shall be turned uphill such that the silt fence captures the runoff water and prevents water from flowing around the end of the fence.

If the fence must cross contours, with the exception of the ends of the fence, gravel check dams placed perpendicular to the back of the fence shall be used to minimize concentrated flow and erosion along the back of the fence. The gravel check dams shall be approximately 1-foot deep at the back of the fence. It shall be continued perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface behind the fence. The gravel check dams shall consist of crushed surfacing base course, gravel backfill for walls, or shoulder ballast. The gravel check dams shall be located every 10 feet along the fence where the fence must cross contours. The slope of the fence line where contours must be crossed shall not be steeper than 3:1.

Wood, steel or equivalent posts shall be used. Wood posts shall have minimum dimensions of 2 inches by 2 inches by 3 feet minimum length, and shall be free of defects such as knots, splits, or gouges.

Steel posts shall consist of either size No. 6 rebar or larger, ASTM A 120 steel pipe with a minimum diameter of 1-inch, U, T, L, or C shape steel posts with a minimum weight of 1.35 lbs./ft. or other steel posts having equivalent strength and bending resistance to the post sizes listed. The spacing of the support posts shall be a maximum of 6 feet.

Fence back-up support, if used, shall consist of steel wire with a maximum mesh spacing of 2 inches, or a prefabricated polymeric mesh. The strength of the wire or polymeric mesh shall be equivalent to or greater than 180 lbs. grab tensile strength. The polymeric mesh must be as resistant to ultraviolet radiation as the geotextile it supports.

- Silt fence installation using the slicing method specification details follow. Refer to Figure 4.20 for slicing method details.

  The base of both end posts must be at least 2 to 4 inches above the top of the silt fence fabric on the middle posts for ditch checks to drain properly. Use a hand level or string level, if necessary, to mark base points before installation.

  Install posts 3 to 4 feet apart in critical retention areas and 6 to 7 feet apart in standard applications.

  Install posts 24 inches deep on the downstream side of the silt fence, and as close as possible to the fabric, enabling posts to support the fabric from upstream water pressure.

  Install posts with the nipples facing away from the silt fence fabric.

  Attach the fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. In addition, each tie should be positioned to hang on a post nipple when tightening to prevent sagging.

  Wrap approximately 6 inches of fabric around the end posts and secure with 3 ties.

  No more than 24 inches of a 36-inch fabric is allowed above ground level.

  The rope lock system must be used in all ditch check applications.

  The installation should be checked and corrected for any deviation before compaction. Use a flat-bladed shovel to tuck fabric deeper into the ground if necessary.

  Compaction is vitally important for effective results. Compact the soil immediately next to the silt fence fabric with the front wheel of the tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first and then each side twice for a total of four trips.

Maintenance Standards

- Any damage shall be repaired immediately.
- If concentrated flows are evident uphill of the fence, they must be intercepted and conveyed to a sediment pond.
- It is important to check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence or remove the trapped sediment.
- Sediment deposits shall either be removed when the deposit reaches approximately one-third the height of the silt fence, or a second silt fence shall be installed.
- If the filter fabric (geotextile) has deteriorated due to ultraviolet breakdown, it shall be replaced.

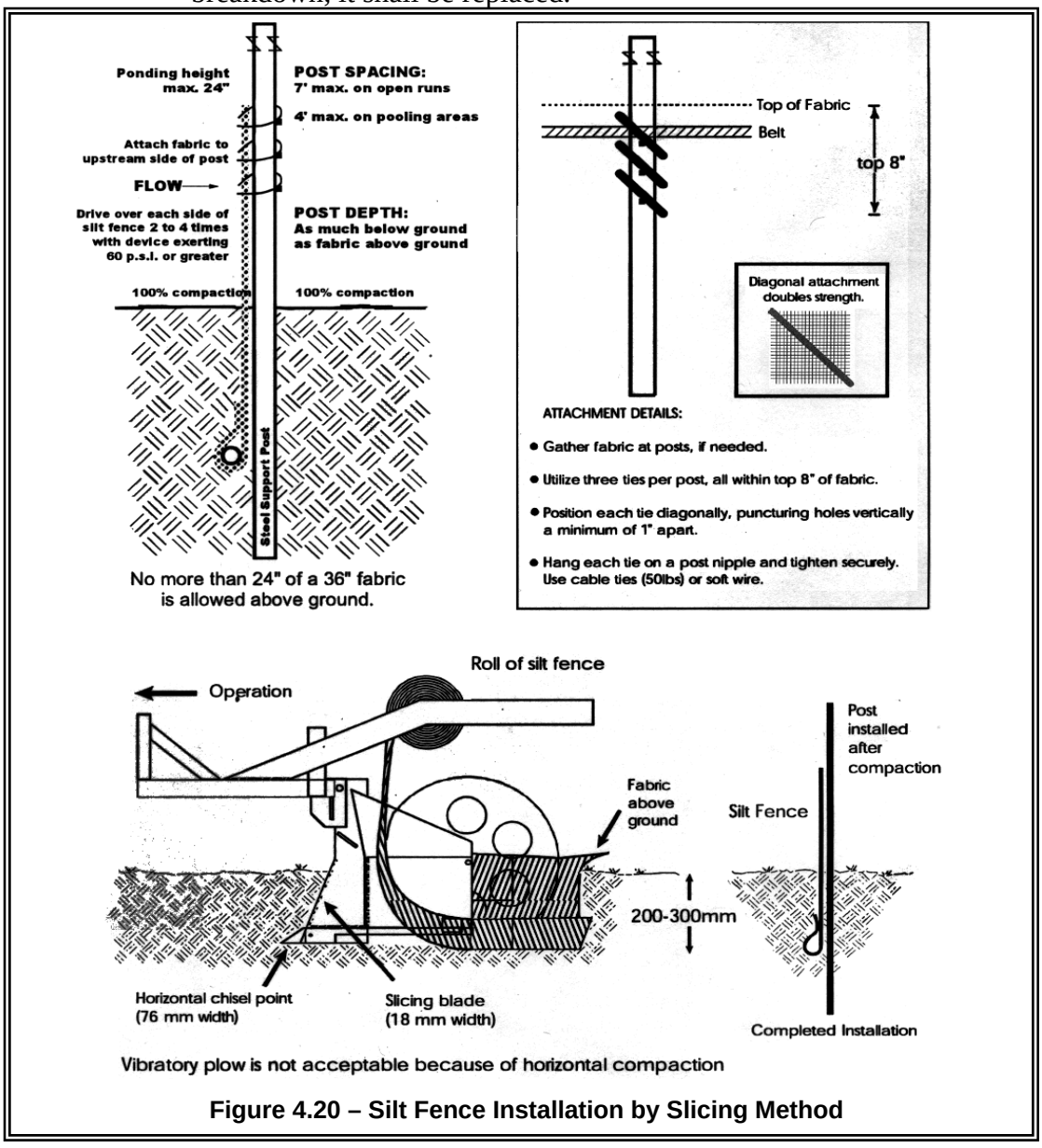


Figure 4.20 – Silt Fence Installation by Slicing Method

BMP C241: Temporary Sediment Pond

Purpose

Sediment ponds remove sediment from runoff originating from disturbed areas of the site. Sediment ponds are typically designed to remove sediment no smaller than medium silt (0.02 mm). Consequently, they usually reduce turbidity only slightly.

Conditions of Use

Prior to leaving a construction site, stormwater runoff must pass through a sediment pond or other appropriate sediment removal best management practice.

A sediment pond shall be used where the contributing drainage area is 3 acres or more. Ponds must be used in conjunction with erosion control practices to reduce the amount of sediment flowing into the basin.

Design and Installation Specifications

- Sediment basins must be installed only on sites where failure of the structure would not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities. Also, sediment traps and ponds are attractive to children and can be very dangerous. Compliance with local ordinances regarding health and safety must be addressed. If fencing of the pond is required, the type of fence and its location shall be shown on the ESC plan.
- Structures having a maximum storage capacity at the top of the dam of 10 acre-ft (435,600 ft^3) or more are subject to the Washington Dam Safety Regulations (Chapter 173-175 WAC).
- See Figure 4.24, Figure 4.25, and Figure 4.26 for details.
- If permanent runoff control facilities are part of the project, they should be used for sediment retention. The surface area requirements of the sediment basin must be met. This may require enlarging the permanent basin to comply with the surface area requirements. If a permanent control structure is used, it may be advisable to partially restrict the lower orifice with gravel to increase residence time while still allowing dewatering of the basin.
- Use of infiltration facilities for sedimentation basins during construction tends to clog the soils and reduce their capacity to infiltrate. If infiltration facilities are to be used, the sides and bottom of the facility must only be rough excavated to a minimum of 2 feet above final grade. Final grading of the infiltration facility shall occur only when all contributing drainage areas are fully stabilized. The infiltration pretreatment facility should be fully constructed and used with the sedimentation basin to help prevent clogging.
- Determining Pond Geometry

  Obtain the discharge from the hydrologic calculations of the peak flow for the 2-year runoff event (Q_2). The 10-year peak flow shall be used if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the Rational Method may be used.

Determine the required surface area at the top of the riser pipe with the equation:

$SA = 2 \times Q_2/0.00096$ or
2080 square feet per cfs of inflow

See BMP C240 for more information on the derivation of the surface area calculation.

The basic geometry of the pond can now be determined using the following design criteria:

- Required surface area SA (from Step 2 above) at top of riser.
- Minimum 3.5-foot depth from top of riser to bottom of pond.
- Maximum 3:1 interior side slopes and maximum 2:1 exterior slopes. The interior slopes can be increased to a maximum of 2:1 if fencing is provided at or above the maximum water surface.
- One foot of freeboard between the top of the riser and the crest of the emergency spillway.
- Flat bottom.
- Minimum 1-foot deep spillway.
- Length-to-width ratio between 3:1 and 6:1.
- Sizing of Discharge Mechanisms.

  The outlet for the basin consists of a combination of principal and emergency spillways. These outlets must pass the peak runoff expected from the contributing drainage area for a 100-year storm. If, due to site conditions and basin geometry, a separate emergency spill-way is not feasible, the principal spillway must pass the entire peak runoff expected from the 100-year storm. However, an attempt to provide a separate emergency spillway should always be made. The runoff calculations should be based on the site conditions during construction. The flow through the dewatering orifice cannot be utilized when calculating the 100-year storm elevation because of its potential to become clogged; therefore, available spillway storage must begin at the principal spillway riser crest.

  The principal spillway designed by the procedures contained in this standard will result in some reduction in the peak rate of runoff. However, the riser outlet design will not adequately control the basin discharge to the predevelopment discharge limitations as stated in Minimum Requirement #7: Flow Control. However, if the basin for a permanent stormwater detention pond is used for a temporary sedimentation basin, the control structure for the permanent pond can be used to maintain predevelopment discharge limitations. The size of the basin, the expected life of the construction project, the anticipated downstream effects and the anticipated weather conditions during construction, should be considered to determine the need of additional discharge control. See Figure 4.28 for riser inflow curves.

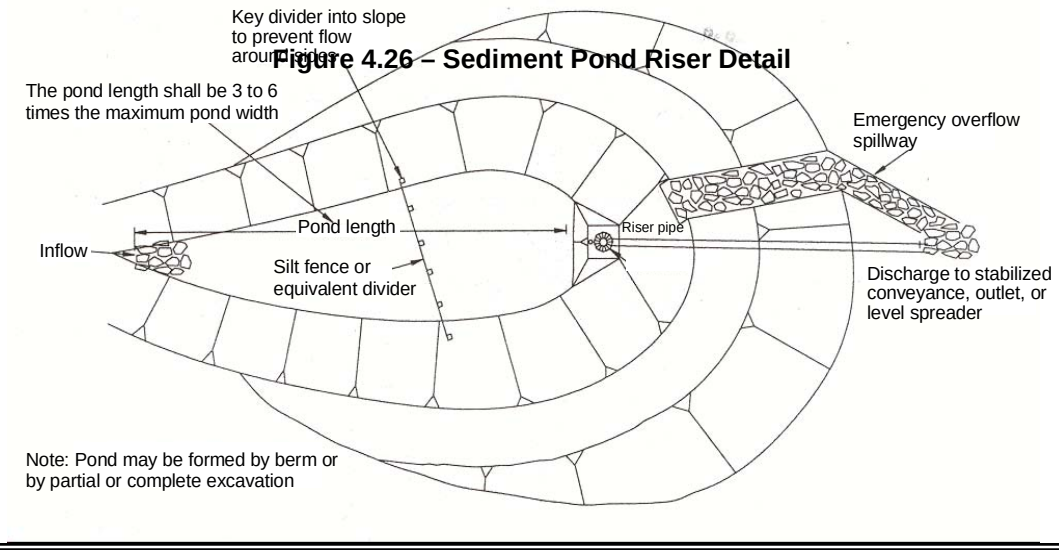


Figure 4.26 – Sediment Pond Riser Detail

Figure 4.24 – Sediment Pond Plan View

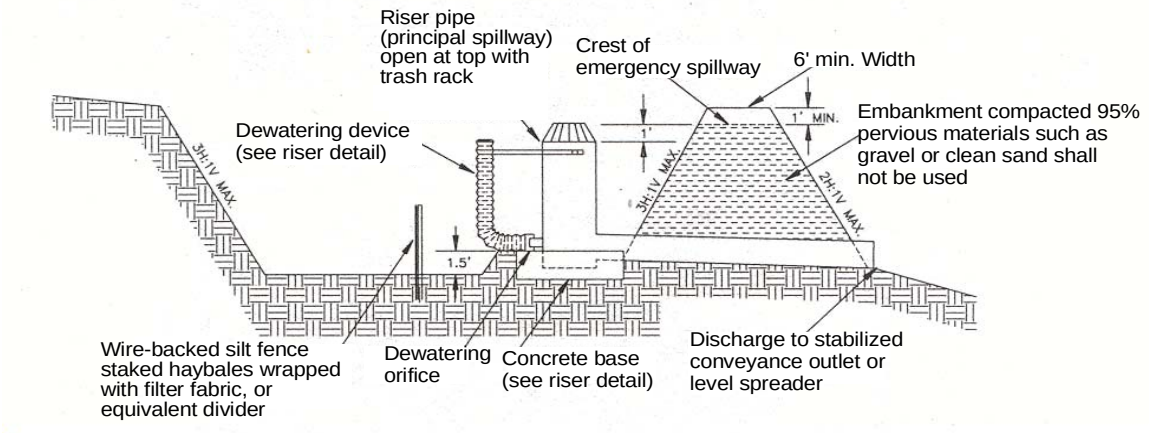


Figure 4.25 – Sediment Pond Cross Section

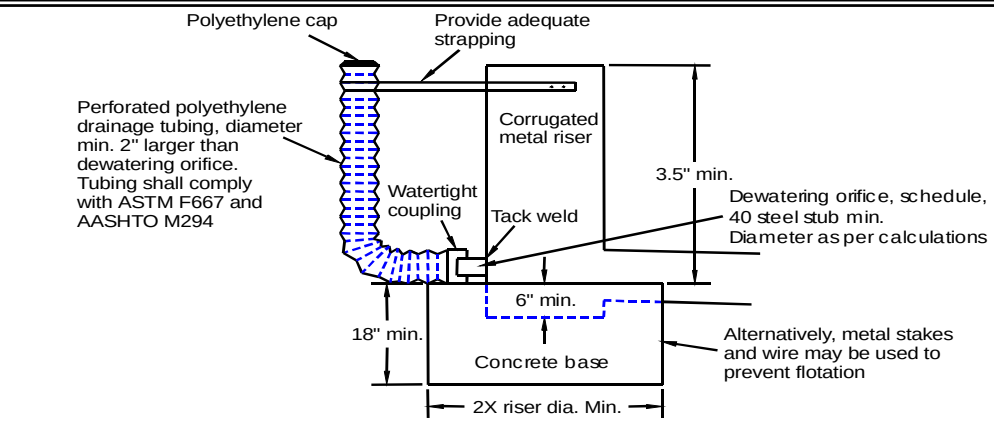


Figure 4.26 – Sediment Pond Riser Detail

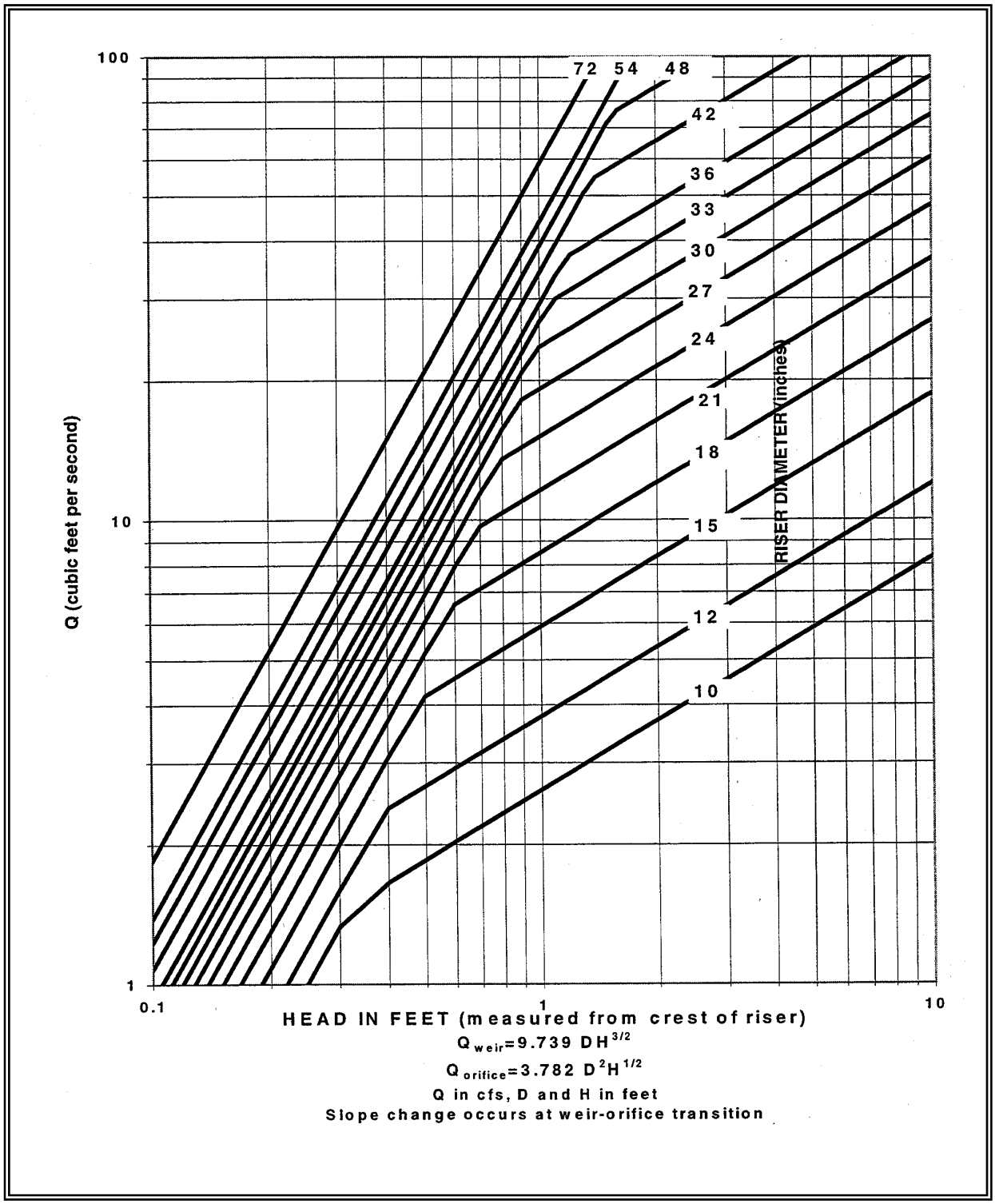


Figure 4.27 – Riser Inflow Curves

Principal Spillway: Determine the required diameter for the principal spillway (riser pipe). The diameter shall be the minimum necessary to pass the pre-developed 10-year peak flow (Q_{10}). Use Figure 4.28 to determine this diameter (h = 1-foot). *Note: A permanent control structure may be used instead of a temporary riser.*

Emergency Overflow Spillway: Determine the required size and design of the emergency overflow spillway for the developed 100-year peak flow using the method contained in Volume III.

Dewatering Orifice: Determine the size of the dewatering orifice(s) (minimum 1-inch diameter) using a modified version of the discharge equation for a vertical orifice and a basic equation for the area of a circular orifice. Determine the required area of the orifice with the following equation:

$$A_o = \frac{A_s (2h)^{0.5}}{0.6\text{x}3600Tg^{0.5}}$$

where A_O = orifice area (square feet)
A_S = pond surface area (square feet)
h = head of water above orifice (height of riser in feet)
T = dewatering time (24 hours)
g = acceleration of gravity (32.2 feet/second^2)

Convert the required surface area to the required diameter D of the orifice:

$$D = 24\text{x}\sqrt{\frac{A_o}{\pi}} = 13.54\text{x}\sqrt{A_o}$$

The vertical, perforated tubing connected to the dewatering orifice must be at least 2 inches larger in diameter than the orifice to improve flow characteristics. The size and number of perforations in the tubing should be large enough so that the tubing does not restrict flow. The orifice should control the flow rate.

- Additional Design Specifications

  The **pond shall be divided** into two roughly equal volume cells by a permeable divider that will reduce turbulence while allowing movement of water between cells. The divider shall be at least one-half the height of the riser and a minimum of one foot below the top of the riser. Wire-backed, 2- to 3-foot high, extra strength filter fabric supported by treated 4"x4"s can be used as a divider. Alternatively, staked straw bales wrapped with filter fabric (geotextile) may be used. If the pond is more than 6 feet deep, a different mechanism must be proposed. A riprap embankment is one acceptable method of separation for deeper ponds. Other designs that satisfy the intent of

this provision are allowed as long as the divider is permeable, structurally sound, and designed to prevent erosion under or around the barrier.

To aid in determining sediment depth, **one-foot intervals** shall be prominently marked on the riser.

If an **embankment** of more than 6 feet is proposed, the pond must comply with the criteria contained in Volume III regarding dam safety for detention BMPs.

- The most common structural failure of sedimentation basins is caused by piping. Piping refers to two phenomena: (1) water seeping through fine-grained soil, eroding the soil grain by grain and forming pipes or tunnels; and, (2) water under pressure flowing upward through a granular soil with a head of sufficient magnitude to cause soil grains to lose contact and capability for support.

  The most critical construction sequences to prevent piping will be:

  1. Tight connections between riser and barrel and other pipe connections.
  2. Adequate anchoring of riser.
  3. Proper soil compaction of the embankment and riser footing.
  4. Proper construction of anti-seep devices.

Maintenance Standards

- Sediment shall be removed from the pond when it reaches 1–foot in depth.
- Any damage to the pond embankments or slopes shall be repaired.

BMP C250: Construction Stormwater Chemical Treatment

Purpose

This BMP applies when using stormwater chemicals in batch treatment or flow-through treatment.

Turbidity is difficult to control once fine particles are suspended in stormwater runoff from a construction site. Sedimentation ponds are effective at removing larger particulate matter by gravity settling, but are ineffective at removing smaller particulates such as clay and fine silt. Traditional erosion and sediment control BMPs may not be adequate to ensure compliance with the water quality standards for turbidity in receiving water.

Chemical treatment can reliably provide exceptional reductions of turbidity and associated pollutants. Chemical treatment may be required to meet turbidity stormwater discharge requirements, especially when construction is to proceed through the wet season.

Conditions of Use

Formal written approval from Ecology is required for the use of chemical treatment regardless of site size. The Local Permitting Authority may also require review and approval. When approved, the chemical treatment system must be included in the Stormwater Pollution Prevention Plan (SWPPP).

Design and Installation Specifications

See Appendix II-B for background information on chemical treatment.

Criteria for Chemical Treatment Product Use: Chemically treated stormwater discharged from construction sites must be nontoxic to aquatic organisms. The Chemical Technology Assessment Protocol (CTAPE) must be used to evaluate chemicals proposed for stormwater treatment. Only chemicals approved by Ecology under the CTAPE may be used for stormwater treatment. The approved chemicals, their allowable application techniques (batch treatment or flow-through treatment), allowable application rates, and conditions of use can be found at the Department of Ecology Emerging Technologies website: http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html

Treatment System Design Considerations: The design and operation of a chemical treatment system should take into consideration the factors that determine optimum, cost-effective performance. It is important to recognize the following:

- Only Ecology approved chemicals may be used and must follow approved dose rates.
- The pH of the stormwater must be in the proper range for the polymers to be effective, which is typically 6.5 to 8.5.
- The coagulant must be mixed rapidly into the water to ensure proper dispersion.

- A flocculation step is important to increase the rate of settling, to produce the lowest turbidity, and to keep the dosage rate as low as possible.
- Too little energy input into the water during the flocculation phase results in flocs that are too small and/or insufficiently dense. Too much energy can rapidly destroy floc as it is formed.
- Care must be taken in the design of the withdrawal system to minimize outflow velocities and to prevent floc discharge. Discharge from a batch treatment system should be directed through a physical filter such as a vegetated swale that would catch any unintended floc discharge. Currently, flow-through systems always discharge through the chemically enhanced sand filtration system.
- System discharge rates must take into account downstream conveyance integrity.

Polymer Batch Treatment Process Description:

A batch chemical treatment system consists of the stormwater collection system (either temporary diversion or the permanent site drainage system), an untreated stormwater storage pond, pumps, a chemical feed system, treatment cells, and interconnecting piping.

The batch treatment system shall use a minimum of two lined treatment cells in addition to the untreated stormwater storage pond. Multiple treatment cells allow for clarification of treated water while other cells are being filled or emptied. Treatment cells may be ponds or tanks. Ponds with constructed earthen embankments greater than six feet high require special engineering analyses.

Stormwater is collected at interception point(s) on the site and is diverted by gravity or by pumping to an untreated stormwater storage pond or other untreated stormwater holding area. The stormwater is stored until treatment occurs. It is important that the holding pond be large enough to provide adequate storage.

The first step in the treatment sequence is to check the pH of the stormwater in the untreated stormwater storage pond. The pH is adjusted by the application of carbon dioxide or a base until the stormwater in the storage pond is within the desired pH range, 6.5 to 8.5. When used, carbon dioxide is added immediately downstream of the transfer pump. Typically sodium bicarbonate (baking soda) is used as a base, although other bases may be used. When needed, base is added directly to the untreated stormwater storage pond. The stormwater is recirculated with the treatment pump to provide mixing in the storage pond. Initial pH

adjustments should be based on daily bench tests. Further pH adjustments can be made at any point in the process.

Once the stormwater is within the desired pH range (dependant on polymer being used), the stormwater is pumped from the untreated stormwater storage pond to a treatment cell as polymer is added. The polymer is added upstream of the pump to facilitate rapid mixing.

After polymer addition, the water is kept in a lined treatment cell for clarification of the sediment-floc. In a batch mode process, clarification typically takes from 30 minutes to several hours. Prior to discharge samples are withdrawn for analysis of pH and turbidity. If both are acceptable, the treated water is discharged.

Several configurations have been developed to withdraw treated water from the treatment cell. The original configuration is a device that withdraws the treated water from just beneath the water surface using a float with adjustable struts that prevent the float from settling on the cell bottom. This reduces the possibility of picking up sediment-floc from the bottom of the pond. The struts are usually set at a minimum clearance of about 12 inches; that is, the float will come within 12 inches of the bottom of the cell. Other systems have used vertical guides or cables which constrain the float, allowing it to drift up and down with the water level. More recent designs have an H-shaped array of pipes, set on the horizontal.

This scheme provides for withdrawal from four points rather than one. This configuration reduces the likelihood of sucking settled solids from the bottom. It also reduces the tendency for a vortex to form. Inlet diffusers, a long floating or fixed pipe with many small holes in it, are also an option.

Safety is a primary concern. Design should consider the hazards associated with operations, such as sampling. Facilities should be designed to reduce slip hazards and drowning. Tanks and ponds should have life rings, ladders, or steps extending from the bottom to the top.

Polymer Flow-Through Treatment Process Description:

At a minimum, a flow-through chemical treatment system consists of the stormwater collection system (either temporary diversion or the permanent site drainage system), an untreated stormwater storage pond, and the chemically enhanced sand filtration system.

Stormwater is collected at interception point(s) on the site and is diverted by gravity or by pumping to an untreated stormwater storage pond or other untreated stormwater holding area. The stormwater is stored until

treatment occurs. It is important that the holding pond be large enough to provide adequate storage.

Stormwater is then pumped from the untreated stormwater storage pond to the chemically enhanced sand filtration system where polymer is added. Adjustments to pH may be necessary before chemical addition. The sand filtration system continually monitors the stormwater for turbidity and pH. If the discharge water is ever out of an acceptable range for turbidity or pH, the water is recycled to the untreated stormwater pond where it can be retreated.

For batch treatment and flow-through treatment, the following equipment should be located in a lockable shed:

- the chemical injector;
- secondary non-corrosive containment for acid, caustic, buffering compound, and treatment chemical;
- emergency shower and eyewash, and
- monitoring equipment.

System Sizing

Certain sites are required to implement flow control for the developed sites. These sites must also control stormwater release rates during construction. Generally, these are sites that discharge stormwater directly, or indirectly, through a conveyance system, into a fresh water. System sizing is dependent on flow control requirements.

Sizing Criteria for Batch Treatment Systems for Flow Control Exempt Water Bodies:

The total volume of the untreated stormwater storage pond and treatment ponds or tanks must be large enough to treat the volume of stormwater that is produced during multiple day storm events. It is recommended that at a minimum the untreated stormwater storage pond be sized to hold 1.5 times the runoff volume of the 10-year, 24-hour storm event. Bypass should be provided around the chemical treatment system to accommodate extreme storm events. Runoff volume shall be calculated using the methods presented in Volume 3, Chapter 2. Worst-case land cover conditions (i.e., producing the most runoff) should be used for analyses (in most cases, this would be the land cover conditions just prior to final landscaping).

Primary settling should be encouraged in the untreated stormwater storage pond. A forebay with access for maintenance may be beneficial.

There are two opposing considerations in sizing the treatment cells. A larger cell is able to treat a larger volume of water each time a batch is processed. However, the larger the cell the longer the time required to empty the cell. A larger cell may also be less effective at flocculation and therefore require a longer settling time. The simplest approach to sizing the treatment cell is to multiply the allowable discharge flow rate times the desired drawdown time. A 4-hour drawdown time allows one batch per cell per 8-hour work period, given 1 hour of flocculation followed by two hours of settling.

If the discharge is directly to a lake, flow control exempt receiving water listed in Appendix E of Volume I, or to an infiltration system, there is no discharge flow limit.

Ponds sized for flow control water bodies must at a minimum meet the sizing criteria for flow control exempt waters.

Sizing Criteria for Flow-Through Treatment Systems for Flow Control Exempt Water Bodies:

When sizing storage ponds or tanks for flow-through systems for flow control exempt water bodies, the treatment system capacity should be a factor. The untreated stormwater storage pond or tank should be sized to hold 1.5 times the runoff volume of the 10-year, 24-hour storm event minus the treatment system flowrate for an 8-hour period. For a chitosan-enhanced sand filtration system, the treatment system flowrate should be sized using a hydraulic loading rate between 6-8 gpm/ft². Other hydraulic loading rates may be more appropriate for other systems. Bypass should be provided around the chemical treatment system to accommodate extreme storms. Runoff volume shall be calculated using the methods presented in Volume 3, Chapter 2. Worst-case land cover conditions (i.e., producing the most runoff) should be used for analyses (in most cases, this would be the land cover conditions just prior to final landscaping).

Sizing Criteria for Flow Control Water Bodies:

Sites that must implement flow control for the developed site condition must also control stormwater release rates during construction. Construction site stormwater discharges shall not exceed the discharge durations of the pre-developed condition for the range of pre-developed discharge rates from ½ of the 2-year flow through the 10-year flow as predicted by an approved continuous runoff model. The pre-developed condition to be matched shall be the land cover condition immediately prior to the development project. This restriction on release rates can affect the size of the storage pond and treatment cells.

The following is how WWHM can be used to determine the release rates from the chemical treatment systems:

1. Determine the pre-developed flow durations to be matched by entering the land use area under the "Pre-developed" scenario in WWHM. The default flow range is from ½ of the 2-year flow through the 10-year flow.
2. Enter the post developed land use area in the "Developed Unmitigated" scenario in WWHM.
3. Copy the land use information from the "Developed Unmitigated" to "Developed Mitigated" scenario.
4. While in the "Developed Mitigated" scenario, add a pond element under the basin element containing the post-developed land use areas. This pond element represents information on the available untreated stormwater storage and discharge from the chemical treatment system. In cases where the discharge from the chemical treatment system is controlled by a pump, a stage/storage/discharge (SSD) table representing the pond must be generated outside WWHM and imported into WWHM. WWHM can route the runoff from the post-developed condition through this SSD table (the pond) and determine compliance with the flow duration standard. This would be an iterative design procedure where if the initial SSD table proved to be inadequate, the designer would have to modify the SSD table outside WWHM and re-import in WWHM and route the runoff through it again. The iteration will continue until a pond that complies with the flow duration standard is correctly sized.

   Notes on SSD table characteristics:

   - The pump discharge rate would likely be initially set at just below ½ of the 2-year flow from the pre-developed condition. As runoff coming into the untreated stormwater storage pond increases and the available untreated stormwater storage volume gets used up, it would be necessary to increase the pump discharge rate above ½ of the 2-year. The increase(s) above ½ of the 2-year must be such that they provide some relief to the untreated stormwater storage needs but at the same time will not cause violations of the flow duration standard at the higher flows. The final design SSD table will identify the appropriate pumping rates and the corresponding stage and storages.
   - When building such a flow control system, the design must ensure that any automatic adjustments to the pumping rates will be as a result of changes to the available storage in accordance with the final design SSD table.

5. It should be noted that the above procedures would be used to meet the flow control requirements. The chemical treatment system

must be able to meet the runoff treatment requirements. It is likely that the discharge flow rate of ½ of the 2-year or more may exceed the treatment capacity of the system. If that is the case, the untreated stormwater discharge rate(s) (i.e., influent to the treatment system) must be reduced to allow proper treatment. Any reduction in the flows would likely result in the need for a larger untreated stormwater storage volume.

- If the discharge is to a municipal storm drainage system, the allowable discharge rate may be limited by the capacity of the public system. It may be necessary to clean the municipal storm drainage system prior to the start of the discharge to prevent scouring solids from the drainage system. If the municipal storm drainage system discharges to a water body not on the flow control exempt list, the project site is subject to flow control requirements.

If system design does not allow you to discharge at the slower rates as described above and if the site has a retention or detention pond that will serve the planned development, the discharge from the treatment system may be directed to the permanent retention/detention pond to comply with the flow control requirement. In this case, the untreated stormwater storage pond and treatment system will be sized according to the sizing criteria for flow-through treatment systems for flow control exempt water bodies described earlier except all discharge (water passing through the treatment system and stormwater bypassing the treatment system) will be directed into the permanent retention/detention pond. If site constraints make locating the untreated stormwater storage pond difficult, the permanent retention/detention pond may be divided to serve as the untreated stormwater storage pond and the post-treatment flow control pond. A berm or barrier must be used in this case so the untreated water does not mix with the treated water. Both untreated stormwater storage requirements, and adequate post-treatment flow control must be achieved. The post-treatment flow control pond's revised dimensions must be entered into the WWHM and the WWHM must be run to confirm compliance with the flow control requirement.

Maintenance Standards

Monitoring: At a minimum, the following monitoring shall be conducted. Test results shall be recorded on a daily log kept on site. Additional testing may be required by the NPDES permit based on site conditions

<u>Operational Monitoring</u>

- Total volume treated and discharged
- Flow must be continuously monitored and recorded at not greater than 15-minute intervals

- Type and amount of chemical used for pH adjustment, if any
- Quantity of chemical used for treatment
- Settling time

Compliance Monitoring

- Influent and effluent pH and turbidity must be continuously monitored and recorded at not greater than 15-minute intervals.
- pH and turbidity of the receiving water

Biomonitoring

Treated stormwater must be non-toxic to aquatic organisms. Treated stormwater must be tested for aquatic toxicity or residual chemical content. Frequency of biomonitoring will be determined by Ecology.

Residual chemical tests must be approved by Ecology prior to their use.

If testing treated stormwater for aquatic toxicity, you must test for acute (lethal) toxicity. Bioassays shall be conducted by a laboratory accredited by Ecology, unless otherwise approved by Ecology. Acute toxicity tests shall be conducted per the CTAPE protocol.

Discharge Compliance: Prior to discharge, treated stormwater must be sampled and tested for compliance with pH and turbidity limits. These limits may be established by the Construction Stormwater General Permit or a site-specific discharge permit. Sampling and testing for other pollutants may also be necessary at some sites. pH must be within the range of 6.5 to 8.5 standard units and not cause a change in the pH of the receiving water of more than 0.2 standard units.

Treated stormwater samples and measurements shall be taken from the discharge pipe or another location representative of the nature of the treated stormwater discharge. Samples used for determining compliance with the water quality standards in the receiving water shall not be taken from the treatment pond prior to decanting. Compliance with the water quality standards is determined in the receiving water.

Operator Training: Each contractor who intends to use chemical treatment shall be trained by an experienced contractor on an active site.

Standard BMPs: Surface stabilization BMPs should be implemented on site to prevent significant erosion. All sites shall use a truck wheel wash to prevent tracking of sediment off site.

Sediment Removal and Disposal:

- Sediment shall be removed from the storage or treatment cells as necessary. Typically, sediment removal is required at least once during a wet season and at the decommissioning of the cells. Sediment remaining in the cells between batches may enhance the settling process and reduce the required chemical dosage.
- Sediment that is known to be non-toxic may be incorporated into the site away from drainages.

BMP C251: Construction Stormwater Filtration

Purpose

Filtration removes sediment from runoff originating from disturbed areas of the site.

Conditions of Use

Traditional BMPs used to control soil erosion and sediment loss from sites under development may not be adequate to ensure compliance with the water quality standard for turbidity in the receiving water. Filtration may be used in conjunction with gravity settling to remove sediment as small as fine silt (0.5 µm). The reduction in turbidity will be dependent on the particle size distribution of the sediment in the stormwater. In some circumstances, sedimentation and filtration may achieve compliance with the water quality standard for turbidity.

The use of construction stormwater filtration does not require approval from Ecology as long as treatment chemicals are not used. Filtration in conjunction with polymer treatment requires testing under the Chemical Technology Assessment Protocol – Ecology (CTAPE) before it can be initiated. Approval from the appropriate regional Ecology office must be obtained at each site where polymers use is proposed prior to use. For more guidance on stormwater chemical treatment see BMP C250.

Background Information

Filtration with sand media has been used for over a century to treat water and wastewater. The use of sand filtration for treatment of stormwater has developed recently, generally to treat runoff from streets, parking lots, and residential areas. The application of filtration to construction stormwater is currently under development.

Design and Installation Specifications

Two types of filtration systems may be applied to construction stormwater treatment: rapid and slow. Rapid sand filters are the typical system used for water and wastewater treatment. They can achieve relatively high hydraulic flow rates, on the order of 2 to 20 gpm/sf, because they have automatic backwash systems to remove accumulated solids. In contrast, slow sand filters have very low hydraulic rates, on the order of 0.02 gpm/sf, because they do not have backwash systems. To date, slow sand filtration has generally been used to treat stormwater. Slow sand filtration is mechanically simple in comparison to rapid sand filtration but requires a much larger filter area.

Filtration Equipment. Sand media filters are available with automatic backwashing features that can filter to 50 µm particle size. Screen or bag filters can filter down to 5 µm. Fiber wound filters can remove particles down to 0.5 µm. Filters should be sequenced from the largest to the smallest pore opening. Sediment removal efficiency will be related to particle size distribution in the stormwater.

Treatment Process Description. Stormwater is collected at interception point(s) on the site and is diverted to an untreated stormwater sediment pond or tank for removal of large sediment and storage of the stormwater before it is treated by the filtration system. The untreated stormwater is pumped from the trap, pond, or tank through the filtration system in a rapid sand filtration system. Slow sand filtration systems are designed as flow through systems using gravity.

Maintenance Standards

Rapid sand filters typically have automatic backwash systems that are triggered by a pre-set pressure drop across the filter. If the backwash water volume is not large or substantially more turbid than the untreated stormwater stored in the holding pond or tank, backwash return to the untreated stormwater pond or tank may be appropriate. However, other means of treatment and disposal may be necessary.

- Screen, bag, and fiber filters must be cleaned and/or replaced when they become clogged.
- Sediment shall be removed from the storage and/or treatment ponds as necessary. Typically, sediment removal is required once or twice during a wet season and at the decommissioning of the ponds.

Sizing Criteria for Flow-Through Treatment Systems for Flow Control Exempt Water Bodies:

When sizing storage ponds or tanks for flow-through systems for flow control exempt water bodies the treatment system capacity should be a factor. The untreated stormwater storage pond or tank should be sized to hold 1.5 times the runoff volume of the 10-year, 24-hour storm event minus the treatment system flowrate for an 8-hour period. For a chitosan-enhanced sand filtration system, the treatment system flowrate should be sized using a hydraulic loading rate between 6-8 gpm/ft^2. Other hydraulic loading rates may be more appropriate for other systems. Bypass should be provided around the chemical treatment system to accommodate extreme storms. Runoff volume shall be calculated using the methods presented in Volume 3, Chapter 2. Worst-case conditions (i.e., producing the most runoff) should be used for analyses (most likely conditions present prior to final landscaping).

Sizing Criteria for Flow Control Water Bodies:

Sites that must implement flow control for the developed site condition must also control stormwater release rates during construction. Construction site stormwater discharges shall not exceed the discharge durations of the pre-developed condition for the range of pre-developed discharge rates from 1/2 of the 2-year flow through the 10-year flow as

predicted by an approved continuous runoff model. The pre-developed condition to be matched shall be the land cover condition immediately prior to the development project. This restriction on release rates can affect the size of the storage pond, the filtration system, and the flow rate through the filter system.

The following is how WWHM can be used to determine the release rates from the filtration systems:

1. Determine the pre-developed flow durations to be matched by entering the land use area under the "Pre-developed" scenario in WWHM. The default flow range is from ½ of the 2-year flow through the 10-year flow.
2. Enter the post developed land use area in the "Developed Unmitigated" scenario in WWHM.
3. Copy the land use information from the "Developed Unmitigated" to "Developed Mitigated" scenario.
4. There are two possible ways to model stormwater filtration systems:

   4a. The stormwater filtration system uses an untreated stormwater storage pond/tank and the discharge from this pond/tank is pumped to one or more filters. In-line filtration chemicals would be added to the flow right after the pond/tank and before the filter(s). Because the discharge is pumped, WWHM can't generate a stage/storage /discharge (SSD) table for this system. This system is modeled the same way as described in BMP C250 and is as follows:

   While in the "Developed Mitigated" scenario, add a pond element under the basin element containing the post-developed land use areas. This pond element represents information on the available untreated stormwater storage and discharge from the filtration system. In cases where the discharge from the filtration system is controlled by a pump, a stage/storage/discharge (SSD) table representing the pond must be generated outside WWHM and imported into WWHM. WWHM can route the runoff from the post-developed condition through this SSD table (the pond) and determine compliance with the flow duration standard. This would be an iterative design procedure where if the initial SSD table proved to be out of compliance, the designer would have to modify the SSD table outside WWHM and re-import in WWHM and route the runoff through it again. The iteration will continue until a pond that enables compliance with the flow duration standard is designed.

Notes on SSD table characteristics:

- The pump discharge rate would likely be initially set at just below ½ if the 2-year flow from the pre-developed condition. As runoff coming into the untreated stormwater storage pond increases and the available untreated stormwater storage volume gets used up, it would be necessary to increase the pump discharge rate above ½ of the 2-year. The increase(s) above ½ of the 2-year must be such that they provide some relief to the untreated stormwater storage needs but at the same time they will not cause violations of the flow duration standard at the higher flows. The final design SSD table will identify the appropriate pumping rates and the corresponding stage and storages.
- When building such a flow control system, the design must ensure that any automatic adjustments to the pumping rates will be as a result of changes to the available storage in accordance with the final design SSD table.

4b. The stormwater filtration system uses a storage pond/tank and the discharge from this pond/tank gravity flows to the filter. This is usually a slow sand filter system and it is possible to model it in WWHM as a Filter element or as a combination of Pond and Filter element placed in series. The stage/storage/discharge table(s) may then be generated within WWHM as follows:

(i) While in the "Developed Mitigated" scenario, add a Filter element under the basin element containing the post-developed land use areas. The length and width of this filter element would have to be the same as the bottom length and width of the upstream untreated stormwater storage pond/tank.

(ii) In cases where the length and width of the filter is not the same as those for the bottom of the upstream untreated stormwater storage tank/pond, the treatment system may be modeled as a Pond element followed by a Filter element. By having these two elements, WWHM would then generate a SSD table for the storage pond which then gravity flows to the Filter element. The Filter element downstream of the untreated stormwater storage pond would have a storage component through the media, and an overflow component for when the filtration capacity is exceeded.

WWHM can route the runoff from the post-developed condition through the treatment systems in 4b and determine compliance with the flow duration standard. This would be an iterative design procedure where if the initial sizing estimates for the treatment system proved to be inadequate, the designer would have to

modify the system and route the runoff through it again. The iteration would continue until compliance with the flow duration standard is achieved.

5. It should be noted that the above procedures would be used to meet the flow control requirements. The filtration system must be able to meet the runoff treatment requirements. It is likely that the discharge flow rate of ½ of the 2-year or more may exceed the treatment capacity of the system. If that is the case, the untreated stormwater discharge rate(s) (i.e., influent to the treatment system) must be reduced to allow proper treatment. Any reduction in the flows would likely result in the need for a larger untreated stormwater storage volume.

If system design does not allow you to discharge at the slower rates as described above and if the site has a retention or detention pond that will serve the planned development, the discharge from the treatment system may be directed to the permanent retention/detention pond to comply with the flow control requirements. In this case, the untreated stormwater storage pond and treatment system will be sized according to the sizing criteria for flow-through treatment systems for flow control exempt waterbodies described earlier except all discharges (water passing through the treatment system and stormwater bypassing the treatment system) will be directed into the permanent retention/detention pond. If site constraints make locating the untreated stormwater storage pond difficult, the permanent retention/detention pond may be divided to serve as the untreated stormwater discharge pond and the post-treatment flow control pond. A berm or barrier must be used in this case so the untreated water does not mix with the treated water. Both untreated stormwater storage requirements, and adequate post-treatment flow control must be achieved. The post-treatment flow control pond's revised dimensions must be entered into the WWHM and the WWHM must be run to confirm compliance with the flow control requirement.

BMP C251: Construction Stormwater Filtration

Purpose

Filtration removes sediment from runoff originating from disturbed areas of the site.

Conditions of Use

Traditional BMPs used to control soil erosion and sediment loss from sites under development may not be adequate to ensure compliance with the water quality standard for turbidity in the receiving water. Filtration may be used in conjunction with gravity settling to remove sediment as small as fine silt (0.5 µm). The reduction in turbidity will be dependent on the particle size distribution of the sediment in the stormwater. In some circumstances, sedimentation and filtration may achieve compliance with the water quality standard for turbidity.

Unlike chemical treatment, the use of construction stormwater filtration does not require approval from Ecology.

Filtration may also be used in conjunction with polymer treatment in a portable system to assure capture of the flocculated solids.

Design and Installation Specifications

Background Information

Filtration with sand media has been used for over a century to treat water and wastewater. The use of sand filtration for treatment of stormwater has developed recently, generally to treat runoff from streets, parking lots, and residential areas. The application of filtration to construction stormwater treatment is currently under development.

Two types of filtration systems may be applied to construction stormwater treatment: rapid and slow. Rapid sand filters are the typical system used for water and wastewater treatment. They can achieve relatively high hydraulic flow rates, on the order of 2 to 20 gpm/sf, because they have automatic backwash systems to remove accumulated solids. In contrast, slow sand filters have very low hydraulic rates, on the order of 0.02 gpm/sf, because they do not have backwash systems. To date, slow sand filtration has generally been used to treat stormwater. Slow sand filtration is mechanically simple in comparison to rapid sand filtration but requires a much larger filter area.

Filtration Equipment. Sand media filters are available with automatic backwashing features that can filter to 50 µm particle size. Screen or bag filters can filter down to 5 µm. Fiber wound filters can remove particles down to 0.5 µm. Filters should be sequenced from the largest to the smallest pore opening. Sediment removal efficiency will be related to particle size distribution in the stormwater.

Treatment Process Description. Stormwater is collected at interception point(s) on the site and is diverted to a sediment pond or tank for removal of large sediment and storage of the stormwater before it is treated by the

filtration system. The stormwater is pumped from the trap, pond, or tank through the filtration system in a rapid sand filtration system. Slow sand filtration systems are designed as flow through systems using gravity.

If large volumes of concrete are being poured, pH adjustment may be necessary.

Maintenance Standards

Rapid sand filters typically have automatic backwash systems that are triggered by a pre-set pressure drop across the filter. If the backwash water volume is not large or substantially more turbid than the stormwater stored in the holding pond or tank, backwash return to the pond or tank may be appropriate. However, land application or another means of treatment and disposal may be necessary.

- Screen, bag, and fiber filters must be cleaned and/or replaced when they become clogged.
- Sediment shall be removed from the storage and/or treatment ponds as necessary. Typically, sediment removal is required once or twice during a wet season and at the decommissioning of the ponds.

BMP C253: pH Control for High pH Water

Description

When pH levels in stormwater rise above 8.5 it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5, this process is called pH neutralization. Stormwater with pH levels exceeding water quality standards may be treated by infiltration, dispersion in vegetation or compost, pumping to a sanitary sewer, disposal at a permitted concrete batch plant with pH neutralization capabilities, or carbon dioxide sparging. BMP C252 gives guidelines for carbon dioxide sparging.

Reason for pH neutralization

A pH level between 6.5 and 8.5 is typical for most natural watercourses, and this pH range is required for the survival of aquatic organisms. Should the pH rise or drop out of this range, fish and other aquatic organisms may become stressed and may die.

Causes of high pH

High pH levels at construction sites are most commonly caused by the contact of stormwater with poured or recycled concrete, cement, mortars, and other Portland cement or lime-containing construction materials. (See BMP C151: Concrete Handling for more information on concrete handling procedures). The principal caustic agent in cement is calcium hydroxide (free lime).

Disposal Methods

Infiltration

- Infiltration is only allowed if soil type allows all water to infiltrate (no surface runoff) without causing or contributing to a violation of surface or groundwater quality standards.

- Infiltration techniques should be consistent with Volume V, Chapter 7

Dispersion

Use BMP T5.30 Full Dispersion

Sanitary Sewer Disposal

- Local sewer authority approval is required prior to disposal via the sanitary sewer.

Concrete Batch Plant Disposal

- Only permitted facilities may accept high pH water.

- Facility should be contacted before treatment to ensure they can accept the high pH water.

Stormwater Discharge

Any pH treatment options that generate treated water that must be discharged off site are subject to flow control requirements. Sites that must implement flow control for the developed site must also control stormwater release rates during construction. All treated stormwater must go through a flow control facility before being released to surface waters which require flow control.

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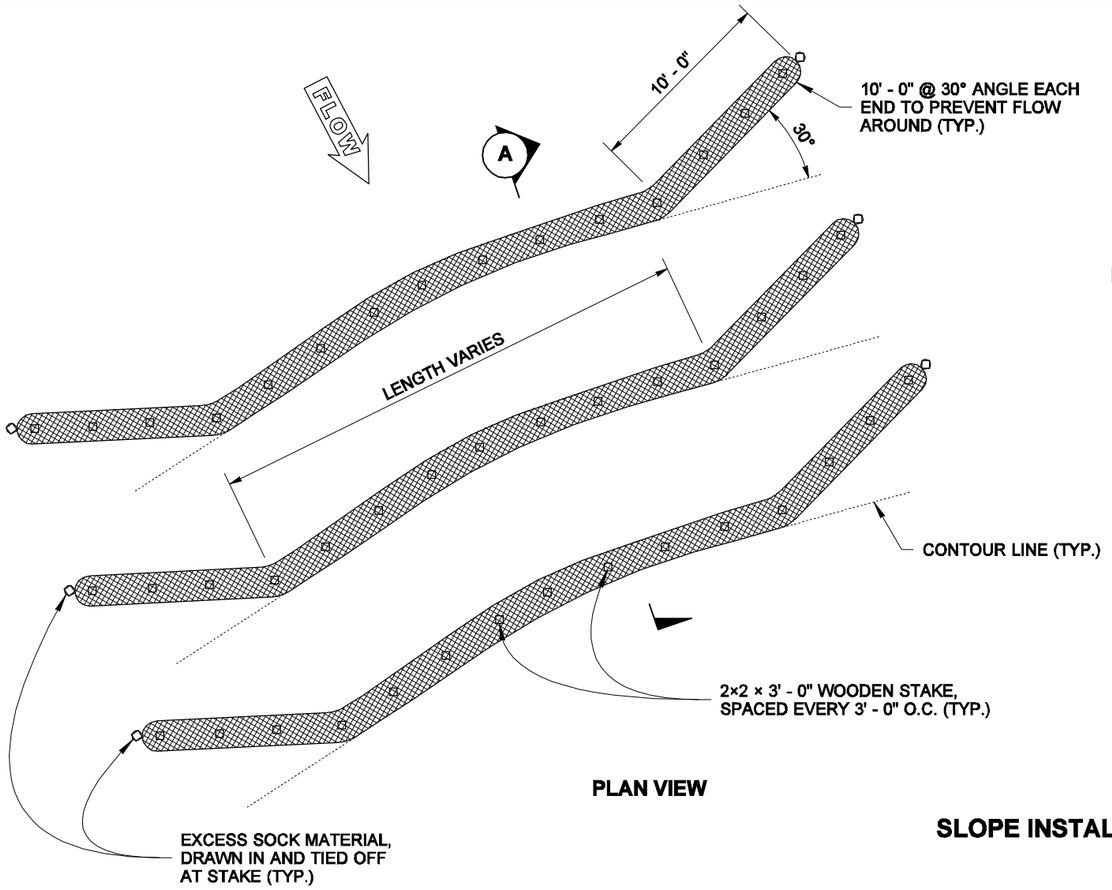
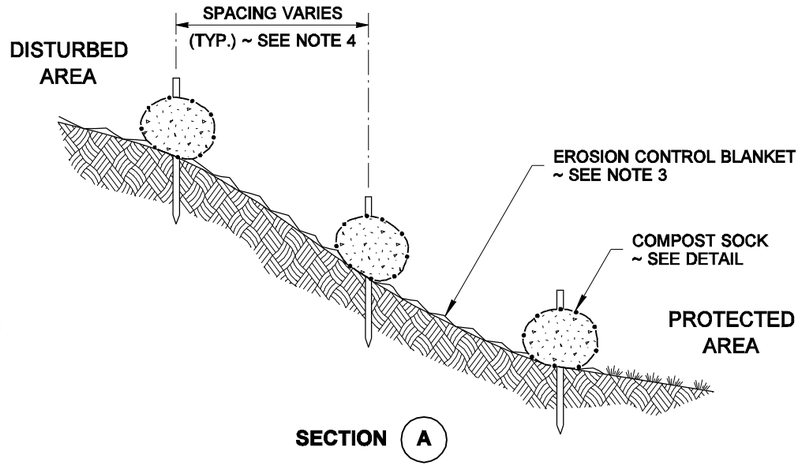


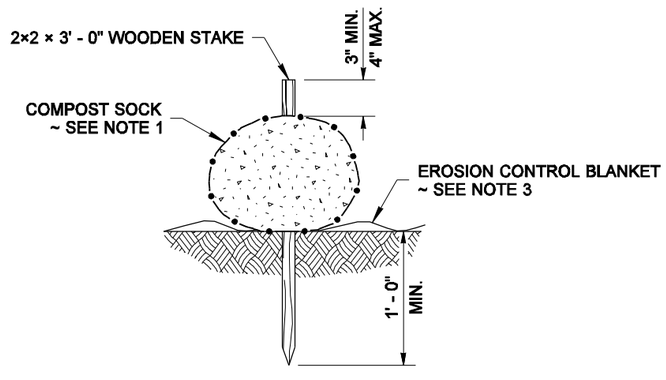
PLAN VIEW



SLOPE INSTALLATION

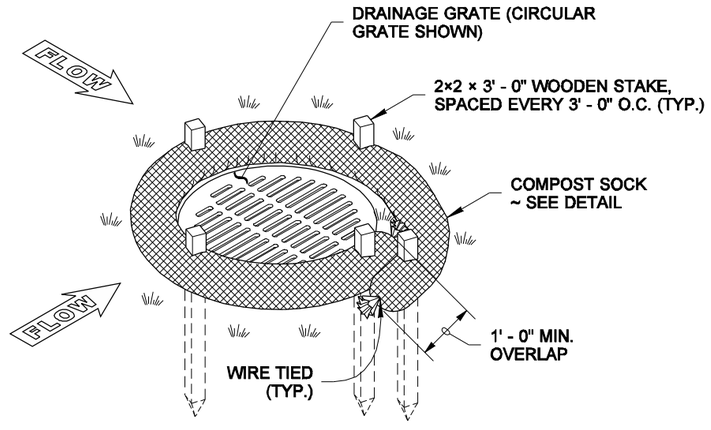
NOTES

1. Compost Sock shall be in accordance with Standard Specification 9-14.5(6). Compost Sock shall be a minimum of 8" in diameter or sized to suit conditions as specified by the Engineer or Contract.
2. Compost material to be dispersed on site, as determined by the Engineer.
3. When placing Compost Sock on slopes, use Erosion Control Blanket if specified by the Engineer and in accordance with Standard Specification 9-14.5(2). See Standard Plan I-60.10.
4. Always install Compost Sock perpendicular to slope and along contour lines.
5. Remove sediment from the up slope side of the Compost Sock when accumulation has reached 1/2 of the effective height of the Compost Sock.
6. Live stakes can be used in addition to wooden stakes and shall be in accordance with Standard Specification 9-14.6(1). See plans for species selection and spacing.



TYPICAL SECTION

COMPOST SOCK DETAIL



ISOMETRIC VIEW

CATCH BASIN INSTALLATION

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

SANDRA L. SALISBURY
CERTIFICATE NO. 000860

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COMPOST SOCK

STANDARD PLAN I-30.40-00

SHEET 1 OF 1 SHEET

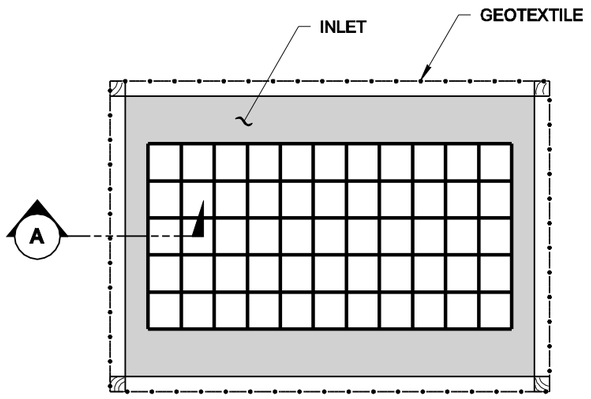
APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER

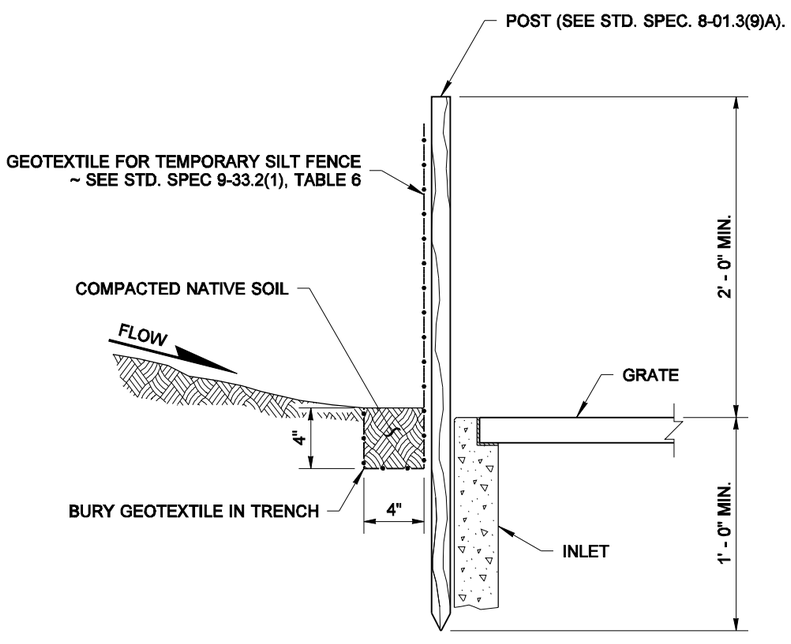
10-12-07 — DATE

Washington State Department of Transportation

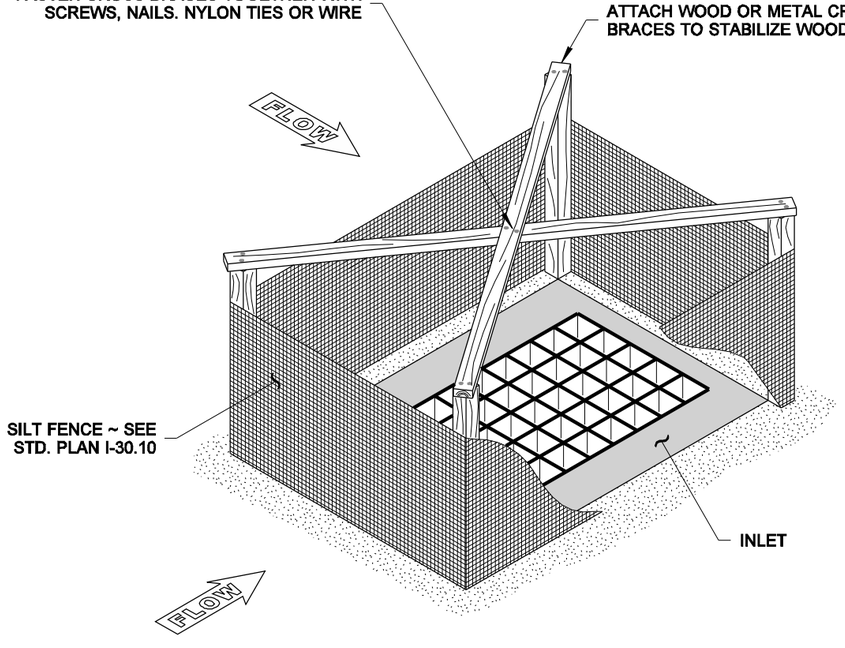
DRAWN BY: LISA CYFORD



PLAN VIEW
(CROSS BRACES NOT SHOWN)



SECTION (A)



ISOMETRIC VIEW
(ENTIRE FENCE NOT SHOWN
FOR ILLUSTRATIVE PURPOSES)

NOTES

1. Prefabricated units may be used in lieu of the design shown on this plan upon approval of the Engineer.
2. Structure shall be constructed such that geotextile material shall be fastened to posts creating a seamless joint.
3. Ensure that ponding height of water does not cause flooding on adjacent roadways or private property.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).

STATE OF
WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

MARK W. MAURER
CERTIFICATE NO. 000598

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TEMPORARY SILT FENCE FOR INLET PROTECTION IN UNPAVED AREAS
STANDARD PLAN I-40.10-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

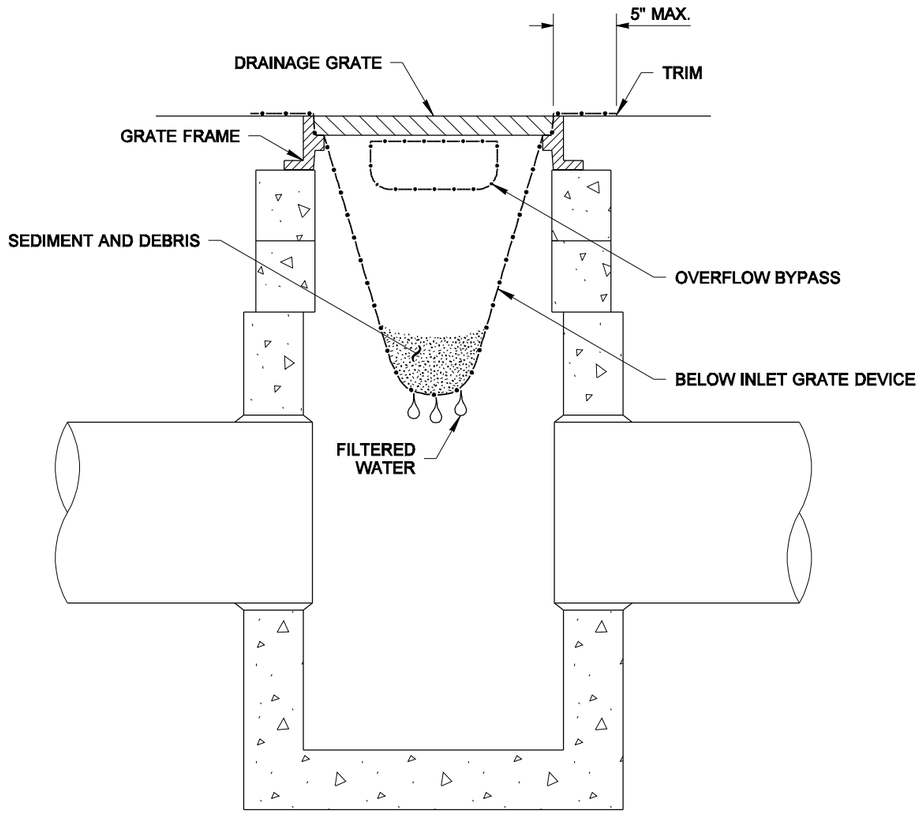
Pasco Bakotich III — STATE DESIGN ENGINEER
09-20-07 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD

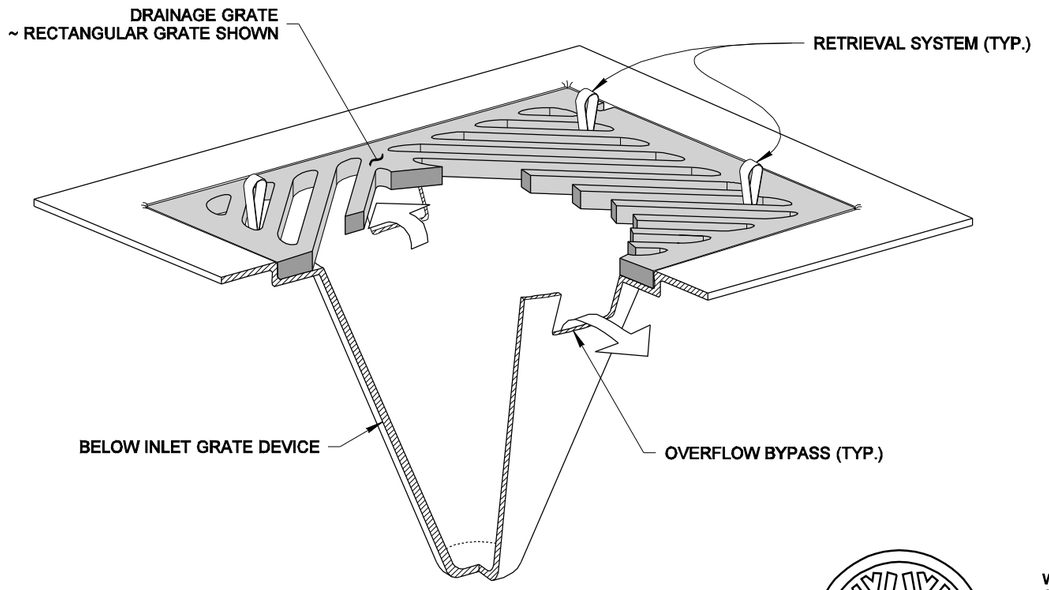
NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).



SECTION VIEW

NOT TO SCALE



ISOMETRIC VIEW

STATE OF WASHINGTON
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LANDSCAPE ARCHITECT

MARK W. MAURER
CERTIFICATE NO. 000598

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STORM DRAIN INLET PROTECTION

STANDARD PLAN I-40.20-00

SHEET 1 OF 1 SHEET

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Pasco Bakotich III — STATE DESIGN ENGINEER

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Washington State Department of Transportation

Appendix C – Alternative BMPs

The following includes a list of possible alternative BMPs for each of the 12 elements not described in the main SWPPP text. This list can be referenced in the event a BMP for a specific element is not functioning as designed and an alternative BMP needs to be implemented.

Element #1 - Mark Clearing Limits
Buffer Zones (BMP C102)
High Visibility Plastic or Metal Fence (BMP C103)
Stake and Wire Fence (BMP C104)
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #2 - Establish Construction Access
Stabilized Construction Entrance (BMP C105)
Wheel Wash (BMP C106)
Construction Road/Parking Area Stabilization (BMP C107)
Water Bars (BMP C203)
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #3 - Control Flow Rates
Sediment Trap (BMP C240)
Temporary Sediment Pond (BMP C241)
Detention Pond
Infiltration Trench
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #4 - Install Sediment Controls
Straw Bale Barrier (BMP C230)
Brush Barrier (BMP C231)
Gravel Filter Berm (BMP C232)
Silt Fence (BMP C233)
Vegetated Strip (BMP C234)
Straw Wattles (BMP C235)
Sediment Trap (BMP C240)
Storm Drain Inlet Protection (BMP C 220)
Portable Water Storage Tanks (e.g., Baker Tank) for Sedimentation
Materials on Hand (BMP C150)
Detention Pond or Vault
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)
Temporary Sediment Pond (BMP C241) (See instructions)

Construction Stormwater Filtration (BMP C251) (See instructions)
Construction Stormwater Chemical Treatment (BMP C250) (See instructions)

Element #5 - Stabilize Soils
Temporary and Permanent Seeding (BMP C120)
Mulching (BMP C121)
Nets and Blankets (BMP C122)
Plastic Covering (BMP C 123)
Sodding (BMP C124)
Topsoiling (BMP C125)
Polyacrylamide for Soil Erosion Protection (BMP C126)
Surface Roughening (BMP C130)
Gradient Terraces (BMP C131)
Dust Control (BMP C140)
Small Project Construction Stormwater Pollution (BMP 180)
Early application of gravel base on areas to be paved
Materials on Hand (BMP C150)
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #6 - Protect Slopes
Temporary and Permanent Seeding (BMP C120)
Surface Roughening (BMP C130)
Gradient Terraces (BMP C131)
Interceptor Dike and Swale (BMP C200)
Grass-Lined Channels (BMP C201)
Channel Lining (BMP C202)
Pipe Slope Drains (BMP C204
Subsurface Drains (BMP C205)
Level Spreader (BMP C206)
Check Dams (BMP C207)
Triangular Silt Dike (Geotextile-Encased Check Dam; BMP C208)
Straw Wattles (BMP C235
Materials on Hand (BMP C150)
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #7 – Protect Drain Inlets

Drop Inlet Protection
- Excavated Drop Inlet Protection
- Block and Gravel Drop Inlet Protection
- Gravel and Wire Drop Inlet Protection
- Catch Basin Filters
- Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Curb Inlet Protection
- Wooden Weir

Block and Gravel Curb Inlet Protection
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Culvert Inlet Protection
Culvert Inlet Sediment Trap
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #8 - Stabilize Channels and Outlets
Grass-Lined Channels (BMP C201)
Channel Lining (BMP C202)
Level Spreader (BMP C206)
Check Dams (BMP C207)
Triangular Silt Dike (Geotextile-Encased Check Dam; BMP C208)
Outlet Protection (BMP C209)
Materials on Hand (BMP C150)
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Element #10 - Control Dewatering
Concrete Handling (BMP C151)
Temporary Sediment Pond (BMP C241)
Construction Stormwater Filtration (BMP C251)
Construction Stormwater Chemical Treatment (BMP C250)
Infiltration
Use of a sedimentation bag, with outfall to a ditch or swale for small volumes of localized dewatering.
Alternative BMP not included in the SWMMWW (2005) or SWNNEW (2004)

Appendix D – General Permit

(Contractor to insert DOE General Permit)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

September 17, 2012

Richard Tucker
Kimberly Clark
2600 Federal Avenue
Everett, WA 98201

RE: Coverage under the Construction Stormwater General Permit

Permit number:	**WAR-126111**
Site Name:	**Kimberly Clark Everett Pulp and Paper Mill D & R**
Location:	**2600 Federal Ave**
	Everett **County: Snohomish**
Disturbed Acres:	**51**

Dear Mr. Tucker:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology's Construction Stormwater General Permit (permit). This is your permit coverage letter. Your permit coverage is effective on September 17, 2012. **Please retain this permit coverage letter with your permit (enclosed), stormwater pollution prevention plan (SWPPP), and site log book. These materials are the official record of permit coverage for your site.**

Please take time to read the entire permit and contact Ecology if you have any questions.

Appeal Process
You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this letter. This appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of this letter:

- File your appeal and a copy of the permit cover page with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and the permit cover page on Ecology in paper form - by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Address and Location Information:

Street Addresses:	**Mailing Addresses:**
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board (PCHB) 1111 Israel Road SW, Suite 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Electronic Discharge Monitoring Reports (WQWebDMR)
This permit requires that Permittees submit monthly discharge monitoring reports (DMRs) electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to: www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html. If you have questions, contact Tonya Wolfe at (360) 407-7097 (locally), or (800) 633-6193/option 3, or email WQWebPortal@ecy.wa.gov.

Ecology Field Inspector Assistance
If you have questions regarding stormwater management at your construction site, please contact, Ken Waldo at (425) 649-7279, or ken.waldo@ecy.wa.gov; or, for Linear Transportation projects - WSDOT and local governments, Cynthia Walcker at (425) 649-7276, or cynthia.walcker@ecy.wa.gov; both of Ecology's Northwest Regional Office in Bellevue.

Questions or Additional Information
Ecology is committed to providing assistance. Please review our web page at: www.ecy.wa.gov/programs/wq/stormwater/construction/. If you have questions about the construction stormwater general permit, please contact Shawn Hopkins at (360) 407-6442, or shawn.hopkins@ecy.wa.gov.

Sincerely,

Bill Moore, P.E., Manager
Program Development Services Section
Water Quality Program

Enclosure

Kimberly Clark Everett
Pulp & Paper Mill D & R
WAR126111
9/17/2012

Issuance Date: December 1, 2010
Effective Date: January 1, 2011
Expiration Date: December 31, 2015

CONSTRUCTION STORMWATER GENERAL PERMIT

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity

State of Washington
Department of Ecology
Olympia, Washington 98504

In compliance with the provisions of
Chapter 90.48 Revised Code of Washington
(State of Washington Water Pollution Control Act)
and
Title 33 United States Code, Section 1251 et seq.
The Federal Water Pollution Control Act (The Clean Water Act)

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions that follow.

Kelly Susewind, P.E., P.G.
Water Quality Program Manager
Washington State Department of Ecology

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SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions within this permit for additional submittal requirements. Appendix A provides a list of definitions. Appendix B provides a list of acronyms.

Table 1. Summary of Permit Report Submittals

Permit Section	Submittal	Frequency	First Submittal Date
S5.A and S8	High Turbidity/Transparency Phone Reporting	As Necessary	Within 24 hours
S5.B	Discharge Monitoring Report	Monthly*	Within 15 days of applicable monitoring period
S5.F and S8	Noncompliance Notification	As necessary	Immediately
S5.F	Noncompliance Notification – Written Report	As necessary	Within 5 Days of non-compliance
G2.	Notice of Change in Authorization	As necessary	
G6.	Permit Application for Substantive Changes to the Discharge	As necessary	
G8.	Application for Permit Renewal	1/permit cycle	No later than 180 days before expiration
G9.	Notice of Permit Transfer	As necessary	
G20.	Notice of Planned Changes	As necessary	
G22.	Reporting Anticipated Non-compliance	As necessary	

SPECIAL NOTE: *Permittees must submit Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology monthly, regardless of site discharge, for the full duration of permit coverage. Refer to Section S5.B of this General Permit for more specific information regarding DMRs.

Table 2. Summary of Required On-site Documentation

Document Title	Permit Conditions
Permit Coverage Letter	See Conditions S2, S5
Construction Stormwater General Permit	See Conditions S2, S5
Site Log Book	See Conditions S4, S5
Stormwater Pollution Prevention Plan (SWPPP)	See Conditions S9, S5

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Permit Area

This Construction Stormwater General Permit (CSWGP) covers all areas of Washington State, except for federal and Tribal lands as specified in Special Condition S1.E.3.

B. Operators Required to Seek Coverage Under this General Permit:

1. Operators of the following construction activities are required to seek coverage under this CSWGP:

   a. Clearing, grading and/or excavation that results in the disturbance of one or more acres and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State.

      i. This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, and discharge to surface waters of the State (that is, forest practices that prepare a site for construction activities); and

   b. Any size construction activity discharging stormwater to waters of the State that the Department of Ecology ("Ecology"):

      i. Determines to be a significant contributor of pollutants to waters of the State of Washington.

      ii. Reasonably expects to cause a violation of any water quality standard.

2. Operators of the following activities are not required to seek coverage under this CSWGP (unless specifically required under Special Condition S1.B.1.b. above):

   a. Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.

   b. Construction activities covered under an Erosivity Waiver (Special Condition S2.C).

   c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

C. Authorized Discharges:

1. Stormwater Associated with Construction Activity. Subject to compliance with the terms and conditions of this permit, Permittees are authorized to discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State. (Note that "surface waters of the State" may exist on a construction site as well as off site; for example, a creek running through a site.)

2. Stormwater Associated with Construction Support Activity. This permit also authorizes stormwater discharge from support activities related to the permitted construction site (for example, an on-site portable rock crusher, off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:

   a. The support activity relates directly to the permitted construction site that is required to have a NPDES permit; and

   b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and

   c. Appropriate controls and measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) for the discharges from the support activity areas.

3. Non-Stormwater Discharges. The categories and sources of non-stormwater discharges identified below are authorized conditionally, provided the discharge is consistent with the terms and conditions of this permit:

   a. Discharges from fire-fighting activities.

   b. Fire hydrant system flushing.

   c. Potable water, including uncontaminated water line flushing.

   d. Pipeline hydrostatic test water.

   e. Uncontaminated air conditioning or compressor condensate.

   f. Uncontaminated ground water or spring water.

   g. Uncontaminated excavation dewatering water (in accordance with S9.D.10).

   h. Uncontaminated discharges from foundation or footing drains.

   i. Water used to control dust. Permittees must minimize the amount of dust control water used.

   j. Routine external building wash down that does not use detergents.

   k. Landscape irrigation water.

   The SWPPP must adequately address all authorized non-stormwater discharges, except for discharges from fire-fighting activities, and must comply with Special

Condition S3. At a minimum, discharges from potable water (including water line flushing), fire hydrant system flushing, and pipeline hydrostatic test water must undergo the following: dechlorination to a concentration of 0.1 parts per million (ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units (su), if necessary.

D. Prohibited Discharges:

The following discharges to waters of the State, including ground water, are prohibited.

1. Concrete wastewater.
2. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.
3. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.1 (see Appendix A of this permit).
4. Slurry materials and waste from shaft drilling.
5. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
6. Soaps or solvents used in vehicle and equipment washing.
7. Wheel wash wastewater, unless discharged according to Special Condition S9.D.9.d.
8. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to Special Condition S9.D.10.

E. Limits on Coverage

Ecology may require any discharger to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this CSWGP does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after completion of construction activities and the site has undergone final stabilization.
2. Non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance, from which there is natural runoff as excluded in 40 CFR Subpart 122.
3. Stormwater from any federal project or project on federal land or land within an Indian Reservation except for the Puyallup Reservation. Within the Puyallup

Reservation, any project that discharges to surface water on land held in trust by the federal government may be covered by this permit.

4. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.

5. Stormwater from a site where an applicable Total Maximum Daily Load (TMDL) requirement specifically precludes or prohibits discharges from construction activity.

S2. APPLICATION REQUIREMENTS

A. Permit Application Forms

1. Notice of Intent Form/Timeline

a. Operators of new or previously unpermitted construction activities must submit a complete and accurate permit application (Notice of Intent, or NOI) to Ecology.

b. The operator must submit the NOI at least 60 days before discharging stormwater from construction activities and must submit it on or before the date of the first public notice (see Special Condition S2.B below for details). The 30-day public comment period required by WAC 173-226-130(5) begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later, unless Ecology specifies a later date in writing.

c. Applicants who propose to discharge to a storm or sewer system operated by Seattle, King County, Snohomish County, Tacoma, Pierce County, or Clark County must also submit a copy of the NOI to the appropriate jurisdiction.

d. If an applicant intends to use a Best Management Practice (BMP) selected on the basis of Special Condition S9.C.4 ("demonstrably equivalent" BMPs), the applicant must notify Ecology of its selection as part of the NOI. In the event the applicant selects BMPs after submission of the NOI, it must provide notice of the selection of an equivalent BMP to Ecology at least 60 days before intended use of the equivalent BMP.

e. Permittees must notify Ecology regarding any changes to the information provided on the NOI by submitting an updated NOI. Examples of such changes include, but are not limited to,

i. changes to the Permittee's mailing address,

ii. changes to the on-site contact person information, and

iii. changes to the area/acreage affected by construction activity.

2. Transfer of Coverage Form

The Permittee can transfer current coverage under this permit to one or more new operators, including operators of sites within a Common Plan of Development, provided the Permittee submits a Transfer of Coverage Form in accordance with General Condition G9. Transfers do not require public notice.

B. Public Notice

For new or previously unpermitted construction activities, the applicant must publish a public notice at least one time each week for two consecutive weeks, at least 7 days apart, in a newspaper with general circulation in the county where the construction is to take place. The notice must contain:

1. A statement that "The applicant is seeking coverage under the Washington State Department of Ecology's Construction Stormwater NPDES and State Waste Discharge General Permit."

2. The name, address and location of the construction site.

3. The name and address of the applicant.

4. The type of construction activity that will result in a discharge (for example, residential construction, commercial construction, etc.), and the number of acres to be disturbed.

5. The name of the receiving water(s) (that is, the surface water(s) to which the site will discharge), or, if the discharge is through a storm sewer system, the name of the operator of the system.

6. The statement: "Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology's action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320. Comments can be submitted to: Department of Ecology, P.O. Box 47696, Olympia, WA 98504-7696 Attn: Water Quality Program, Construction Stormwater."

C. Erosivity Waiver

Construction site operators may qualify for an erosivity waiver from the CSWGP if the following conditions are met:

1. The site will result in the disturbance of fewer than 5 acres and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.

2. Calculation of Erosivity "R" Factor and Regional Timeframe:

   a. The project's rainfall erosivity factor ("R" Factor) must be less than 5 during the period of construction activity, as calculated using either the Texas A&M University online rainfall erosivity calculator at: http://ei.tamu.edu/ or EPA's calculator at http://cfpub.epa.gov/npdes/stormwater/lew/lewcalculator.cfm. The period of construction activity starts when the land is first disturbed and ends with final stabilization. In addition:

   b. The entire period of construction activity must fall within the following timeframes:

      i. For sites west of the Cascades Crest: June 15 – September 15.

      ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15.

      iii. For sites east of the Cascades Crest, within the Central Basin: no additional timeframe restrictions apply. The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches. For a map of the Central Basin (Region 2), refer to http://www.ecy.wa.gov/pubs/ecy070202.pdf.

3. Construction site operators must submit a complete Erosivity Waiver certification form at least one week before disturbing the land. Certification must include statements that the operator will:

   a. Comply with applicable local stormwater requirements; and

   b. Implement appropriate erosion and sediment control BMPs to prevent violations of water quality standards.

4. This waiver is not available for facilities declared significant contributors of pollutants as defined in Special Condition S1.B.1.b.

5. This waiver does not apply to construction activities which include non-stormwater discharges listed in Special Condition S1.C.3.

6. If construction activity extends beyond the certified waiver period for any reason, the operator must either:

   a. Recalculate the rainfall erosivity "R" factor using the original start date and a new projected ending date and, if the "R" factor is still under 5 and the entire

project falls within the applicable regional timeframe in Special Condition S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; or

b. Submit a complete permit application to Ecology in accordance with Special Condition S2.A and B before the end of the certified waiver period.

S3. COMPLIANCE WITH STANDARDS

A. Discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges not in compliance with these standards are not authorized.

B. Prior to the discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate Stormwater Pollution Prevention Plan (SWPPP), with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.

C. Ecology presumes that a Permittee complies with water quality standards unless discharge monitoring data or other site-specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee complies with the following conditions. The Permittee must fully:

1. Comply with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.

2. Implement stormwater BMPs contained in stormwater management manuals published or approved by Ecology, or BMPs that are demonstrably equivalent to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology.)

D. Where construction sites also discharge to ground water, the ground water discharges must also meet the terms and conditions of this CSWGP. Permittees who discharge to ground water through an injection well must also comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

S4. MONITORING REQUIREMENTS, BENCHMARKS AND REPORTING TRIGGERS

Table 3. Summary of Primary Monitoring Requirements

Size of Soil Disturbance[1]	Weekly Site Inspections	Weekly Sampling w/ Turbidity Meter	Weekly Sampling w/ Transparency Tube	Weekly pH Sampling[2]	Requires CESCL Certification?
Sites that disturb less than 1 acre, but are part of a larger Common Plan of Development	Required	Not Required	Not Required	Not Required	No
Sites that disturb 1 acre or more, but fewer than 5 acres	Required	Sampling Required – either method[3]		Required	Yes
Sites that disturb 5 acres or more	Required	Required	Not Required[4]	Required	Yes

A. Site Log Book

The Permittee must maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements, including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

B. Site Inspections

The Permittee's (operator's) site inspections must include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points. (See Special Conditions S4.B.3 and B.4 below for detailed requirements of the Permittee's Certified Erosion and Sediment Control Lead [CESCL]).

---

[1] Soil disturbance is calculated by adding together all areas affected by construction activity. Construction activity means clearing, grading, excavation, and any other activity that disturbs the surface of the land, including ingress/egress from the site.

[2] If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (1,000 cubic yards of poured or recycled concrete over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer stormwater collection system that drains to other surface waters of the State, the Permittee must conduct pH monitoring sampling in accordance with Special Condition S4.D.

[3] Sites with one or more acres, but fewer than 5 acres of soil disturbance, must conduct turbidity or transparency sampling in accordance with Special Condition S4.C.

[4] Sites equal to or greater than 5 acres of soil disturbance must conduct turbidity sampling using a turbidity meter in accordance with Special Condition S4.C.

Construction sites one acre or larger that discharge stormwater to surface waters of the State must have site inspections conducted by a certified CESCL. Sites less than one acre may have a person without CESCL certification conduct inspections; sampling is not required on sites that disturb less than an acre.

1. The Permittee must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. The Permittee must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

   Based on the results of the inspection, the Permittee must correct the problems identified by:

   a. Reviewing the SWPPP for compliance with Special Condition S9 and making appropriate revisions within 7 days of the inspection.

   b. Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.

   c. Documenting BMP implementation and maintenance in the site log book.

2. The Permittee must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The Permittee may reduce the inspection frequency for temporarily stabilized, inactive sites to once every calendar month.

3. The Permittee must have staff knowledgeable in the principles and practices of erosion and sediment control. The CESCL (sites one acre or more) or inspector (sites less than one acre) must have the skills to assess the:

   a. Site conditions and construction activities that could impact the quality of stormwater, and

   b. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

4. The SWPPP must identify the CESCL or inspector, who must be present on site or on-call at all times. The CESCL must obtain this certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the manual referred to in Special Condition S9.C.1 and 2).

5. The Permittee must summarize the results of each inspection in an inspection report or checklist and enter the report/checklist into, or attach it to, the site log book. At a minimum, each inspection report or checklist must include:

   a. Inspection date and time.

   b. Weather information, the general conditions during inspection and the approximate amount of precipitation since the last inspection, and precipitation within the last 24 hours.

   c. A summary or list of all implemented BMPs, including observations of all erosion/sediment control structures or practices.

   d. A description of the locations:

      i. Of BMPs inspected.

      ii. Of BMPs that need maintenance and why.

      iii. Of BMPs that failed to operate as designed or intended, and

      iv. Where additional or different BMPs are needed, and why.

   e. A description of stormwater discharged from the site. The Permittee must note the presence of suspended sediment, turbidity, discoloration, and oil sheen, as applicable.

   f. Any water quality monitoring performed during inspection.

   g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made following the inspection.

   h. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.

   i. The name, title, and signature of the person conducting the site inspection, a phone number or other reliable method to reach this person, and the following statement: "I certify that this report is true, accurate, and complete to the best of my knowledge and belief."

C. Turbidity/Transparency Sampling Requirements

1. Sampling Methods

   a. If construction activity involves the disturbance of 5 acres or more, the Permittee must conduct turbidity sampling per Special Condition S4.C.

   b. If construction activity involves 1 acre or more but fewer than 5 acres of soil disturbance, the Permittee must conduct either transparency sampling **or** turbidity sampling per Special Condition S4.C.

2. Sampling Frequency

   a. The Permittee must sample all discharge locations at least once every calendar week when stormwater (or authorized non-stormwater) discharges from the site or enters any on-site surface waters of the state (for example, a creek running through a site).

   b. Samples must be representative of the flow and characteristics of the discharge.

   c. Sampling is not required when there is no discharge during a calendar week.

   d. Sampling is not required outside of normal working hours or during unsafe conditions.

   e. If the Permittee is unable to sample during a monitoring period, the Permittee must include a brief explanation in the monthly Discharge Monitoring Report (DMR).

   f. Sampling is not required before construction activity begins.

3. Sampling Locations

   a. Sampling is required at all points where stormwater associated with construction activity (or authorized non-stormwater) is discharged off site, including where it enters any on-site surface waters of the state (for example, a creek running through a site).

   b. The Permittee may discontinue sampling at discharge points that drain areas of the project that are fully stabilized to prevent erosion.

   c. The Permittee must identify all sampling point(s) on the SWPPP site map and clearly mark these points in the field with a flag, tape, stake or other visible marker.

   d. Sampling is not required for discharge that is sent directly to sanitary or combined sewer systems.

4. Sampling and Analysis Methods

   a. The Permittee performs turbidity analysis with a calibrated turbidity meter (turbidimeter) either on site or at an accredited lab. The Permittee must record the results in the site log book in nephelometric turbidity units (NTU).

   b. The Permittee performs transparency analysis on site with a 1¾-inch-diameter, 60-centimeter (cm)-long transparency tube. The Permittee will record the results in the site log book in centimeters (cm). Transparency tubes are available from: http://watermonitoringequip.com/pages/stream.html.

Table 4. Monitoring and Reporting Requirements

Parameter	Unit	Analytical Method	Sampling Frequency	Benchmark Value	Phone Reporting Trigger Value
Turbidity	NTU	SM2130 or EPA 180.1	Weekly, if discharging	25 NTU	250 NTU
Transparency	cm	Manufacturer instructions, or Ecology guidance	Weekly, if discharging	33 cm	6 cm

5. Turbidity/Transparency Benchmark Values and Reporting Triggers

The benchmark value for turbidity is 25 NTU or less. The benchmark value for transparency is 33 centimeters (cm). Note: Benchmark values do not apply to discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus; these discharges are subject to a numeric effluent limit for turbidity. Refer to Special Condition S8 for more information.

a. Turbidity 26 – 249 NTU, or Transparency 32 – 7 cm:

If the discharge turbidity is 26 to 249 NTU; or if discharge transparency is less than 33 cm, but equal to or greater than 6 cm, the Permittee must:

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

ii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing 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.

iii. Document BMP implementation and maintenance in the site log book.

b. Turbidity 250 NTU or greater, or Transparency 6 cm or less:

If a discharge point's turbidity is 250 NTU or greater, or if discharge transparency is less than or equal to 6 cm, the Permittee must complete the reporting and adaptive management process described below.

i. Telephone the applicable Ecology Region's Environmental Report Tracking System (ERTS) number within 24 hours, in accordance with Special Condition S5.F.

- Central Region (Okanogan, Chelan, Douglas, Kittitas, Yakima, Klickitat, Benton): (509) 575-2490

- Eastern Region (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
- Northwest Region (Kitsap, Snohomish, Island, King, San Juan, Skagit, Whatcom): (425) 649-7000
- Southwest Region (Grays Harbor, Lewis, Mason, Thurston, Pierce, Clark, Cowlitz, Skamania, Wahkiakum, Clallam, Jefferson, Pacific): (360) 407-6300

These numbers are also listed at the following web site: http://www.ecy.wa.gov/programs/wq/stormwater/construction/permit.html

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

iii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing 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.

iv. Document BMP implementation and maintenance in the site log book.

v. Continue to sample discharges daily until:

a) Turbidity is 25 NTU (or lower); or

b) Transparency is 33 cm (or greater); or

c) The Permittee has demonstrated compliance with the water quality limit for turbidity:

1) No more than 5 NTU over background turbidity, if background is less than 50 NTU, or

2) No more than 10% over background turbidity, if background is 50 NTU or greater; or

d) The discharge stops or is eliminated.

D. pH Sampling Requirements -- Significant Concrete Work or Engineered Soils

If construction activity results in the disturbance of 1 acre or more, **and** involves significant concrete work (significant concrete work means greater than 1000 cubic yards poured concrete or recycled concrete used over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area

drains to surface waters of the State or to a storm sewer system that drains to surface waters of the state, the Permittee must conduct pH monitoring as set forth below. Note: In addition, discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for high pH are subject to a numeric effluent limit for pH; refer to Special Condition S8.

1. For sites with significant concrete work, the Permittee must begin the pH monitoring period when the concrete is first poured and exposed to precipitation, and continue weekly throughout and after the concrete pour and curing period, until stormwater pH is in the range of 6.5 to 8.5 (su).

2. For sites with engineered soils, the Permittee must begin the pH monitoring period when the soil amendments are first exposed to precipitation and must continue until the area of engineered soils is fully stabilized.

3. During the applicable pH monitoring period defined above, the Permittee must obtain a representative sample of stormwater and conduct pH analysis at least once per week.

4. The Permittee must monitor pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils before the stormwater discharges to surface waters.

5. The benchmark value for pH is 8.5 standard units. Anytime sampling indicates that pH is 8.5 or greater, the Permittee must either:

    a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; or

    b. If necessary, adjust or neutralize the high pH water until it is in the range of pH 6.5 to 8.5 (su) using an appropriate treatment BMP such as carbon dioxide (CO_2) sparging or dry ice. The Permittee must obtain written approval from Ecology before using any form of chemical treatment other than CO_2 sparging or dry ice.

6. The Permittee must perform pH analysis on site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee must record pH monitoring results in the site log book.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

A. High Turbidity Phone Reporting

Anytime sampling performed in accordance with Special Condition S4.C indicates turbidity has reached the 250 NTU phone reporting level, the Permittee must call Ecology's Regional office by phone within 24 hours of analysis. The web site is http://www.ecy.wa.gov/programs/wq/stormwater/construction/permit.html. Also see phone numbers in Special Condition S4.C.5.b.i.

B. Discharge Monitoring Reports

Permittees required to conduct water quality sampling in accordance with Special Conditions S4.C (Turbidity/Transparency), S4.D (pH), S8 (303[d]/TMDL sampling), and/or G13 (Additional Sampling) must submit the results to Ecology.

Permittees must submit monitoring data using Ecology's WebDMR program. To find out more information and to sign up for WebDMR go to: http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html.

Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper copy DMR at:

Mailing Address:
Department of Ecology
Water Quality Program
Attn: Stormwater Compliance Specialist
PO Box 47696
Olympia, WA 98504-7696

Permittees who obtain a waiver not to use WebDMR must use the forms provided to them by Ecology; submittals must be mailed to the address above. Permittees shall submit DMR forms to be received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, all Permittees must submit a DMR as required with "no discharge" entered in place of the monitoring results. For more information, contact Ecology staff using information provided at the following web site: http://www.ecy.wa.gov/programs/spills/response/assistancesoil%20map.pdf

C. Records Retention

The Permittee must retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, and any other documentation of compliance with permit requirements for the entire life of the construction project and for a minimum of three years following the termination of permit coverage. Such information must include all calibration and maintenance records, and records of all data used to complete the application for this

permit. This period of retention must be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording Results

For each measurement or sample taken, the Permittee must record the following information:

1. Date, place, method, and time of sampling or measurement.
2. The first and last name of the individual who performed the sampling or measurement.
3. The date(s) the analyses were performed.
4. The first and last name of the individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Special Condition S4 of this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Permittee's DMR.

F. Noncompliance Notification

In the event the Permittee is unable to comply with any part of the terms and conditions of this permit, and the resulting noncompliance may cause a threat to human health or the environment, the Permittee must:

1. Immediately notify Ecology of the failure to comply by calling the applicable Regional office ERTS phone number (find at http://www.ecy.wa.gov/programs/spills/response/assistancesoil%20map.pdf) or refer to Special Condition S4.C.5.b.i.
2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days of becoming aware of the violation.
3. Submit a detailed written report to Ecology within five (5) days, unless requested earlier by Ecology. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee must report any unanticipated bypass and/or upset that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 C.F.R. 122.41(l)(6)).

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply. Refer to Section G14 of this permit for specific information regarding non-compliance.

G. Access to Plans and Records

1. The Permittee must retain the following permit documentation (plans and records) on site, or within reasonable access to the site, for use by the operator or for on-site review by Ecology or the local jurisdiction:

   a. General Permit.

   b. Permit Coverage Letter.

   c. Stormwater Pollution Prevention Plan (SWPPP).

   d. Site Log Book.

2. The Permittee must address written requests for plans and records listed above (Special Condition S5.G.1) as follows:

   a. The Permittee must provide a copy of plans and records to Ecology within 14 days of receipt of a written request from Ecology.

   b. The Permittee must provide a copy of plans and records to the public when requested in writing. Upon receiving a written request from the public for the Permittee's plans and records, the Permittee must either:

      i. Provide a copy of the plans and records to the requester within 14 days of a receipt of the written request; or

      ii. Notify the requester within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed; and provide access to the plans and records within 14 days of receipt of the written request; or

      Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requester at an Ecology office, or a mutually agreed location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee must notify the requester within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

S6. PERMIT FEES

The Permittee must pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit are established by Chapter 173-224 WAC. Ecology continues to assess permit fees until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

S7. SOLID AND LIQUID WASTE DISPOSAL

The Permittee must handle and dispose of solid and liquid wastes generated by construction activity, such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, in accordance with:

A. Special Condition S3, Compliance with Standards.

B. WAC 173-216-110.

C. Other applicable regulations.

S8. DISCHARGES TO 303(D) OR TMDL WATER BODIES

A. Sampling and Numeric Effluent Limits For Certain Discharges to 303(d)-listed Water Bodies

1. Permittees who discharge to segments of water bodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorus, must conduct water quality sampling according to the requirements of this section, and Special Conditions S4.C.2.b-f and S4.C.3.b-d, and must comply with the applicable numeric effluent limitations in S8.C and S8.D.

2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters (Category 5) that exists on January 1, 2011, or the date when the operator's complete permit application is received by Ecology, whichever is later.

B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters

Operators of construction sites that discharge to a 303(d)-listed water body are not eligible for coverage under this permit *unless* the operator:

1. Prevents exposing stormwater to pollutants for which the water body is impaired, and retains documentation in the SWPPP that details procedures taken to prevent exposure on site; or

2. Documents that the pollutants for which the water body is impaired are not present at the site, and retains documentation of this finding within the SWPPP; or

3. Provides Ecology with data indicating the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retains such data on site with the SWPPP. The operator must provide data and other technical information to Ecology that sufficiently demonstrate:

   a. For discharges to waters without an EPA-approved or -established TMDL, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the water body; or

   b. For discharges to waters with an EPA-approved or -established TMDL, that there is sufficient remaining wasteload allocation in the TMDL to allow construction stormwater discharge and that existing dischargers to the water body are subject to compliance schedules designed to bring the water body into attainment with water quality standards.

   Operators of construction sites are eligible for coverage under this permit if Ecology issues permit coverage based upon an affirmative determination that the discharge will not cause or contribute to the existing impairment.

C. Sampling and Numeric Effluent Limits for Discharges to Water Bodies on the 303(d) List for Turbidity, Fine Sediment, or Phosphorus

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus must conduct turbidity sampling in accordance with Special Condition S4.C.2 and comply with either of the numeric effluent limits noted in Table 5 below.

2. As an alternative to the 25 NTU effluent limit noted in Table 5 below (applied at the point where stormwater [or authorized non-stormwater] is discharged off-site), permittees may choose to comply with the surface water quality standard for turbidity. The standard is: no more than 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or no more than a 10% increase in turbidity when the background turbidity is more than 50 NTU. In order to use the water quality standard requirement, the sampling must take place at the following locations:

   a. Background turbidity in the 303(d)-listed receiving water immediately upstream (upgradient) or outside the area of influence of the discharge.

   b. Turbidity at the point of discharge into the 303(d)-listed receiving water, inside the area of influence of the discharge.

3. Discharges that exceed the numeric effluent limit for turbidity constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

Table 5. Turbidity, Fine Sediment & Phosphorus Sampling and Limits for 303(d)-Listed Waters

Parameter Identified In 303(d) listing	Parameter Sampled	Unit	Analytical Method	Sampling Frequency	Numeric Effluent Limit[1]
• Turbidity • Fine Sediment • Phosphorus	Turbidity	NTU	SM2130 or EPA180.1	Weekly, if discharging	25 NTU, at the point where stormwater is discharged from the site; OR In compliance with the surface water quality standard for turbidity (S8.C.1.a)

[1]Permittees subject to a numeric effluent limit for turbidity may, at their discretion, choose either numeric effluent limitation based on site-specific considerations including, but not limited to, safety, access and convenience.

D. Discharges to Water Bodies on the 303(d) List for High pH

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for high pH must conduct pH sampling in accordance with the table below, and comply with the numeric effluent limit of pH 6.5 to 8.5 su (Table 6).

Table 6. pH Sampling and Limits for 303(d)-Listed Waters

Parameter identified in 303(d) listing	Parameter Sampled/Units	Analytical Method	Sampling Frequency	Numeric Effluent Limit
High pH	pH /Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

2. At the Permittee's discretion, compliance with the limit shall be assessed at one of the following locations:

   a. Directly in the 303(d)-listed water body segment, inside the immediate area of influence of the discharge; or

   b. Alternatively, the permittee may measure pH at the point where the discharge leaves the construction site, rather than in the receiving water.

3. Discharges that exceed the numeric effluent limit for pH (outside the range of 6.5 – 8.5 su) constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

E. Sampling and Limits for Sites Discharging to Waters Covered by a TMDL or Another Pollution Control Plan

1. Discharges to a water body that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL. Refer to http://www.ecy.wa.gov/programs/wq/tmdl/index.html for more information on TMDLs.

    a. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges must be consistent with any specific waste load allocations or requirements established by the applicable TMDL.

        i. The Permittee must sample discharges weekly or as otherwise specified by the TMDL to evaluate compliance with the specific waste load allocations or requirements.

        ii. Analytical methods used to meet the monitoring requirements must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136. Turbidity and pH methods need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.

    b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but has not identified specific requirements, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

    c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

    d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus that is completed and approved by EPA before January 1, 2011, or before the date the operator's complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator's complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

S9. STORMWATER POLLUTION PREVENTION PLAN

The Permittee must prepare and properly implement an adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity in accordance with the requirements of this permit beginning with initial soil disturbance and until final stabilization.

A. The Permittee's SWPPP must meet the following objectives:

1. To implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. To prevent violations of surface water quality, ground water quality, or sediment management standards.

3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

1. The SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:

   a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.).

   b. Potential erosion problem areas.

   c. The 12 elements of a SWPPP in Special Condition S9.D.1-12, including BMPs used to address each element.

   d. Construction phasing/sequence and general BMP implementation schedule.

   e. The actions to be taken if BMP performance goals are not achieved—for example, a contingency plan for additional treatment and/or storage of stormwater that would violate the water quality standards if discharged.

   f. Engineering calculations for ponds and any other designed structures.

2. The Permittee must modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee must then:

   a. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the inspection or investigation.

   b. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than 10 days from the inspection or investigation. If

installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period,

c. Document BMP implementation and maintenance in the site log book.

The Permittee must modify the SWPPP whenever 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.

C. Stormwater Best Management Practices (BMPs)

BMPs must be consistent with:

1. Stormwater Management Manual for Western Washington (most recent edition), for sites west of the crest of the Cascade Mountains; or

2. Stormwater Management Manual for Eastern Washington (most recent edition), for sites east of the crest of the Cascade Mountains; or

3. Revisions to the manuals listed in Special Condition S9.C.1. & 2., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230; or

4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:

   a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.

   b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee must include each of the 12 elements below in Special Condition S9.D.1-12 in the narrative of the SWPPP and implement them unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits

   a. Before beginning land-disturbing activities, including clearing and grading, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area.

b. Retain the duff layer, native top soil, and natural vegetation in an undisturbed state to the maximum degree practicable.

2. Establish Construction Access

   a. Limit construction vehicle access and exit to one route, if possible.

   b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking sediment onto roads.

   c. Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.

   d. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.

   e. Conduct street washing only after sediment removal in accordance with Special Condition S9.D.2.d. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into systems tributary to waters of the State.

3. Control Flow Rates

   a. Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

   b. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (for example, impervious surfaces).

   c. If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

4. Install Sediment Controls

   The Permittee must design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must design, install and maintain such controls to:

   a. Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.

   b. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of

resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

c. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.

d. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.

e. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.

f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

5. Stabilize Soils

a. The Permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.

b. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.

c. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.

d. Depending on the geographic location of the project, the Permittee must not allow soils to remain exposed and unworked for more than the time periods set forth below to prevent erosion:

West of the Cascade Mountains Crest
During the dry season (May 1 - Sept. 30): 7 days
During the wet season (October 1 - April 30): 2 days

East of the Cascade Mountains Crest, except for Central Basin*
During the dry season (July 1 - September 30): 10 days
During the wet season (October 1 - June 30): 5 days

The Central Basin*, East of the Cascade Mountains Crest

During the dry Season (July 1 - September 30): 30 days
During the wet season (October 1 - June 30): 15 days

*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

e. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.

f. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

g. The Permittee must minimize the amount of soil exposed during construction activity.

h. The Permittee must minimize the disturbance of steep slopes.

i. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.

6. Protect Slopes

a. The Permittee must design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).

b. The Permittee must divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.

c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.

i. West of the Cascade Mountains Crest: Temporary pipe slope drains must handle the peak 10-minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Temporary pipe slope drains must handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

d. Place excavated material on the uphill side of trenches, consistent with safety and space considerations.

e. Place check dams at regular intervals within constructed channels that are cut down a slope.

7. Protect Drain Inlets

a. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.

b. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

8. Stabilize Channels and Outlets

a. Design, construct and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows:

i. West of the Cascade Mountains Crest: Channels must handle the peak 10-minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

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

9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.

b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.

c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.

d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.

e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.

f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

g. Adjust the pH of stormwater if necessary to prevent violations of water quality standards.

h. Assure that washout of concrete trucks is performed offsite or in designated concrete washout areas only. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge to surface waters of the State is prohibited.

i. Obtain written approval from Ecology before using chemical treatment other than CO_2 or dry ice to adjust pH.

10. Control Dewatering

a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a

controlled conveyance system before discharge to a sediment trap or sediment pond.

b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that "surface waters of the State" may exist on a construction site as well as off site; for example, a creek running through a site.

c. Other treatment or disposal options may include:

   i. Infiltration.

   ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.

   iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies.

   iv. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.

   v. Use of a sedimentation bag with discharge to a ditch or swale for small volumes of localized dewatering.

d. Permittees must handle highly turbid or contaminated dewatering water separately from stormwater.

11. Maintain BMPs

    a. Permittees must maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

    b. Permittees must remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

12. Manage the Project

    a. Phase development projects to the maximum degree practicable and take into account seasonal work limitations.

    b. Inspection and monitoring -- Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with Special Condition S4.

    c. Maintaining an updated construction SWPPP -- Maintain, update, and implement the SWPPP in accordance with Special Conditions S3, S4 and S9.

E. SWPPP – Map Contents and Requirements

The Permittee's SWPPP must also include a vicinity map or general location map (for example, a USGS quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP must also include a legible site map (or maps) showing the entire construction site. The following features must be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads.
2. Cut and fill slopes indicating the top and bottom of slope catch lines.
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities.
4. Areas of soil disturbance and areas that will not be disturbed.
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP.
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas.
7. Locations of all surface water bodies, including wetlands.
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface water body, including wetlands.
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority.
10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

S10. NOTICE OF TERMINATION

A. The site is eligible for termination of coverage when it has met any of the following conditions:

1. The site has undergone final stabilization, the Permittee has removed all temporary BMPs (except biodegradable BMPs clearly manufactured with the intention for the material to be left in place and not interfere with maintenance or land use), and all stormwater discharges associated with construction activity have been eliminated; or
2. All portions of the site that have not undergone final stabilization per Special Condition S10.A.1 have been sold and/or transferred (per General Condition G9), and the Permittee no longer has operational control of the construction activity; or

3. For residential construction only, the Permittee has completed temporary stabilization and the homeowners have taken possession of the residences.

B. When the site is eligible for termination, the Permittee must submit a complete and accurate Notice of Termination (NOT) form, signed in accordance with General Condition G2, to:

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

The termination is effective on the date Ecology receives the NOT form, unless Ecology notifies the Permittee within 30 days that termination request is denied because the Permittee has not met the eligibility requirements in Special Condition S10.A.

Permittees transferring the property to a new property owner or operator/permittee are required to complete and submit the Notice of Transfer form to Ecology, but are not required to submit a Notice of Termination form for this type of transaction.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit must be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit must constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

A. All permit applications must bear a certification of correctness to be signed:

1. In the case of corporations, by a responsible corporate officer of at least the level of vice president of a corporation;

2. In the case of a partnership, by a general partner of a partnership;

3. In the case of sole proprietorship, by the proprietor; or

4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering

information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G3. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records are kept under the terms and conditions of this permit.

B. To have access to and copy – at reasonable times and at reasonable cost -- any records required to be kept under the terms and conditions of this permit.

C. To inspect -- at reasonable times – any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor – at reasonable times – any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G4. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

A. When a change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit.

B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit.

C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved, or

D. When information is obtained that indicates cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G5. REVOCATION OF COVERAGE UNDER THE PERMIT

Pursuant to Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

A. Violation of any term or condition of this permit.

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations.

F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.

G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee must submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application must be submitted at least sixty (60) days prior to any proposed changes. Filing a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit will be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee must apply for permit renewal at least 180 days prior to the specified expiration date of this permit.

G9. TRANSFER OF GENERAL PERMIT COVERAGE

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, **if**:

A. A written agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger, signed by both parties and containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to the Director; and

B. The Director does not notify the current discharger and new discharger of the Director's intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger must also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer.

G10. REMOVED SUBSTANCES

The Permittee must not re-suspend or reintroduce collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information that Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology, upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Special Condition S5.F, and; 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than $20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

G20. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity. The Permittee should be aware that, depending on the nature and size of the changes to the original permit, a new public notice and other permit process requirements may be required. Changes in activities that require reporting to Ecology include those that will result in:

A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).

B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity.

C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity.

D. A change in the construction plans and/or activity that affects the Permittee's monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it must promptly submit such facts or information.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, must be scheduled during non-critical water quality periods and carried out in a manner approved by Ecology.

G23. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under the general permit by applying for an individual permit. The discharger must submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons will fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director will either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the construction stormwater general permit, the applicability of the construction stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G24. APPEALS

A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal by any person within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.

C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter

shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

G25. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G26. BYPASS PROHIBITED

A. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the design criteria for stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.

2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.

4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

   The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

   a. a description of the bypass and its cause

   b. an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.

   c. a cost-effectiveness analysis of alternatives including comparative resource damage assessment.

   d. the minimum and maximum duration of bypass under each alternative.

   e. a recommendation as to the preferred alternative for conducting the bypass.

   f. the projected date of bypass initiation.

   g. a statement of compliance with SEPA.

   h. a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated.

   i. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and must be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

   Ecology will consider the following before issuing an administrative order for this type bypass:

   a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

   b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

   c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public must be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

APPENDIX A – DEFINITIONS

AKART is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which was completed and approved by EPA before January 1, 2011, or before the date the operator's complete permit application is received by Ecology, whichever is later.

Applicant means an operator seeking coverage under this permit.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: stormwater associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer means an area designated by a local jurisdiction that is contiguous to and intended to protect a sensitive area.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Calendar Day A period of 24 consecutive hours starting at 12:00 midnight and ending the following 12:00 midnight.

Calendar Week (same as Week) means a period of seven consecutive days starting at 12:01 a.m. (0:01 hours) on Sunday.

Certified Erosion and Sediment Control Lead (CESCL) means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

Common Plan of Development or Sale means a site where multiple separate and distinct construction activities may be taking place at different times on different schedules and/or by different contractors, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a

consistent plan for long-term development; 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility; and 4) linear projects such as roads, pipelines, or utilities. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

Composite Sample means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots.

Concrete wastewater means any water used in the production, pouring and/or clean-up of concrete or concrete products, and any water used to cut, grind, wash, or otherwise modify concrete or concrete products. Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing). When stormwater comingles with concrete wastewater, the resulting water is considered concrete wastewater and must be managed to prevent discharge to waters of the state, including ground water.

Construction Activity means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Contaminant means any hazardous substance that does not occur naturally or occurs at greater than natural background levels. See definition of "hazardous substance" and WAC 173-340-200.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected.
2. The pollutant removal performance expected from the BMPs selected.
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected.
4. An assessment of how the selected BMPs will comply with state water quality standards.
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Department means the Washington State Department of Ecology.

Detention means the temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

Dewatering means the act of pumping ground water or stormwater away from an active construction site.

Director means the Director of the Washington Department of Ecology or his/her authorized representative.

Discharger means an owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology means the Washington State Department of Ecology.

Engineered Soils means the use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

Final Stabilization (same as fully stabilized or full stabilization) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which prevents erosion.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface water body.

Hazardous Substance means any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) and (6), or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW; any hazardous sub-stance as defined in RCW 70.105.010(14) or any hazardous substance as defined by rule under chapter 70.105 RCW; any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director

by rule to present a threat to human health or the environment if released into the environment. The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

Injection Well means a well that is used for the subsurface emplacement of fluids. (See Well.)

Jurisdiction means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

Notice of Intent (NOI) means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

Operator means any party associated with a construction project that meets either of the following two criteria:

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
- The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Permittee means individual or entity that receives notice of coverage under this general permit.

pH means a liquid's measure of acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

pH monitoring period means the time period in which the pH of stormwater runoff from a site must be tested a minimum of once every seven days to determine if stormwater pH is between 6.5 and 8.5.

Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which pollutants are or may be discharged to surface waters of the State. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the CWA, nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the CWA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the State; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the State as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product (40 CFR 122.1).

Receiving water means the water body at the point of discharge. If the discharge is to a storm sewer system, either surface or subsurface, the receiving water is the water body to which the storm system discharges. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey stormwater are considered the receiving water.

Representative means a stormwater or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate composite sample, or a flow proportionate sample. Ecology's Construction Stormwater Monitoring Manual provides guidance on representative sampling.

Sanitary sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Sensitive area means a water body, wetland, stream, aquifer recharge area, or channel migration zone.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Significant Amount means an amount of a pollutant in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a pollutant that has a

reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant concrete work means greater than 1000 cubic yards poured concrete or recycled concrete over the life of a project.

Significant Contributor of Pollutants means a facility determined by Ecology to be a contributor of a significant amount(s) of a pollutant(s) to waters of the State of Washington.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm drain means any drain which drains directly into a storm sewer system, usually found along roadways or in parking lots.

Storm sewer system means a means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying stormwater. This does not include systems which are part of a combined sewer or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Stormwater Management Manual (SWMM) or Manual means the technical Manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat pollutants in stormwater.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Temporary Stabilization means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent "final stabilization."

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a pollutant that a water body can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations must include a "margin of safety" to ensure that the water body can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation must also account for seasonable variation in water quality.

Treatment BMPs means BMPs that are intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Transparency means a measurement of water clarity in centimeters (cm), using a 60 cm transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a "turbidity tube."

Turbidity means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

Uncontaminated means free from any contaminant, as defined in MTCA cleanup regulations. See definition of "contaminant" and WAC 173-340-200.

Waste Load Allocation (WLA) means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2[h]).

Water quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waters of the State includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the State" as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Well means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (See Injection well.)

Wheel wash wastewater means any water used in, or resulting from the operation of, a tire bath or wheel wash (BMP C106: Wheel Wash), or other structure or practice that uses water to physically remove mud and debris from vehicles leaving a construction site and prevent track-out onto roads. When stormwater comingles with wheel wash wastewater, the resulting water is considered wheel wash wastewater and must be managed according to Special Condition S9.D.9.

APPENDIX B – ACRONYMS

AKART	All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment
BMP	Best Management Practice
CESCL	Certified Erosion and Sediment Control Lead
CFR	Code of Federal Regulations
CKD	Cement Kiln Dust
cm	Centimeters
CTB	Cement-Treated Base
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
FR	Federal Register
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SWMM	Stormwater Management Manual
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UIC	Underground Injection Control
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality
WWHM	Western Washington Hydrology Model

Appendix E – Site Inspection Forms (and Site Log)

The results of each inspection shall be summarized in an inspection report or checklist that is entered into or attached to the site log book. It is suggested that the inspection report or checklist be included in this appendix to keep monitoring and inspection information in one document, but this is optional. However, it is mandatory that this SWPPP and the site inspection forms be kept onsite at all times during construction, and that inspections be performed and documented as outlined below.

At a minimum, each inspection report or checklist shall include:

a. Inspection date/times

b. Weather information: general conditions during inspection, approximate amount of precipitation since the last inspection, and approximate amount of precipitation within the last 24 hours.

c. A summary or list of all BMPs that have been implemented, including observations of all erosion/sediment control structures or practices.

d. The following shall be noted:

i. locations of BMPs inspected,

ii. locations of BMPs that need maintenance,

iii. the reason maintenance is needed,

iv. locations of BMPs that failed to operate as designed or intended, and

v. locations where additional or different BMPs are needed, and the reason(s) why

e. A description of stormwater discharged from the site. The presence of suspended sediment, turbid water, discoloration, and/or oil sheen shall be noted, as applicable.

f. A description of any water quality monitoring performed during inspection, and the results of that monitoring.

g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.

h. A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the SWPPP and the NPDES permit. If the site inspection indicates that the site is out of compliance, the inspection report shall include a summary of the remedial actions required to bring the site back into compliance, as well as a schedule of implementation.

i. Name, title, and signature of person conducting the site inspection; and the following statement: "I certify under penalty of law that this report is true, accurate, and complete, to the best of my knowledge and belief".

When the site inspection indicates that the site is not in compliance with any terms and conditions of the NPDES permit, the Permittee shall take immediate action(s) to: stop, contain, and clean up the unauthorized discharges, or otherwise stop the noncompliance; correct the problem(s); implement appropriate Best Management Practices (BMPs), and/or conduct maintenance of existing BMPs; and achieve compliance with all applicable standards and permit conditions. In addition, if the noncompliance causes a threat to human health or the environment, the Permittee shall comply with the Noncompliance Notification requirements in Special Condition S5.F of the permit.

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-__
Inspector: Ben Davis Date: 8-3-12 Time: 9:00 AM

Site BMPs	Overall Condition	Need Repair?	Comments/Observations
Clearing Limits			
●*Buffer Zones around sensitive areas*	G F P	Y N	N/A (no on-site sensitive areas)
●Ecology block barrier	G F (P)	(Y) N	Delineates Puget Sound work area setback.
●	G F P	Y N	
Construction Access/Roads			
●*Stabilized site entrance*	G F P	Y N	N/A (Access is paved)
●*Stabilized roads/parking area*	(G) F P	Y (N)	Roads/parking currently paved.
●	G F P	Y N	
Control Flow Rates			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary sewer.
●	G F P	Y N	
●	G F P	Y N	
Install Sediment Controls			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary Sewer.
●*Compost Sock*	G F (P)	(Y) N	Adjacent to ecology blocks.
●	G F P	Y N	
Preserve Vegetation/Stabilize Soils			
● *N/A*	G F P	Y N	Majority of site is currently paved.
●	G F P	Y N	
●	G F P	Y N	
Protect Slopes			
●*N/A*	G F P	Y N	Site is flat.
●	G F P	Y N	
●	G F P	Y N	
Protect Drain Inlets			
●*Catchbasin inserts*	(G) F P	Y (N)	Off-site only. On-site CB's routed to temporary storage facility.
●	G F P	Y N	
●	G F P	Y N	
Stabilize Channels and Outlets			
● *Energy dissipators*	(G) F P	Y (N)	Existing.
●	G F P	Y N	
●	G F P	Y N	
Control Pollutants			
●*Chemical Storage Area covered*	(G) F P	Y (N)	Existing structures being used for storage.
●	G F P	Y N	
●	G F P	Y N	
Control De-watering			
●N/A	G F P	Y N	Not anticipated.

G=Good F=Fair P=Poor Y=Yes N=No

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-___
Inspector: Ben Davis Date: 8-3-12 Time: 9:00 AM

Will existing BMPs need to be modified or removed, or other BMPs installed? YES NO
IF YES, list the action items to be completed on the following table:

Actions to be Completed	Date Completed/ Initials
1.Ecology blocks and compost sock need to be installed to define work area and provide filtration	
2.	
3.	
4.	

Describe current weather conditions
Sunny, low 60's

Approximate amount of precipitation since last inspection: N/A inches
and precipitation in the past 24 hours*: 0.0 inches
**based on Howarth / Harborview Park Area weather station accessed at www.weatherunderground.com.*

Describe discharging stormwater, if present. Note the presence of suspended sediment, "cloudiness", discoloration, or oil sheen.

Was water quality sampling part of this inspection? YES NO
If yes, record results below (attach separate sheet, if necessary):

Parameter:	Method (circle one)	Result	Units
Turbidity	tube, meter, laboratory		NTU (cm, if tube used)
pH	paper, kit, meter		pH standard units

Is the site in compliance with the SWPPP and the permit requirements? YES NO
If no, indicate tasks necessary to bring site into compliance on the "Actions to be Completed" table above, and include dates each job WILL BE COMPLETED.
If no, has the non-compliance been reported to Dept. of Ecology? YES NO
If no, should the SWPPP be modified: YES NO

Sign the following certification:
"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief."

Inspection completed on: 8-3-12 by: (print+signature) Ben Davis

Title/Qualification of Inspector: CESCL ID # EF04171205

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-__
Inspector: Ben Davis Date: 8-14-12 Time: 2:00 PM

Site BMPs	Overall Condition	Need Repair?	Comments/Observations
Clearing Limits			
●*Buffer Zones around sensitive areas*	G F P	Y (N)	N/A (no on-site sensitive areas)
●Ecology block barrier	(G) F P	Y (N)	Delineates Puget Sound work area setback.
●	G F P	Y N	
Construction Access/Roads			
●*Stabilized site entrance*	G F P	Y (N)	N/A (Access is paved)
●*Stabilized roads/parking area*	(G) F P	Y (N)	Roads/parking currently paved.
●	G F P	Y N	
Control Flow Rates			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary sewer.
●	G F P	Y N	
●	G F P	Y N	
Install Sediment Controls			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary Sewer.
●*Compost Sock*	(G) F P	Y (N)	Adjacent to ecology blocks.
●	G F P	Y N	
Preserve Vegetation/Stabilize Soils			
● *N/A*	G F P	Y N	Majority of site is currently paved.
●	G F P	Y N	
●	G F P	Y N	
Protect Slopes			
●*N/A*	G F P	Y N	Site is flat.
●	G F P	Y N	
●	G F P	Y N	
Protect Drain Inlets			
●*Catchbasin inserts*	(G) F P	Y (N)	Off-site only. On-site CB's routed to temporary storage facility.
●	G F P	Y N	
●	G F P	Y N	
Stabilize Channels and Outlets			
● *Energy dissipators*	(G) F P	Y (N)	Existing.
●	G F P	Y N	
●	G F P	Y N	
Control Pollutants			
●*Chemical Storage Area covered*	(G) F P	Y (N)	Existing structures being used for storage.
●	G F P	Y N	
●	G F P	Y N	
Control De-watering			
●N/A	G F P	Y N	Not anticipated.

G=Good F=Fair P=Poor Y=Yes N=No

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-__
Inspector: Ben Davis Date: 8-14-12 Time: 2:00 PM

Will existing BMPs need to be modified or removed, or other BMPs installed? YES (NO)
IF YES, list the action items to be completed on the following table:

Actions to be Completed	Date Completed/ Initials
1.	
2.	
3.	
4.	

Describe current weather conditions
Sunny, mid 60's

Approximate amount of precipitation since last inspection: __0.0____inches
and precipitation in the past 24 hours*: __0.0____inches
**based on Howarth / Harborview Park Area weather station accessed at www.weatherunderground.com.*

Describe discharging stormwater, if present. Note the presence of suspended sediment, "cloudiness", discoloration, or oil sheen.

Was water quality sampling part of this inspection? YES (NO)
If yes, record results below (attach separate sheet, if necessary):

Parameter:	Method (circle one)	Result	Units
Turbidity	tube, meter, laboratory		NTU (cm, if tube used)
pH	paper, kit, meter		pH standard units

Is the site in compliance with the SWPPP and the permit requirements? (YES) NO
If no, indicate tasks necessary to bring site into compliance on the "Actions to be Completed" table above, and include dates each job WILL BE COMPLETED.
If no, has the non-compliance been reported to Dept. of Ecology? YES NO
If no, should the SWPPP be modified: YES NO

Sign the following certification:
"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief."

Inspection completed on: 8-14-12 by: (print+signature) Ben Davis 

Title/Qualification of Inspector: CESCL ID # EF04171205__

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-__
Inspector: Ben Davis Date: 9-10-12 Time: 2:00 PM

Site BMPs	Overall Condition	Need Repair?	Comments/Observations
Clearing Limits			
●*Buffer Zones around sensitive areas*	G F P	Y (N)	N/A (no on-site sensitive areas)
●Ecology block barrier	(G) F P	Y (N)	Delineates Puget Sound work area setback.
●	G F P	Y N	
Construction Access/Roads			
●*Stabilized site entrance*	G F P	Y (N)	N/A (Access is paved)
●*Stabilized roads/parking area*	(G) F P	Y (N)	Roads/parking currently paved.
●	G F P	Y N	
Control Flow Rates			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary sewer.
●	G F P	Y N	
●	G F P	Y N	
Install Sediment Controls			
●*Sediment pond (existing KC clarifier)*	(G) F P	Y (N)	Existing KC clarifier used as temporary storage prior to discharge into City of Everett Sanitary Sewer.
●*Compost Sock*	(G) F P	Y (N)	Adjacent to ecology blocks.
●	G F P	Y N	
Preserve Vegetation/Stabilize Soils			
● *N/A*	G F P	Y N	Majority of site is currently paved.
●	G F P	Y N	
●	G F P	Y N	
Protect Slopes			
●*N/A*	G F P	Y N	Site is flat.
●	G F P	Y N	
●	G F P	Y N	
Protect Drain Inlets			
●*Catchbasin inserts*	(G) F P	Y (N)	Off-site only. On-site CB's routed to temporary storage facility.
●	G F P	Y N	
●	G F P	Y N	
Stabilize Channels and Outlets			
● *Energy dissipators*	(G) F P	Y (N)	Existing.
●	G F P	Y N	
●	G F P	Y N	
Control Pollutants			
●*Chemical Storage Area covered*	(G) F P	Y (N)	Existing structures being used for storage.
●	G F P	Y N	
●	G F P	Y N	
Control De-watering			
●N/A	G F P	Y N	Not anticipated.

G=Good F=Fair P=Poor Y=Yes N=No

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Construction Stormwater
SITE INSPECTION CHECKLIST

Project: KC Everett Pulp & Paper Mill Demolition and Remediation Permit No: WAR-__
Inspector: Ben Davis Date: 9-10-12 Time: 2:00 PM

Will existing BMPs need to be modified or removed, or other BMPs installed? YES (NO)
IF YES, list the action items to be completed on the following table:

Actions to be Completed	Date Completed/ Initials
1.	
2.	
3.	
4.	

Describe current weather conditions
Sunny, low 60's

Approximate amount of precipitation since last inspection: 0.0 inches
and precipitation in the past 24 hours*: 0.0 inches
**based on Howarth / Harborview Park Area weather station accessed at www.weatherunderground.com.*

Describe discharging stormwater, if present. Note the presence of suspended sediment, "cloudiness", discoloration, or oil sheen.

Was water quality sampling part of this inspection? YES (NO)
If yes, record results below (attach separate sheet, if necessary):

Parameter:	Method (circle one)	Result	Units
Turbidity	tube, meter, laboratory		NTU (cm, if tube used)
pH	paper, kit, meter		pH standard units

Is the site in compliance with the SWPPP and the permit requirements? (YES) NO
If no, indicate tasks necessary to bring site into compliance on the "Actions to be Completed" table above, and include dates each job WILL BE COMPLETED.
If no, has the non-compliance been reported to Dept. of Ecology? YES NO
If no, should the SWPPP be modified: YES NO

Sign the following certification:
"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief."

Inspection completed on: 9-10-12 by: (print+signature) Ben Davis 

Title/Qualification of Inspector: CESCL ID # EF04171205

Excerpt from *How to do Stormwater Monitoring,* Publication # 06-10-020

Appendix F – Engineering Calculations

TEMPORARY SEDIMENT POND SIZING

51 AC PROJECT LIMITS
CONSISTING OF:
48 AC IMPERVIOUS
3 AC PERVIOUS

USED WWHM MODEL TO OBTAIN FLOW RATES.

ASSUMPTIONS

WASTEWATER TREATMENT PLANT IS OFFLINE.

SA = SURFACE AREA OF POND ; Q_2 = 2-year runoff event

$SA = 2 \times Q_2 / 0.00096$

$SA = 2 \times 14.06 / 0.00096 = 29,291$ SF

FOR LARGE SITES SHOULD USE 10yr STORM EVENT., $Q_{10} = 22.36$ cfs

$SA = 2 \times 22.36 / 0.00096 = 46,583$ SF

AREA PROVIDED (AS SHOWN ON FIGURE 7)

$SA_{PROVIDED} = 50,564$ SF ✓

SEE SEDIMENT PONDS (BMP C241) IN APPENDIX B.

Project: KIMBERLY CLARK
Date: 3/5/2012

Western Washington Hydrology Model
PROJECT REPORT

Project Name: KC SWPPP
Site Address: 2600 Federal Ave
City : Everett, WA
Report Date : 3/3/2012
Gage : Everett
Data Start : 1948/10/01
Data End : 1997/09/30
Precip Scale: 1.00
WWHM3 Version:

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Flat	3

Impervious Land Use	Acres
ROADS FLAT	48

Element Flows To:

Surface	Interflow	Groundwater

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
C, Lawn, Flat	51

Impervious Land Use	Acres

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	14.060772
5 year	18.908062
10 year	22.363798
25 year	27.019309
50 year	30.702769
100 year	34.575176

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	2.956096
5 year	5.217788
10 year	7.199937
25 year	10.348497
50 year	13.223611
100 year	16.607715

Yearly Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1950	11.789	2.369
1951	20.530	6.673
1952	14.853	1.444
1953	11.674	2.462
1954	15.897	3.895
1955	20.116	5.873
1956	16.899	5.021
1957	8.291	2.193
1958	13.835	5.007
1959	25.080	10.466
1960	13.927	2.207
1961	10.317	2.685
1962	32.348	12.572
1963	14.145	4.536
1964	22.335	8.620
1965	10.650	1.983
1966	9.661	1.530
1967	9.784	1.182
1968	33.852	2.222
1969	18.376	3.634
1970	23.307	10.610
1971	11.055	1.622
1972	15.524	4.127
1973	25.997	9.014
1974	15.651	2.784
1975	17.664	2.786
1976	14.249	3.264
1977	12.787	2.352
1978	10.354	1.331
1979	9.025	1.524
1980	20.612	7.746
1981	9.758	1.705
1982	11.606	2.375
1983	12.476	2.363
1984	13.210	3.150
1985	13.304	1.820
1986	18.658	3.806
1987	18.112	6.300
1988	16.919	4.187
1989	14.063	1.449
1990	14.427	4.478
1991	9.612	1.595
1992	10.387	1.633
1993	11.618	2.344
1994	11.802	1.424
1995	8.492	1.447
1996	11.560	1.733
1997	13.114	3.702
1998	17.373	8.751

Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	33.8515	12.5715
2	32.3479	10.6095
3	25.9971	10.4663
4	25.0799	9.0136
5	23.3065	8.7510
6	22.3354	8.6200

Appendix G – Handling and Disposal Plan for Soil

SOIL MANAGEMENT PLAN (APPENDIX G TO STORM WATER POLLUTION PREVENTION PLAN)

Kimberly-Clark Mill, Everett, Washington

Prepared for: Kimberly-Clark Worldwide, Inc.

Project No. 110207-001-02 • April 9, 2012

Aspect CONSULTING

earth + water

SOIL MANAGEMENT PLAN (APPENDIX G TO STORM WATER POLLUTION PREVENTION PLAN)

Kimberly-Clark Mill, Everett, Washington

Prepared for: Kimberly-Clark Worldwide, Inc.

Project No. 110207-001-02 • April 9, 2012

Aspect Consulting, LLC

Steve Germiat, LHG
Sr. Associate Hydrogeologist
sgermiat@aspectconsulting.com

V:\110207 KC Everett Mill\Deliverables\Soil Mgt Plan for SWPPP\March 30\Soil Management Plan - Appendix G to SWPPP-rev.doc

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1 Decision Flowchart for Management of Excavated Soils

1 Introduction

This Soil Management Plan defines procedures for managing soils to be excavated during the planned demolition of the Kimberly-Clark (KC) Everett Pulp and Paper Mill (site), located at 2600 Federal Avenue in Everett, Washington. This Plan is prepared as an appendix to the Storm Water Pollution Prevention Plan (SWPPP), prepared by David Evans and Associates Inc., as part of the Washington State Department of Ecology (Ecology) Construction Storm Water Discharge Permit for the site.

Soil excavation may occur as an incidental activity to facilitate removal of the mill structures during a demolition project, or as the focus of an environmental remediation project conducted in the course of mill demolition and/or preparation for site redevelopment, to protect human health and the environment for the current and future site uses. Soils known to be contaminated will be removed in a remediation project. Removal of known contaminated soil will likely also be conducted during demolition to opportunistically accomplish small-scale remediation. In addition, soils not known to be contaminated will be removed during demolition.

This Plan addresses procedures for managing soils generated in all cases. Soil excavation and management will be conducted under the supervision of a qualified person selected by KC; that qualified person is termed the Engineer for the purposes of this Plan.

Soil excavated that will not be retained or reused on site will be disposed of off site in accordance with applicable laws, regulations, and permits. This includes appropriate sampling and analysis of soil to document its chemical quality and to designate it for proper disposition. No soils will be removed from the site without appropriate sampling and analysis to document the soil's chemical quality.

1.1 Potential Contaminants

Based on environmental investigations to date, as summarized in the Phase 1 Environmental Site Assessment (AECOM, 2011), soils disturbed during mill demolition and remediation may contain contaminants typical of industrial properties – primarily petroleum hydrocarbons and heavy metals (e.g., arsenic, lead). Additional detailed site assessment is ongoing, which will better define locations and concentrations of contaminants in soil.

1.2 Generalized Subsurface Conditions

The site's shallow subsurface soil addressed by this Plan is expected to be fill, consisting of a range of soil types intermixed with scattered occurrences of debris of variable size and composition. In addition, a broad range of subsurface utilities, whether active or inactive, should be expected during excavation at the site. The water table within the fill is relatively shallow, generally ranging in depth from 3 to 6 feet below grade in the site's eastern areas to 8 to 15 feet below grade in the site's western areas. If dewatering is

required to excavate soils, dewatering best management practices (BMPs) included in Section 3.1.10 of the SWPPP will be followed.

1.3 Geotechnically Suitable vs. Unsuitable Soils

When managing soils not known to be contaminated (based on prior investigation and field screening information), the Engineer will need to make the determination of whether or not soils being excavated are geotechnically suitable for reuse as fill on site. Geotechnically suitable soils, if not contaminated, can be reused as fill on site. Geotechnically unsuitable soils, irrespective of whether contaminated or not, are assumed to have no beneficial use on site, and therefore will be disposed of off site.

Geotechnically suitable soils are defined as having grain size and moisture characteristics that allow its placement and compaction to meet project-specific geotechnical needs. Conversely, geotechnically unsuitable soils would have undesirable physical soil characteristics and/or an excessive percentage of organic matter or debris.

The geotechnical needs for fill will vary depending on its intended use (e.g., soils for constructing small berms or landscaping vs. structural backfill to support a structure). Consequently, the determination of geotechnically suitable vs. geotechnically unsuitable soils being excavated will be a project-specific determination made by the Engineer.

1.4 Worker Safety during Soil Management Activities

During handling of site soils not known to be contaminated, workers will at a minimum wear work clothes and gloves and minimize ingestion or inhalation of soil generated. If workers will handle soils known to be contaminated, either at the onset of the project or determined during the project, they must do so in accordance with a site health and safety plan prepared specifically for the remediation activities. KC is responsible for the health and safety of its employees participating in soil management activities. Outside contractors or consultants participating in soil management activities have sole responsibility for their employees' health and safety while on site.

2 Soil Management Approach

Soil excavation during mill demolition may be needed to facilitate removal of the mill structures during a demolition project. Often, soils to be removed during structural demolition will not be known to be contaminated at the onset of the project, which dictates the procedures for their management. However, soils known to be contaminated will be removed where appropriate during demolition to efficiently and opportunistically accomplish necessary remediation.

In addition, soil excavation and off-site disposal will be a likely component of remediation warranted for an area of the site. The need for and/or scope for remediation is not known at the time of this Plan preparation. Consequently, this Plan provides general procedures for managing soils during a prospective remediation program, but the

procedures may be refined based on site-specific considerations during design of an actual remediation program.

Soil requiring excavation or other means of removal will be managed as described below, and illustrated with the decision flowchart presented on Figure 1.

During soil removal, the Engineer will initially make a determination of whether or not the soils being excavated are contaminated, based on information from prior investigations and, during excavation, field screening evidence. Field screening methods include visual and olfactory observations of the soil, use of a photoionization detector (PID) for determining presence/absence of volatile organic compounds, and/or other methods appropriate to the known contaminant type.

Excavated soils that the Engineer determines to be not contaminated, using the prior data and field screening methods described above, are termed "overburden". KC's designated Engineer will initially make a determination of whether or not excavated overburden soils being excavated are geotechnically suitable to be reused as fill on site, as described in Section 1.2. The Engineer will direct segregation and separate stockpiling of overburden soils deemed to be geotechnically unsuitable versus soils deemed to be geotechnically suitable. The Engineer will further segregate the geotechnically suitable soils having evidence of contamination versus no evidence of contamination, as described in Section 2.2 below.

The management procedures for known contaminated soil, geotechnically suitable overburden, and geotechnically unsuitable overburden are described in Sections 2.1, 2.2 and 2.3, respectively. Stockpile construction and management procedures are described in Section 3.

2.1 Management of Known Contaminated Soil

Excavated soils designated by the Engineer to be contaminated based on prior information or field screening can be direct loaded and transported off site for proper disposal. It is assumed that the contaminated soil has already been characterized and profiled for disposal, so stockpiling and sampling of it is not required. If the Engineer chooses to stockpile the contaminated soil before hauling it off site (requiring double handling), the stockpiles will be constructed and maintained in accordance with Stockpile Management Procedures described in Section 3.

2.2 Management of Geotechnically Suitable Overburden

Excavated overburden designated by the Engineer to be geotechnically suitable for reuse on site will be managed as follows:

- The suitable overburden soil will be stockpiled and then sampled in accordance with the Soil Stockpile Management Procedures and Soil Stockpile Characterization Sampling and Analysis Procedures described in Sections 3 and 4, respectively.
    - Once the laboratory chemical testing data are available, each stockpile of suitable overburden soil will be characterized according to the highest

level of contamination detected in any one sample. However, the Engineer can conduct additional soil sampling and analysis to more accurately characterize a stockpile's average properties, as described in Section 1.

- If chemical testing data confirm that a stockpile of suitable overburden soil contains contaminant concentrations above MTCA soil cleanup levels for unrestricted land use, that soil will be designated as contaminated soil. The contaminated soil stockpiles will be loaded and transported to an off-site disposal facility permitted to accept the contaminated material, in compliance with applicable laws, regulations, and permits.
- If chemical testing data confirm that a stockpile of suitable overburden soil does not contain contaminant concentrations above MTCA soil cleanup levels for unrestricted land use, that stockpiled overburden will be designated as non-contaminated soil and can be reused as fill on site.

2.3 Management of Geotechnically Unsuitable Overburden

Excavated overburden designated by the Engineer to be geotechnically unsuitable for reuse on site will be managed as follows:

- The unsuitable overburden soil will be stockpiled and then sampled in accordance with the Soil Stockpile Management Procedures and Soil Stockpile Characterization Sampling and Analysis Procedures described in Sections 3 and 4, respectively.
    - Once the laboratory chemical testing data are available, each stockpile of unsuitable overburden soil will be characterized according to the highest level of contamination detected in any one sample. However, the Engineer can conduct additional soil sampling and analysis to more accurately characterize a stockpile's average properties, as described in Section 4.1.
    - If chemical testing data confirm that a stockpile of unsuitable overburden soil contains contaminant concentrations above MTCA soil cleanup levels for unrestricted land use, that soil will be designated as contaminated soil. The contaminated soil stockpiles will be loaded and transported to an off-site disposal facility permitted to accept the contaminated material, in compliance with applicable laws, regulations, and permits.
    - If chemical testing data confirm that a stockpile of unsuitable overburden soil does not contain contaminant concentrations above MTCA soil cleanup levels for unrestricted land use, that soil will be treated as non-contaminated soil. Because it cannot be reused on site, the non-contaminated soil stockpiles will be loaded and transported to an off-site facility permitted to accept it, in compliance with applicable laws, regulations, and permits. Disposal facility options are listed in Section 6.1.

3 Stockpile Management Procedures

For each soil excavation activity, the Engineer will designate a stockpile area which will not hinder completion of the intended demolition/remediation activities and, to the extent practical, will be located away from storm drain inlets, waterways, and drainage channels. Areas designated for stockpiling will be cleared of debris or obstructions before stockpiling thereon. Soil will be transported on site in a way so as to limit spillage of soil between the excavation location and the stockpile location.

The maximum individual soil stockpile size is 100 cubic yards. The soil stockpiles can be contiguous as long as 100 cubic yard increments are clearly delineated, so that stockpiles of 100 cubic yards or less can be managed individually based on chemical testing results (stockpile sampling and analysis described in Section 4).

Each soil stockpile will be underlain by plastic sheeting with a minimum thickness of 10 mils, with adjacent sheeting sections continuously overlapped by a minimum of 3 feet. The ground surface on which the sheeting is to be placed will be free of rocks greater than 1 inch in diameter and other objects that could damage the sheeting. Alternatively, a layer of geotextile or plywood may be placed beneath the sheeting to protect it in locations containing rocks or debris greater than 1 inch in diameter on the ground surface, or in areas through which vehicular traffic will travel. The stockpile area will be surrounded by straw bales or equivalent to limit transport of sediment potentially generated from the stockpiles.

The soil stockpiles will be covered by plastic sheeting of minimum 10-mil thickness to prevent precipitation from entering the stockpiled soil. Each stockpile cover will be anchored (e.g., using sand bags) sufficiently to prevent it from being removed by wind.

Soil stockpiles will be covered when not in use. The stockpile management measures will be inspected regularly and maintained as needed as long as the stockpile remains on site.

4 Stockpile Sampling and Analysis Procedures

The Engineer will conduct soil sampling and analysis of each soil stockpile to characterize it for appropriate disposition. For each soil stockpile (100 cubic yards or less in size), three (3) grab samples of soil will be collected, in accordance with stockpile sampling requirements provided in Ecology (2011). Each soil sample will be collected from a minimum of 6 inches below the exposed surface of the stockpile, with decontamination of sampling utensils, or replacement of disposal utensils, between each sample location. The Engineer's selected analytical laboratory will provide the appropriate glass containers for the soil samples, as well as associated coolers, packing materials, and chain of custody forms.

After collection, the containerized soil samples will be placed in a cooler containing ice to meet sample preservation requirements. Inert cushioning material will be placed in the remaining space of the cooler to limit movement of the sample containers. If the sample

coolers are being shipped, rather than hand carried to the laboratory, the chain of custody form will be placed in a waterproof bag (e.g. Ziploc) placed inside the cooler for shipment, and the cooler lid will be secured shut using packing tape.

The soil samples will be maintained in the Engineer's custody until formally transferred to the analytical laboratory. A chain of custody record provided by the laboratory will be initiated at the time of sampling for all samples collected. The record will be signed by the field representative and others who subsequently take custody of the sample. Because the custody form will be within a sealed cooler if transported by others, couriers or other professional shipping representatives are not required to sign it.

The soil samples will be submitted under chain of custody to an analytical laboratory, accredited by Ecology, for the following chemical analyses:

- Gasoline-range petroleum hydrocarbons (Method NWTPH-G);
- Diesel- and oil-range petroleum hydrocarbons (Method NWTPH-Dx with silica gel cleanup);
- RCRA 8 total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) (EPA Methods 200.7/mercury by 7471);
- RCRA 8 TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) (EPA Methods 1311 and 6010/mercury by 7470);
- Volatile organic compounds (VOCs; EPA Method 8260); and
- Polychlorinated biphenyls (PCBs; EPA Method 8082).

The Engineer may adjust this analyte list based on knowledge of contamination in a specific area (e.g., during soil remediation), and/or analytical data requirements of the intended disposal facility. Depending on the time available for disposition of the soil stockpiles, the Engineer can coordinate with the laboratory to provide expedited analysis (rush turnaround of results) at additional cost.

5 Erosion and Sedimentation Controls during Soil Management

The construction storm water best management practices (BMPs) described in Section 3 of the site SWPPP will be implemented as appropriate during soil management (excavation, stockpiling, loading, and transportation) on site. Soil erosion due to precipitation runoff or run-on to or from soil excavations, stockpiles, or other soil areas exposed or disturbed during the Work shall be prevented using berms, surface water control, straw bales, plastic covers (at least 10 mil in thickness), or other appropriate measures. The Engineer will monitor and maintain the BMPs and apply all available and reasonable methods to control all runoff from leaving the immediate area of the soil management activity.

6 Soil Transport and Disposal

KC will dispose of excavated soils that will not be retained or reused on site at an appropriate off-site facility permitted to accept the waste. Trucks transporting contaminated soil from the site will be covered immediately after loading, and must remain covered until they off-load at the designated off-site disposal facility. Soils being transported off site will not be allowed to spill or fall out of trucks or be deposited on any traveled surface. KC's selected transporter will be solely responsible for cleaning up any materials spilled from trucks during transport to off-site disposal facilities.

KC will obtain and retain in its records copies of the certificates of disposal and other records for site soil disposed of off site.

6.1 Disposal Facility Options

Disposal facility options for various types of site soil requiring off site disposal include:

- **Non-contaminated soil:** Pacific Topsoils, Everett, Washington.
    - Restrictions: Call to discuss materials to be disposed of.
    - Contact: 425-337-2700, sales@pacifictopsoils.com
- **Soil contaminated by only petroleum:** CEMEX USA, Everett, Washington.
    - Restrictions: Cannot accept soil containing concentrations of metals or chlorinated compounds above MTCA unrestricted soil cleanup levels.
    - Contact: Larry Baker, (425) 210-8429, lbaker@cemexusa.com.
- **Non-hazardous contaminated soil (special waste):** Republic Services Inc. (formerly Rabanco).
    - Restrictions: Cannot accept hazardous waste.
    - Contact: Leslie Whiteman, (206) 332-7711, LWhiteman@republicservices.com.
- **Non-hazardous contaminated soil (special waste):** Waste Management Inc.
    - Restrictions: Cannot accept hazardous waste.
    - Contact: Michael McQuarrie, (360) 913-4781, mmcquarr@wm.com.
- **Hazardous contaminated soil (dangerous waste):** Waste Management Inc.
    - Restrictions: Waste must meet universal treatment standards prior to disposal.
    - Contact: Michael McQuarrie, (360) 913-4781, mmcquarr@wm.com.

6.2 On-Site Treatment Option

In addition, K-C retains the option to treat waste on site to remove a hazardous waste characteristic (e.g., stabilize soil on site to reduce TCLP-leachable concentrations to below federal characteristic criteria). If on-site treatment successfully removes the hazardous characteristic, the waste can be disposed of as solid waste in a Subtitle D landfill. Likewise, on-site treatment can be used to achieve universal treatment standards and thereby allow land disposal of hazardous waste in a Subtitle C landfill. If hazardous waste is treated on site, its excavation, treatment, and loading for off-site disposal shall be completed within 90 days.

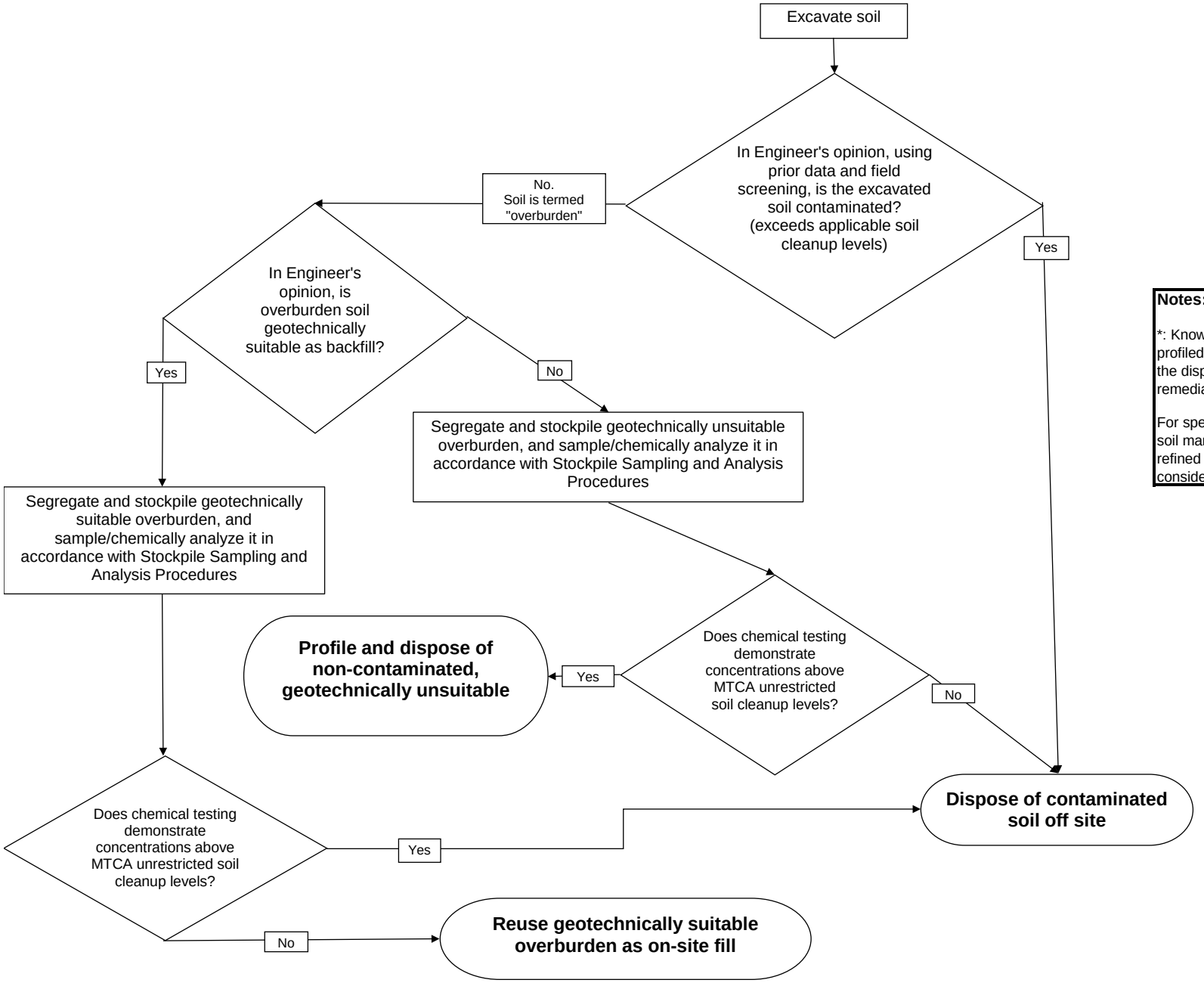
References

AECOM, 2011, Phase I Environmental Site Assessment, Everett Pulp and Paper Mill, Everett Washington, April 2011.

Ecology, 2011, Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology Toxics Cleanup Program, September 2011.

Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Kimberly-Clark Worldwide Inc. for specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.



Notes:

*: Known contaminated soil should be profiled and approved for disposal by the disposal facility prior to start of remediation construction.

For specific remediation projects, this soil management process may be refined based on site-specific considerations.

Figure 1
Decision Flowchart for Management of Excavated Soils
KC Mill Everett

Aspect Consulting
3/30/12
V:\110207 KC Everett Mill\Deliverables\Soil Mgt Plan for SWPPP\March 30\Flowchart for Soil Management -Rev

Appendix H – WA DOE Forms

DEPARTMENT OF ECOLOGY
State of Washington

Request for Chemical Treatment Form

Permit Number _____

☐ **Industrial Stormwater Permit**
☐ **Construction Stormwater Permit**

Permittee Information

Permittee name: _____

Permittee company name: _____

Permittee address: _____

_____

_____

Permittee phone number: _____

Site Information

Site name: _____

Site address: _____

Proper parcel number, if known: _____

Site contact name: _____

Site contact phone number: _____

Name of receiving water body: _____

Treatment System Operator Information

Operator or Company Name: _____

Operator address: _____

_____

_____

Operator phone number: _____

Check Treatment Option Being Requested

☐ Chitosan enhanced sand filtration with discharge to infiltration
☐ Chitosan enhanced sand filtration with discharge to temporary holding ponds (batch)
☐ Chitosan enhanced sand filtration with discharge to surface waters (flow-through) – **Streams Only**
☐ Electrocoagulation
☐ Other _____

Check chemical being requested

☐ FlocClear™ (2% chitosan acetate solution)
☐ StormKlear™ LiquiFloc™ (1% chitosan acetate solution)
☐ ChitoVan™ (1% chitosan acetate solution)
☐ StormKlear ™ LiquiFloc ™ (3% Chitosan acetate solution)
☐ Other _____

Estimate of Treatment Period

Begin date: _____ End date: _____

I hereby certify that the following information is correct:

- The Stormwater Pollution Prevention Plan (SWPPP) includes the chemical treatment system specifications and design.
- The best management practices (BMPs) on the site use all known, available, and reasonable methods of treatment (AKART) and I ensure that these BMPs will be maintained at AKART.
- I reviewed the best management practices on site or those proposed in the SWPPP and believe they will not interfere with the use of chemical treatment.
- I verified through jar tests that the site soil is conducive to chemical treatment.
- I verified that any treated discharged water enters a stream or a stormwater system that discharges to flowing fresh water, not to lakes, marine environments, or other quiescent water bodies.
- I verified that the CESF operators received Ecology-approved training.
- I read, understand, and will follow all conditions and design criteria in the applicable use level designation(s).
- I notified the appropriate local government of the intent to use chemical treatment on a site located in their jurisdiction, and they agree that the system design and use of chemicals is acceptable.
- I will keep the use level designation, operation and maintenance manual, and training certificate on-site prior to the use of chitosan acetate.
- Where necessary, a licensed engineer designed the system correctly including system sizing, pond sizing, and flow requirements.
- I verify that discharge will not affect downstream conveyance systems or stream channels.

Permittee name (printed) _____

Permittee signature _____ Date: _____

Operator name (printed) _____

Operator signature _____ Date: _____

Your authorization to use the requested chemical treatment begins once Ecology reviews and approves your completed application.

Please send your completed request to:

Doug Howie
Department of Ecology
Water Quality Program
PO Box 47600
Olympia, WA 98504-7600

To send electronically, scan signed and dated application and email to: douglas.howie@ecy.wa.gov

To ask about the availability of this document in a format for the visually impaired, call the Water Quality Program at 360-407-6401. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

DEPARTMENT OF ECOLOGY
State of Washington

Instructions for Transfer of Coverage

Construction Stormwater General Permit

Instructions

This form is used to process two types of permit transfers: 1) Complete Transfer, or 2) Partial Transfer. Determine which type of transfer applies to your situation before filling out this form.

1. Complete Transfer: The original permittee has sold, or otherwise released control of, the entire site to another party.

Required Paperwork for Complete Transfer:

- Either the current permittee, or the new permittee(s), must submit a complete and accurate Transfer of Coverage form for each new party to Ecology. The form must be signed by the current permittee and the new permittee.

2. Partial Transfer: The original permittee retains control over some portion of the site after selling or releasing control over a portion of the site.

Required Paperwork for Partial Transfer

- Either the current permittee or the new permittee(s) must submit a complete and accurate Transfer of Coverage Form for each new operator to Ecology. The form must be signed by the current permittee and the new permittee.
- For partial transfers, once all transfers are submitted, the original permittee should submit the Notice of Termination only if the portion(s) they still own or control have undergone final stabilization and meet the criteria for termination.

For Your Information

- When this form is 1) completed, 2) signed by the current and new permittee, and 3) submitted to Ecology, permit transfers are effective on the date specified at the top page 1 (unless Ecology notifies the current permittee and new permittee of its intention to revoke coverage under the General Permit or if Ecology sends notice that the application is incomplete).
- The new permittee should keep a copy of the signed Transfer of Coverage form (which serves as proof of permit coverage) until Ecology sends documentation in the mail.
- Following the transfer, the new permittee must either: (1) use the Stormwater Pollution Prevention Plan (SWPPP) developed by the original operator, and modified as necessary, or (2) develop and use a new SWPPP which meets the requirements of the Construction Stormwater General Permit.
- For projects for which the original permittee has completed a Proposed New Discharge to an Impaired Water Body Form (ECY070-399) or for projects that are operating on sites with soil or groundwater contamination: By completing the Transfer of Coverage form, the new permittee will adopt any special provisions made to protect water quality for sites that have existing contamination or that discharge to an impaired water body.

To ask about the availability of this document in a version for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

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DEPARTMENT OF ECOLOGY
State of Washington

Transfer of Coverage

Construction Stormwater General Permit

This form transfers permit coverage for all, or a portion of a site to one or more new operators. **Permit # WAR–_____**

Type of permit transfer (check one): ☐ Partial transfer ☐ Complete transfer

Specific date that permit responsibility, coverage, and liability, is transferred to new operator: _____

Please see instructions for details on type of transfer.

Current Operator/Permittee Information

For partial transfers:

- List total size of project/site remaining under your operational control following transfer: _____ acres.
- List total area of soil disturbance remaining under your operational control following transfer: _____ acres.
- Submitting this form meets the requirement to submit an updated NOI (General Permit Condition G9)

Current Operator/Permittee Name:		Company:		
Business Phone:	Ext:	Mailing Address:		
Cell Phone:	Fax (optional):			
Email:		City:	State:	Zip+4:
Signature:		Title: Date:		

New Operator/Permittee Information

I. New Operator/Permittee (Party with operational control over plans and specifications or day-to-day operational control of activities which ensure compliance with Stormwater Pollution Prevention Plan (SWPPP) and permit conditions. Ecology will send correspondence and permit fee invoices to the permittee on record.)

Name:		Company:		
Business Phone:	Ext:	Unified Business Identifier (UBI): *(UBI is a nine-digit number used to identify a business entity. Write "none" if you do not have a UBI number.)*		
Cell Phone (Optional):	Fax (Optional):	E-mail:		
Mailing Address:		City:	State:	Zip + 4:

II. Property Owner (The party listed on the County Assessor's records as owner and taxpayer of the parcel[s] for which permit coverage is requested. Ecology will not send correspondence and permit fee invoices to the Property Owner. The Property Owner information will be used for emergency contact purposes.)

Name:		Company:		
Business Phone:	Ext:	Unified Business Identifier (UBI): *(UBI is a nine-digit number used to identify a business entity. Write "none" if you do not have a UBI number.)*		
Cell Phone (Optional):	Fax (Optional):	E-mail:		
Mailing Address:		City:	State:	Zip + 4:

III. On-Site Contact Person(s) (Typically the Certified Erosion and Sediment Control Lead or Operator/Permittee)

Name:		Company:		
Business Phone:	Ext:	Mailing Address:		
Cell Phone:	Fax(Optional):	City:	State:	Zip+4:
Email:				

IV. Site/Project Information

Site or Project Name

Street Address or Location Description (*If the site lacks a street address, list its specific location. For example, Intersection of Highway 61 and 34.)*

Parcel ID#: _____ *(Optional)*

Type of Construction Activity (*check all that apply*):
- ☐ Residential
- ☐ Commercial
- ☐ Industrial
- ☐ Highway or Road (city ,county, state)
- ☐ Utilities (specify): _____.
- ☐ Other (specify):_____.

Site Acreage
Total size of your site/project (that you own/control): _____acres. *(Note: 1 acre = 43,560 ft^2.)*

Total area of soil disturbance (grading and/or excavating) for your site/project over the life of the project: _____acres.

Concrete / Engineered Soils
How many yards of concrete will be poured? _____yd^3 (estimate)

How many yards of recycled concrete will be used? _____yd^3 (estimate)

Will any engineered soils be used? (For example: cement treated base, cement kiln dust, etc.)
☐ Yes ☐ No

City (or nearest city):	Zip Code:	Estimated project start-up date (mm/dd/yy):
County:		Estimated project completion date (mm/dd/yy):

Record the latitude and longitude of the *main entrance* to the site or the approximate center of site.

Latitude: _____°N Longitude: _____°W

For assistance with latitude and longitude, refer to any of the following websites: www.getlatlon.com *or* http://www.worldatlas.com/aatlas/imageg.htm. *Please convert all latitude and longitude coordinates into decimal degrees format. For help with this process, go to: http://www.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html.*

V. Existing Site Conditions

1. Are you aware of contaminated soils present on the site? ☐ Yes ☐ No

2. Are you aware of groundwater contamination located within the site boundary? ☐ Yes ☐ No

3. If you answered yes to questions 1 or 2, will any contaminated soils be disturbed or will any contaminated groundwater be discharged due to the proposed construction activity? ☐ Yes ☐ No

["Contaminated" and "contamination" here mean containing any hazardous substance (as defined in WAC 173-340-200) that does not occur naturally or occurs at greater than natural background levels.]

If you answered yes to Question 3, please explain below or on a separate paper in detail the locations, contaminants, and concentrations, and pollution prevention and/or treatment BMPs proposed to control the discharge of soil/groundwater contaminants. Ecology may request a copy of your SWPPP.

VI. WAWebDMR (Electronic Discharge Monitoring Reporting)

You must submit monthly discharge monitoring reports using Ecology's WAWebDMR system. To sign up for WAWebDMR, or to register a new site, go to www.ecy.wa.gov/stormwater, and click on the "Construction Stormwater" link. You will find information on WAWebDMR under the "WAWebDMR and PARIS" link on the right-hand side. If you are unable to submit your DMRs electronically, you may contact Ecology to request a waiver. Ecology will generally only grant waiver requests to those permittees without internet access. Only a permittee or representative, designated in writing, may request access to or a waiver from WAWebDMR. To have the ability to use the system immediately, you must submit the Electronic Signature Agreement with your transfer of coverage form. If you have questions on this process, contact Ecology's WAWebDMR staff at WAWebDMR@ecy.wa.gov or 360-407-7097.

VII. Discharge/Receiving Water Information

Indicate whether your site's stormwater and/or dewatering water could enter surface waters, directly and/or indirectly:

☐ Water will discharge directly or indirectly (through a storm drain system or roadside ditch) into one or more surface water bodies (wetlands, creeks, lakes, and all other surface waters and water courses).

If your discharge is to a storm sewer system, provide the name of the operator of the storm sewer system:

(e.g., City of Tacoma): _____

(NOTE: If your stormwater discharges to a storm sewer system operated by the City of Seattle, King County, Snohomish County, City of Tacoma, Pierce County, or Clark County, you must also submit a copy of this NOI to the appropriate jurisdiction.)

☐ Water will discharge to ground with 100% infiltration, with no potential to reach surface waters under any conditions.

If your project includes dewatering, you must include dewatering plans and discharge locations in your site Stormwater Pollution Prevention Plan.

Location of Discharge into Surface Water Body

Enter the outfall identifier code, water body name, and latitude/longitude of the point(s) where the site has the potential to discharge into a water body (enter all locations).

- Include the names and locations of both direct and indirect discharges to surface water bodies, even if the risk of discharge is low or limited to periods of extreme weather.
- Give each point a unique 3-digit alpha numeric code. This code will be used for identifying these points in WAWebDMR
- Some large construction projects (for example, subdivisions, roads, or pipelines) may discharge into several water bodies.
- If the creek or tributary is unnamed, use a format such as "unnamed tributary to Deschutes River."

Attach a separate list if necessary.

Outfall Identifier Code			Surface Water Body Name	Latitude Decimal Degrees	Longitude Decimal Degrees
				° N	° W
				° N	° W
				° N	° W

If your site discharges to a water body that is on the impaired water bodies list (i.e., 303[d] list) for turbidity, fine sediment, high pH, or phosphorus, your sites will be subject to additional sampling and numeric effluent limits (per Permit Condition S8). Information on impaired water bodies is available online at: http://www.ecy.wa.gov/programs/wq/303d/index.html .

Before signing, please use the following checklist to ensure this form is complete:

☐ All spaces on this form have been completed (attach additional sheets if necessary).

☐ The transfer form is signed by both the current permittee and the new permittee(s).

☐ New Operator/Permittee: Before you submit this form to Ecology, please retain a copy for your records – this will serve as proof of permit coverage until documentation arrives from Ecology.

☐ For partial transfers: If the original permittee no longer owns or controls any portions of the site that meet the criteria for termination, the original permittee must submit a Notice of Termination to terminate permit coverage. (http://www.ecy.wa.gov/biblio/ecy02087.html)

☐ For sites with contaminated soils/groundwater or a new discharger to an impaired water body: Any special provisions to protect water quality put in place at the time of initial coverage have been reviewed and adopted by the new permittee.

VIII. Certification of Permittee

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed/Typed Name	Company (operator/permittee only)	Title

Signature of Operator/Permittee	*Date*

* Federal regulations require this application is signed by one of the following:

A. For a corporation: By a principal executive officer of at least the level of vice president.
B. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively.
C. For a municipality, state, federal, or other public facility: By either a principal executive officer or ranking elected official.

Please sign and return this document to the following address:

Washington Department of Ecology - Stormwater
P.O. Box 47696
Olympia, WA 98504-7696

If you have questions about this form, contact the following Ecology staff:

Location	Contact Name	Phone	E-mail
City of Seattle, and Kitsap, Pierce, and Thurston counties	Josh Klimek	360-407-7451	josh.klimek@ecy.wa.gov
Island, King, and San Juan counties	Clay Keown	360-407-6048	clay.keown@ecy.wa.gov
Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Skagit, Snohomish, Spokane, Stevens, Walla, Whatcom, and Whitman counties.	Shawn Hopkins	360-407-6442	shawn.hopkins@ecy.wa.gov
Benton, Chelan, Clallam, Clark, Cowlitz, Douglas, Grays Harbor, Jefferson, Kittitas, Klickitat, Lewis, Mason, Okanogan, Pacific, Skamania, Wahkiakum, and Yakima counties.	Joyce Smith	360-407-6858	joyce.smith@ecy.wa.gov

To ask about the availability of this document in a version for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

DEPARTMENT OF ECOLOGY
State of Washington

Notice of Termination Form

Construction Stormwater General Permit

Use this form to request termination of permit coverage

Permit # WAR _____

I. Operator/Permittee (Party with operational control over plans and specifications, or day-to-day operational control of activities which ensure compliance with SWPPP and permit conditions. Ecology will send correspondence and permit fee invoices to the permit holder on record.)

Name:	Company:	
Business Phone: Ext. Cell Phone (Optional): Fax (Optional): E-mail:		
Mailing Address:		
City:	State:	Zip + 4:

II. Site Location/Address

Site name:		Total area of soil disturbance for your site/project: _____ acres
Street address (or location description):		
City (or nearest city):	Zip:	County:

III. Construction Activity- The site is eligible for termination by one of the following methods:

☐ The site has undergone final stabilization. The operator has permanently stabilized all exposed soils, removed all temporary BMPs, and eliminated all stormwater discharges associated with construction activity.

☐ Permit coverage on all portions of the site that have not undergone final stabilization (Permit Condition S10.A.1) are being, or have been, transferred (Permit Condition G9), and the Permittee no longer has operational control of the construction activity.

We provided the new owner Transfer of Coverage paperwork on:

☐ All portions of the site that have not undergone final stabilization (Permit Condition S10.A.1) have been sold and the Permittee no longer has operational control of the construction activity. We will not be submitting Transfer of Permit coverage paperwork. (Optional).

Please provide new owner contact info:

IV. Certification of Permittees. Please read the certification statement carefully before signing.

"I certify under penalty of law that all stormwater discharges associated with construction activity from the identified site that are authorized by the National Pollution Discharge Elimination System (NPDES) and State Waste Discharge general permit have been eliminated, or that I no longer own or operate on this site. I understand that by submitting this Notice of Termination that I am no longer authorized to discharge stormwater associated with construction activity by the general permit, and that discharging pollutants in stormwater to waters of the State of Washington is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release the permittee from liability for any violations of this permit or the Clean Water Act."

Operator printed name _____ Title _____

Operator signature _____ Date _____

Instructions for Notice of Termination Form

Submit a Notice of Termination Form to the Department of Ecology when
1.) All stormwater discharges from a construction site are eliminated, and the site has undergone final stabilization.
2.) The site has been sold or transferred to a different operator(s). The permit fees will continue until the permit is terminated.

I. Operator	Give the name, address, and telephone number of the person who is responsible for the permit. This person will also be sent the final fee invoice.
II. Site Location	Enter the street address or location description, including the city or nearest city and county for the construction site. Construction sites that do not have a street address must also provide a legal description in the space provided, or as an attachment.
III. Construction Activity	Indicate: 1. That all stormwater discharges associated with construction activity are eliminated and final stabilization of all exposed soils is completed. Final stabilization means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures, that prevents erosion. 2. That the permit has been transferred to another responsible party(ies) for management. (***Provide the information required on the Transfer of Coverage form.)*** 3. That all portions of the site that have not undergone final stabilization have been sold.
IV. Certification of Permittee(s)	Read this statement carefully. The operator, or authorized representative of the operator, must print his or her name for clarity, then sign and date the document on the lines provided. (Refer to General Condition G2 in the permit for signatory requirements.)

Please sign and return this original document to the following address and retain a copy for your records:

Department of Ecology
Stormwater Unit – Construction
PO Box 47696
Olympia, WA 98504-7696

Note: Your site remains under permit and subject to all permit conditions until your termination is effective. Continue to comply with permit conditions until the earlier of the following two dates:

1) The date you receive written notification from Ecology that termination is effective.

2) The 31st day following Ecology's receipt of this form.

Questions?

Call:

- **360-407-7451 Josh Klimek** for city of Seattle or counties: Kitsap, Pierce, and Thurston.
- **360-407-6048 Clay Keown**for counties: King, Island, San Juan.
- **360-407-6442 Shawn Hopkins** for counties: Whatcom, Skagit, Snohomish, Ferry, Stevens, Pend Oreille, Lincoln, Spokane, Grant, Adams, Whitman, Franklin, Walla Walla, Columbia, Garfield, and Asotin.
- **360-407-6858 Joyce Smith** for counties: Okanogan, Chelan, Douglas, Kittitas, Yakima, Benton, Klickitat, Skamania, Clark, Cowlitz, Wahkiakum, Lewis, Pacific, Grays Harbor, Mason, Jefferson, and Clallam.

To ask about the availability of this document in a version for the visually impaired, call the Water Quality Program at 360-407-6401. Persons with hearing loss may call 711 for Washington Relay Service. Persons with a speech disability may call 877-833-6341.

City of Everett

Industrial Pretreatment Program

WASTEWATER DISCHARGE PERMIT APPLICATION

3200 Cedar Street
Everett, WA 98201
Phone: (206) 257-8240 Fax: (206) 257-8243

INSTRUCTIONS

I. GENERAL INFORMATION INSTRUCTIONS

A. INDUSTRIAL USER

1. Give the name of the facility for which information is being provided.

2. If the facility is owned by a person or entity other than the person signing this form, provide the owner's name.

3-6. Provide information as indicated.

7. If you do not know the Standard Industrial Classification (SIC) for your industry, contact the Industrial Pretreatment Section.

8. List all environmental permits, including number; e.g., NPDES, PSAPCA, etc.

B. DOMESTIC OR INDUSTRIAL

1. Sources may include cooling water, boiler blowdown, industrial processes, etc.

2. If you do not know if the activities conducted at your facility are subject to Federal Categorical regulations, contact the Industrial Pretreatment Section for assistance.

C. CERTIFICATION STATEMENT/SIGNATURE

Federal regulation 40 CFR Part 403.12(1) states that the official signing this application must be:

a. A responsible corporate officer (president, vice-president, secretary, or treasurer of the corporation) in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

b. The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million, if authorized by the corporation to sign documents; or

c. A general partner or proprietor, or

d. A duly authorized representative of an individual designated by the regulation, so long as a written authorization is submitted to Industrial Pretreatment which specifies that the authorized person has a position of responsibility for the overall operation of the facility which generates the wastewater discharge, or responsibility for environmental matters for the company.

WASTEWATER DISCHARGE PERMIT APPLICATION

I. GENERAL INFORMATION

A. INDUSTRIAL USER

1. Facility Name: _____

2. Company Name: _____

3. Mailing Address: _____

   City:_____ State:_____ Zip:_____

4. Facility Address: _____

   City:_____ State:_____ Zip:_____

5. Local Contact Person: _____ Phone:_____

6. Primary Business Activity: _____ 7. SIC:_____

8. Local, State, and/or Federal environmental permits held:_____

   _____

B. DOMESTIC OR INDUSTRIAL

1. Is wastewater from your facility discharged from any source except kitchens and bathrooms?
   Yes_____ No_____

2. Are any activities conducted at your facility subject to Federal Categorical regulations?
   Yes _____ No_____

If you answered "no" to both of the questions above, sign the bottom of this page and return this form to the Industrial Pretreatment Section. If either or both questions were answered "yes", complete the Permit Application, sign the bottom of this page, and return the Application to the Industrial Pretreatment Section.

C. CERTIFICATION STATEMENT

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment.

_____
Signature

_____ _____ _____
Print Name **Title** **Date**

CONTINUOUS/BATCH DISCHARGES

1. Continuous Discharges:

Hours: From_____ To_____

Days of Week_____

_____

2. Batch Discharge:

Process_____

Vol. (Gal.)_____ Rate (gpm)_____

Hour(s) of Day_____

Day(s) of Week_____

MATERIALS

List materials (cleaning agents, solvents, plating solutions, process chemicals, etc.) that are regularly used in your facility that might be present in your wastewater discharge to the sanitary sewer, including accidental spills.

Type of Material	Annual Usage Amount	Estimated Loss To Sewer	Principal Chemical Characteristic