

READ THIS FIRST

The Design Engineer shall modify this specification to address project specific needs.

Changes to this specification shall be approved by the Erosion Control / Stormwater Engineer.

This specification is for all Port of Seattle construction including Maritime and Airport projects. Designer to verify with Maritime Environmental or Aviation Environmental groups if there are additional environmental permit requirements.

Maritime projects located within the City of Seattle must comply with City of Seattle Stormwater Code SMC 22.800 – 22.808.

Maritime projects that discharge only to the Port Municipal Separate Storm Sewer System (MS4) must be reviewed by Maritime Environmental.

All Maritime projects must be designed and completed pursuant to City of Seattle Stormwater Code SMC 22.800 – SMC 22.808 as required by the Port of Seattle's Phase I National Pollutant Discharge Elimination System (NPDES) Permit WAR044701. Each project must comply with the City of Seattle Stormwater Code 22.805.020.D Minimum Requirements for Construction Site Stormwater Pollution Prevention Control. Evaluate applicability of best management practices (BMPs) from City of Seattle Stormwater Manual Volume 2 Construction Stormwater Control and Volume 4 Source Control, and include in the Construction Stormwater Control Plan (CSCP) or Pollution Prevention Plan as required.

Note specific requirements related to the amount of new plus replaced hard surface for the project and consider exemptions for pavement maintenance, utility facilities and railroad maintenance.

≥750 square feet: Submit project for Port of Seattle Stormwater Design Review or City of Seattle Drainage Control Review (dependent on project discharge location)

≥1,500 square feet: Complete on-site stormwater management evaluation

≥5,000 square feet: Stormwater treatment BMP required

This Project Spec Document may need additional modifications to suit your project. It is recommended that you proofread each section, paying attention to any "Notes" boxes such as this one--you should remove these "Notes" sections as you go. Also, do a search for all bracket characters " [] " as they are used to show you areas containing options or project specific details (you can use Microsoft Word's Find feature {Ctrl-F} to jump to an open bracket " [" character quickly). Again, these bracket characters should be removed.

It is important that every paragraph be numbered to allow for easy referencing. If you use the document's built in styles and formatting your outline should be fine (turn on the formatting toolbar by going to View > Toolbars > Formatting). Most paragraphs will use the style "Numbered Material" and can be promoted (Tab) or demoted (Shift-Tab).

You should not have to manually enter extra spaces, carriage returns or outline characters such as A, B, C, or 1.01, 1.02; the formatting will do this for you. The entire document is 11 pt. Arial. If you paste items in, you may need to reapply the "Numbered Material" format.

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. This item shall consist of planning, installing, inspecting, maintaining, upgrading and removing temporary erosion and sediment control Best Management Practices (BMPs) as shown in the Contract Documents, in the Contractor's Erosion and Sediment Control Plan (CESCP), or as ordered by the Engineer to prevent pollution of air and water, and control, respond to, and manage eroded sediment, turbid water and process water during the life of the contract.

Paragraph B: THIS IS NOT USED OFTEN BUT IS USEFUL FOR PROJECTS INVOLVING A LARGE VOLUME OF PROCESS WATER SUCH AS IN HYDRODEMOLITION. Delete if not needed.

- B. This project shall be managed as a no discharge project. All stormwater shall be diverted away from work areas. All project and process water shall be collected, stored and discharged off Port property.
- C. This work shall apply to all areas associated with contract work including, but not limited to the following:
1. Work areas
 2. Equipment and material storage areas
 3. Staging areas
 4. Stockpiles
 5. Access Roads

1.02 GOVERNING CODES, STANDARDS, AND REFERENCES

- A. The following rules, requirements and regulations specified may apply to this work:
1. Surface Water Design Manual, King County, Department of Natural Resources, (Current Edition).
 2. Washington State Department of Ecology Stormwater Management Manual for Western Washington (2014), Vol. 2 Washington State Stormwater Quality Standards (WAC 173-201A).
 3. National Pollution Discharge Elimination System (NPDES) Waste Discharge Permit No. WA 002465-1.
 4. Port of Seattle Regulations for Airport Construction (current edition).
 5. Sea-Tac International Airport Rules and Regulations (current edition).

Some Airport Projects- Projects with one or more acres of disturbance may need to obtain this permit. Typically the Port obtains and transfers coverage to the Contractor.

Verify if applicable.

6. Construction General NPDES Permit #[]

1.03 SUBMITTALS

- A. As part of the required Preconstruction Submittals, Section 01 32 19 - Preconstruction Submittals and before Notice to Proceed is given, the Contractor shall submit the following:
1. Contractor Erosion and Sediment Control Plan (CESCP)
 - (1) Including CESCL Certification Cards and ECL Qualifications

Add or Remove items to make this section project specific.

- B. The following shall be submitted in accordance with Section 01 33 00 – Submittals:
1. Oil Absorbent Pads
 2. Silt Fence
 3. Straw Wattle
 4. Erosion Control Blanket
 5. Bonded Fiber Matrix
 6. Catch Basin Protection
 7. Temporary Piping Connections / Plugs
 8. Construction Limits Fencing
 9. Wheel Wash
 10. Geotextile Fabric Check Dam
 11. Plastic Sheeting
 12. Temporary Organic Mulch
 13. Water Filled Diversion Berm
 14. Biofence

PART 2 MATERIALS

2.01 PROJECT INFORMATION

2.02 PREPARATION FOR MATERIALS

2.03 FABRICATION, PRODUCTION, & SUPPLY OF MATERIALS

2.04 MATERIAL REQUIREMENTS

Add/remove items to make this section project specific

- A. GENERAL:
- A. All products used to construct the Contractor selected BMPs shall be suitable for such use and submitted to the Engineer for approval.
- B. OIL ABSORBENT PADS:
- A. Oil absorbent pads shall be made of white, 100% polypropylene fabric that absorbs oil-based fluids and repels water-based fluids. Each pad shall be a

minimum of 15x19 inches in size and absorb no less than 50 ounces of oil-based fluids.

C. TESC – ASPHALT CURB & ASPHALT BERM:

- A. Asphalt curb and asphalt berm shall be constructed as directed by the Engineer. The asphalt concrete shall meet the requirements of Section 32 12 16 – Bituminous Concrete Pavement.

D. SILT FENCE:

- A. Geotextile material shall meet the requirements of WSDOT Specification Section 9-33 Table 6. Geotextile material shall be backed by 2"x4" wire mesh and shall be attached to steel "T" posts using wire or zip ties. Dimensions and spacing shall be as detailed on the drawings.

E. STRAW WATTLE:

- A. Wattles shall consist of cylinders of biodegradable plant material, such as straw, coir, or compost encased within biodegradable or photodegradable netting. Wattles shall be a minimum of 5 inches in diameter, unless otherwise specified. Encasing material shall be clean, evenly woven, and free of debris or any contaminating material, such as preservative and free of cuts, tears or damage. Compost filler shall meet material requirements specified in WSDOT Section 9-14.4(8) Coarse Compost. Straw filler shall be 100% free of weed seeds.

F. EROSION CONTROL BLANKET:

- A. Erosion Control Blanket shall meet the requirements of WSDOT Specification Section 9-14, paragraph 9-14.5(2) "Erosion Control Blanket". Installation in ditches and swales shall be per WSDOT Standard Plan I-60.20-00 "Erosion Control Blanket Placement in Channel". Installation on slopes shall be per WSDOT Standard Plan I-60.10-00 "Erosion Control Blanket Placement on Slope".

G. BONDED FIBER MATRIX SOIL STABILIZATION:

- A. Bonded Fiber Matrix soil stabilization shall be labeled as such on the unopened bags furnished by the manufacturer. Bonded fiber matrix shall be installed with seed and fertilizer included in the homogenous mix. Seeding shall be as specified in Section 32 92 19.16 – Hydroseeding for Erosion Control and Landscaping.

H. CATCH BASIN PROTECTION:

- A. Catch basin protection shall be designed and installed for the purpose of preventing sediment from entering the storm system. Protection shall:
- B. Be constructed of non-woven geotextile fabric with sewn seams;
- C. Contain a built-in lifting strap;
- D. Have a built-in, high flow bypass;
- Be sized such that all water draining to the catch basin flows into the insert and does not flow directly into the storm drain.
- E. Catch basin covers shall be 30 mil PVC liner material.

- I. TEMPORARY PIPING/CONNECTIONS:
 - A. Temporary piping shall meet the requirements of the storm drain pipe as specified in Section 33 41 13 – Pipe for Storm Drains and Culverts. Temporary catch basin shall meet the requirements of Section 33 49 13 – Manholes, Catch Basins, Inlets and Inspection Holes.
- J. TEMPORARY PIPING PLUGS:
 - A. Installation in Pipe/Structure to be Demolished/Abandoned. Plug shall be concrete as specified in Section 03 30 00 – Cast-in-Place Concrete.
 - B. Installation in Pipe/Structure to Remain. Plug shall be a mechanical secured plug.
- K. STORMWATER STORAGE TANK:
 - A. The tank shall be a fixed axle weir tank with a minimum 21,000 gallon.
- L. STORMWATER STORAGE TANK PADS:
 - A. The stormwater storage tank pads shall be as detailed on the drawings.
- M. CONSTRUCTION LIMITS FENCING:
 - A. Fencing material shall be standard size orange plastic mesh construction safety fence. Posts shall be steel “T” posts.
- N. ROCK CHECK DAMS:
 - A. Rock check dams shall be constructed of quarry spalls per the details shown in the project drawings and as specified in Section 31 23 00 - Excavation and Embankment.
- O. STABILIZED CONSTRUCTION ENTRANCE
 - A. Stabilized construction entrance(s) shall be constructed of stabilization geotextile fabric and quarry spalls as specified in Section 31 23 00 – Excavation and Embankment.
- P. WHEEL WASH
 - A. The wheel wash shall be a high water pressure, low water volume system long enough to allow for at least two full tire rotations. Spray nozzles shall be directed at inner and outer side walls for all tires including duals, all treads from two directions, wheel wells and flaps, and truck sides up to the bottom of the windshield. For water line material and construction requirements shall be as specified in Section 33 10 00 – Water Distribution.
- Q. GEOTEXTILE FABRIC CHECK DAMS
 - A. Geotextile check dam shall be a urethane foam core encased on Geotextile material. The minimum length of the unit shall be 7 feet. The foam core shall be a minimum of 8 inches in height, and have a minimum base width of 16 inches. The geotextile material shall overhang the foam by at least 6 inches at each end, and shall have apron type flaps that extend a minimum of 24 inches on each side of the foam core. The geotextile material shall meet the requirements for silt fence.
- R. PLASTIC SHEETING

DIVISION 1 - GENERAL REQUIREMENTS

Section 01 57 13 - Temporary Erosion and Sediment Control Planning and Execution

- A. Plastic sheeting shall be clear, reinforced, and a minimum of 6 mil thick. Sandbags or other Engineer-approved material shall be used to secure the plastic sheeting in place. Black plastic may be used to cover stockpiles.
- S. TEMPORARY ORGANIC MULCH
 - A. Temporary organic mulch shall consist of straw, wood chips, hog fuel, compost or other material approved by the Engineer.
- T. WATER FILLED DIVERSION BERM
 - A. Berm shall be a minimum 6 inches high and 10 feet long and made of 10 mil polyurethane or 22 oz. PVC.
- U. BIOFENCE
 - A. Biofence shall consist of 7 ounce or heavier uncoated burlap fabric at least 36 inches wide and 100 feet long. Wood stakes dimensions shall be a minimum 1 1/8 x 1 1/8 inches by 42 inches high.

2.05 MATERIAL HANDLING, DELIVERY, & STORAGE

2.06 DELIVERABLES

2.07 QUALITY ASSURANCE

PART 3 EXECUTION

3.01 PROJECT INFORMATION

A. GENERAL

1. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.
2. No discharge of water shall be allowed that increases volume, velocity, or peak flow rate of receiving water background conditions, or that does not meet state of Washington water quality standards.
3. The Contractor's Erosion and Sediment Control Plan (CESCP) required by this section shall be based upon the Temporary Erosion and Sediment Control (TESC) requirements of the contract but shall specifically phase, adjust, improve and incorporate the TESC requirements into the Contractor's specific schedule and plan for accomplishing the work. The CESCP shall be modified as changes are made to improve, upgrade and repair best management practices used by the Contractor and as the work progresses and TESC needs change.
4. The Contractor shall be wholly responsible for control of water onto and exiting the construction site and/or staging areas, including groundwater, stormwater, and process water. Stormwater from offsite shall be intercepted and conveyed around or through the project and shall not be combined with onsite construction stormwater.
5. Design of, and modifications to, project hydraulic conveyances, detention facilities, and TESC plan sheets shall be stamped by a Professional Engineer (P.E.) licensed by the State of Washington. All other changes to the CESCP shall be signed by the ECL.

B. PROJECT REQUIREMENTS

1. DESCRIPTION OF WORK

- a. In order to comply with the requirements of this section, the Contractor shall:
 - (1) Develop the Stormwater Pollution Prevention Plan (SWPPP) and submit a Contractor's Erosion and Sediment Control Plan (CESCP). The CESCP shall, at a minimum, include and address the following:
 - (a) Site Description and Drawings
 - (b) Contractor Erosion and Sediment Control Personnel
 - (c) Schedule and Sequencing
 - (d) BMP Installation
 - (e) BMP Maintenance
 - (f) BMP Inspection
 - (g) Record keeping
 - (h) BMP Removal
 - (i) Emergency Response
 - (j) Construction Dewatering
 - (k) Fugitive Dust Planning
 - (l) Utilities Planning
 - (m) Education
 - (2) Revise and modify the CESCP during the life of the contract and maintain records.
 - (3) Install, maintain, and upgrade all erosion prevention, containment, and countermeasures BMPs during the life of the contract, and removal at the end of the project.
 - (4) Contain, cleanup and dispose of all sediment and convey turbid water to existing or proposed detention/treatment facilities.
 - (5) Perform other work shown on the project drawings, in the Contractor Erosion and Sediment Control Plan, or as directed by the Engineer.
 - (6) Inspect to verify compliance with the CESCP requirements including BMPs; facilitate, participate in, and implement directed corrective actions resulting from inspections conducted by others including outside Agencies and Port employees/consultants.
 - (7) Educate all Contractor and sub-contractor staff about environmental compliance issues at weekly meetings and document attendance and content.

2. DEFINITIONS

- a. Process Water: All water including, but not limited to, that used for washing, cleaning, fire proofing and hydrodemolition is defined by the Department of Ecology as “process water” and shall be collected and disposed of in a manner that complies with all local, state and federal regulations. Disposal tickets shall be provided to the Engineer.
 - (1) Process water shall not be discharged to the IWS or SDS

3. PERMITS

- a. Work shall be conducted in accordance with NPDES permit No. WA- 002465-1.

When the project requires a Construction General NPDES Permit and the contractor is to be completely responsible for compliance, the Port will obtain the permit and contractor shall have to accept transfer of permit from the Port. Otherwise delete paragraph below.

- b. The Contractor shall accept from the Owner complete transfer of Construction General NPDES Permit #[]. The Contractor shall submit a signed Notice of Transfer before Notice to Proceed. The form can be obtained at:
<http://www.ecy.wa.gov/biblio/ecy02087a.html>

4. ADMINISTRATIVE REQUIREMENTS

- a. The provisions of this section shall apply to the Contractor, subcontractors at all tiers, suppliers and all others who may have access to the work site by way of the contractor's activities.
- b. Failure to install, maintain, and/or remove BMPs shown on the drawings, in the approved Contractor Erosion and Sediment Control Plan and specified herein, or by order of the Engineer; or failure to conduct project operations in accordance with Section 01 57 13 - Temporary Erosion and Sediment Control Planning and Execution will result in the suspension of the Contractor's operations by the Engineer in accordance with Section 00 70 00 - General Conditions.
- c. The Contractor shall be solely responsible for any damages, fines, levies, or judgments incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this section.
- d. Any damages, fines, levies, or judgments incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this section will be deducted from payment due by Modification.
- e. Any time and material costs incurred by the Port due to damages, fines, levies, or judgments incurred as a result of Contractor,

subcontractor, or supplier negligence in complying with the requirements of this section will be deducted from payment due by Modification.

- f. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this section. The project schedule will not be changed to accommodate the time lost.

Add/remove items to make this section project specific

- g. Contractor shall not clear, grub, grade, demolish, or perform any earthwork after Notice to Proceed until the following has been installed per the project drawings, the approved Contractor Erosion and Sediment Control Plan, or as directed by the Engineer:
- (1) Silt Fence or other perimeter controls are in place.
 - (2) Areas not to be disturbed are delineated with construction fence.
 - (3) Temporary ponds and ditches are installed and vegetated or covered.
 - (4) Permanent ponds used for sediment control during construction have been installed and vegetated or covered and modified with riser.
 - (5) Water flows from off site are tight lined and directed away from work area.
 - (6) All construction entrances are stabilized and wheel wash systems in place and operational.
 - (7) Catch basin inserts are installed in all catch basins that receive drainage from the Work area and haul roads.
 - (8) Stormwater storage tanks are located onsite to provide for additional storage volume and/or treatment volume required for treatment by settlement.
 - (9) Materials on hand, in quantities sufficient to cover all bare soil, divert all flows, contain all sediments, and prevent turbid discharges from the site during all stages of construction. These materials include, but are not limited to the following:
 - (a) Reinforced 6 mil plastic sheeting
 - (b) Straw Wattles
 - (c) 6" pipe
 - (d) 8" pipe
 - (e) Sand bags, filled

(f) Wire-backed silt fence

(g) Steel "T" posts

5. AUTHORITY OF ENGINEER

- a. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing, excavation, and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, wetlands or other areas of water impoundment.
- b. In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or are ordered by the Engineer, such work shall be performed by the Contractor at his/her own expense.
- c. The Engineer may increase or decrease the area of erodible earth material to be exposed at one time as determined by analysis of project conditions.
- d. In the event that areas adjacent to the work area are suffering degradation due to erosion, sediment deposit, water flows, or other causes, the Engineer may stop construction activities until the situation is rectified.
- e. In the event that the Washington State Department of Ecology issues an Inspection Report, a Notice of Non-Compliance, Notice of Violation or Enforcement Action, the Engineer may stop all construction activities until it has been determined that the project is in compliance. The Engineer may require the Contractor to send additional staff to successfully complete Contractor Erosion and Sediment Control Lead (CESCL) training before construction activities may begin. The number of working days will not be changed to accommodate the work stoppage. All costs associated with work stoppages, mitigation of the event, and/or training shall be paid by the Contractor.
- f. In the event that the Contractor discharges storm water, ground water, or process water to storm drains, ditches, gutters or any conveyance that discharges to a receiving water as defined by the Department of Ecology without prior approval of the Engineer, the Engineer may stop all construction activities and require additional Contractor staff training and may require that all parties involved in the unapproved discharge be removed from the project for a time determined by the Engineer. The project schedule will not be changed to accommodate the time lost. All costs associated with mitigation of the unauthorized discharge, work stoppages, training and/or removal of personnel from the project shall be paid by the Contractor.

6. COORDINATION MEETINGS

- a. The Contractor shall be available, at a minimum, for a weekly coordination meeting with the Engineer, other Port Staff and outside agency representatives to review the ongoing contract work for compliance with the provision of this specification.
- b. The Contractor's Erosion Control Lead (ECL) shall attend a quarterly environmental staff meeting scheduled by the Erosion Control/Stormwater Engineer to discuss and resolve relevant environmental, stormwater and erosion control issues on Port of Seattle projects.

3.02 PREPARATION FOR EXECUTION OF WORK

A. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

1. The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP). The contents of a construction SWPPP may vary with the amount of new or replaced impervious surface, acres of land disturbing activity and the classification of water.
2. The Contractor shall prepare a CESC. The contents of a CESC may vary with the amount of new or replaced hard surface, acres of land disturbing activity and the classification of water. The CESC shall comply with the Director's Rules based on the City of Seattle "Stormwater Code", SMC Chapters 22.800 through 22.808, and must contain enough detail to demonstrate controls sufficient to determine compliance with City of Seattle Stormwater Code SMC 22.805.020.D.

Note to Designer: Verify all conditions of the Seattle Stormwater Code are met with the requirements in this specification.

<http://www.seattle.gov/dpd/Codes/default.asp#construction> Adjust as needed.

3. The SWPPP shall consist of the following documents:
 - a. Temporary Erosion and Sediment Control Plan sheets in the Contract documents;
 - b. Section 01 57 13 - Temporary Erosion and Sediment Control Planning and Execution;
 - c. Section 01 57 23 - Pollution Prevention, Planning and Execution;
 - d. Contractor's Erosion and Sediment Control Plan (CESC), submitted by the Contractor;
 - e. Pollution Prevention Plan per Section 01 57 23, submitted by the Contractor;

Typically for Airport projects, the Port develops the Storm Water Monitoring Plan. Coordinate with PM and make selection below. If Contractor developed, add this plan to Submittal section and include requirements for plan as 3.02 B

- f. Construction Storm Water Monitoring Plan, developed by the [Port]
[Contractor].
4. Contractor's Erosion And Sediment Control Plan (CESC)

In order to comply with these requirements, the Contractor shall include and address the following in the CESC portion of the SWPPP:

a. Site Description and Drawings

- (1) Included in the CЕССР shall be a written description of the construction site, including location of staging areas, stockpile areas, material storage areas, natural and constructed drainage systems within the work area and staging areas, and proximity to other construction projects.
- (2) Drawings shall be included in the CЕССР which show the location of the construction site, including location of staging areas, stockpile areas, material storage areas, natural and constructed drainage systems within the work area and staging areas, and proximity to other construction projects.
- (3) The drawings shall show locations of BMPs during each phase of construction as identified by the Contractor in the Project Schedule.
- (4) The drawings and written description shall detail temporary stormwater conveyance facilities and other measures proposed by the Contractor to limit the contributing drainage areas to not exceed the capacity of each of the stormwater ponds.

Adjust qualifications depending on the complexity of the project. At a minimum, a ECL is required.

b. Contractor Erosion and Sediment Control Personnel

- (1) The Contractor shall designate sufficient employees as the responsible representatives in charge of erosion and sedimentation control. These employees' responsibility will be the oversight of all water and air quality issues.
- (2) The designated employees responsible for erosion and sedimentation control as discussed above shall be the Erosion Control Lead(s) (ECL) responsible for developing, maintaining and modifying the CЕССР for the life of the Contract and ensuring compliance with all requirements of this section.
- (3) An ECL shall be onsite at all times when any work activity is taking place. An ECL shall be required for each shift.
- (4) The ECL shall be qualified in the preparation of erosion and sediment control plans, in the installation, inspection, monitoring, maintenance of BMP's, and documentation required for NPDES permits as well as sensitive resource identification, water treatment, and restoration and stabilization of unstable slopes, shorelines, stream banks, and wetlands.
- (5) The ECL shall have authority to direct all Contractor and sub-contractor personnel.
- (6) The ECL shall have no other duties aside from developing, maintaining, modifying, inspecting, implementing the CЕССР and ensuring compliance with all requirements of this section, and, all other environmental regulations, or as directed by the Engineer.

(7) Qualifications of the ECL shall be as follows:

Complex projects may require minimum training at the CPESC level – coordinate with Erosion Control/Stormwater Engineer to determine.

- (a) Have successfully completed Contractor Erosion and Sediment Control Lead (CESCL) training given by a Washington State Department of Ecology-approved provider, and have five years experience in construction site erosion and sediment control regulatory requirements and BMPs, erosion and sediment control plan development, and stormwater/water quality monitoring, or
 - (b) Currently certified as a Certified Professional in Erosion and sediment Control (CPESC) offered by CPESC, Inc. (www.cpesc.org) and have one year experience in state of Washington construction site erosion and sediment control regulatory requirements and BMPs, erosion and sediment control plan development and stormwater monitoring.
- (8) The ECL shall also have done the following:
- (a) Coordinated, developed, and implemented erosion and sediment control plans for NPDES permit compliance in the State of Washington.
 - (b) Completed at least two erosion and sediment control plans for earthwork projects.
 - (c) Developed phased construction work schedules addressing all ground disturbing activities.
 - (d) Designed temporary and permanent erosion and sediment control measures (BMPs) during clearing, demolition, existing road improvement, and for emergency situations.
 - (e) Designed excavation dewatering plans.
 - (f) Designed plans for dust abatement, embankment stabilization, and restoration
 - (g) The Contractor shall submit for approval all documentation listed above necessary to prove ECL qualifications including but not limited to resumes, certificates, degrees, recommendation letters, and plan examples.
- (9) Duties and responsibilities of the ECL shall include:
- (a) Maintaining permit file on site at all times which includes the the SWPPP, and any associated permits and plans;
 - (b) Directing BMP installation, inspection, maintenance, modification, and removal;
 - (c) Shall be onsite at all times when work is taking place.
 - (d) Availability 24 hours per day, 7 days per week by telephone throughout the period of construction;

- (e) Updating all drawings with changes made to the plan;
- (f) Keeping daily logs, one report per ECL is to be submitted;
- (g) Prepare and submit for approval a Contractor Erosion and Sediment Control Plan (CESCP) as part of the SWPPP;
- (h) Immediately notify the Engineer should any point be identified where storm water runoff potentially leaves the site, is collected in a surface water conveyance system (i.e., road ditch, storm sewer), and enters receiving waters of the State;
- (i) If water sheet flows from the site, identify the point at which it becomes concentrated in a collection system.
- (j) Inspect CESCP requirements including BMPs as required to ensure adequacy; facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies, Port employees, and Port consultants.
- (k) Set up and maintain a construction stormwater monitoring plan that includes monitoring locations and procedures. At a minimum, the plan will include monitoring points everywhere construction stormwater discharges from the project.
- (l) The ECL shall have authority to act on behalf of the Contractor.
- (m) The CESCP shall include the name, office and mobile telephone numbers, fax number, and address of the designated ECL and all Contractor personnel responsible for erosion and sediment control.
- (n) In addition to the ECL, at a minimum, the Contractor's superintendent, foremen, and lead persons shall have successfully completed "Contractor Erosion and Sediment Control Lead" (CESCL) training given by a Washington State Department of Ecology-approved provider. On matters concerning erosion control, they shall report to the ECL.

c. Schedule and Sequencing

- (1) Schedules for accomplishment of temporary and permanent erosion control work, that include as a minimum all specific work items as are applicable for clearing and grubbing; grading; construction; paving; structures at watercourses, sawcutting, and dewatering, underground utilities; Stormwater conveyances, and seeding.
- (2) Proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials;
- (3) Estimated removal date of all temporary BMPs;
- (4) Estimated date of final site stabilization.
- (5) Dates of earthwork activities.

- (6) Dates when construction activities temporarily or permanently cease on any portion of the site.
 - (7) Dates when any stabilization measures are installed.
 - (8) Dates when structural BMPs are initiated.
 - (9) Dates for all work performed within 200 feet of sensitive environmental areas including wetlands, streams and ponds.
 - (10) Erosion control work activities consistent with the CECSP shall be included in the Project Schedule for each work area and project activity as shown on the drawings.
- d. BMP Installation
- (1) The CECSP shall include installation instructions and details for each BMP used during the life of the Project;
 - (2) To prepare or modify Contractor's Erosion and Sediment Control Plans, use BMPs from the Washington State Department of Ecology, Stormwater Management Manual for Western Washington, Vol. 2, and (Current Version). May be downloaded at: <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>
 - (3) The ECL shall certify that all BMP installers are trained in proper installation procedures.
- e. BMP Maintenance
- (1) The CECSP shall include a description of the maintenance and inspection procedures to be used for the life of the project.
 - (2) BMPs shall be maintained for the life of the project, the completion of a work phase and/or until removed by direction of the Engineer;
 - (3) BMPs shall be maintained during all suspensions of work and all non-work periods;
 - (4) BMPs shall be maintained and repaired as needed to assure continued performance of their intended function and in accordance with the approved CECSP;
 - (5) Sediments removed during BMP maintenance shall be placed away from natural and constructed storm water conveyances and permanently stabilized.
 - (6) All maintenance shall be completed within 24 hours of inspection
- f. BMP Inspection
- (1) The ECL shall inspect all TESC best management practices daily during workdays and anytime 0.5" of rainfall has occurred within 24 hours on weekends, holidays, and after hours. Rainfall amounts can be determined by contacting the National Weather Service. .
 - (2) Deficiencies identified during the inspection shall be corrected within 24 hours or as directed by the Engineer.
 - (3) Observe runoff leaving the site during storms, checking for turbid water;

- (4) Implement additional BMPs, if needed, to address site-specific erosion control;
 - (5) Inspect streets surrounding site for dirt tracking;
 - (6) Inspect for dust.
 - (7) The ECL shall visually inspect all stormwater runoff that discharges from the project for petroleum or chemical sheen, or "rainbow". Occurrences of sheen shall be reported immediately to the Engineer and shall follow procedures specified in Section 01 57 23 – Pollution Prevention, Planning & Execution.
 - (8) The ECL shall collect samples and test all stormwater runoff that discharges from the project for turbidity using a calibrated turbidimeter, and for pH using test strips that measure from pH 0 - 14. Turbidity that exceeds 25 NTUs or pH that is below 6.5 or above 8.5 shall be reported immediately to the Engineer.
- g. Record keeping
- (1) Reports summarizing the scope of inspections, the personnel conducting the inspection, the date(s) of the inspection, major observations relating to the implementation of the CЕСP, and actions taken as a result of these inspections shall be prepared and retained as a part of the CЕСP;
 - (2) All inspection reports shall be kept on-site during the life of the project and available for review upon request of the Engineer.
 - (3) Copies of all inspection records and updated CЕСP shall be submitted to the Engineer weekly.
 - (4) The CЕСP shall include the Contractor's inspection form which includes the following:
 - (a) All best management practices to be inspected and monitored for all work areas and work activities identified in the schedule for the life of the contract.
 - (b) Inspection time and date.
 - (c) Weather information including current conditions, total rainfall since last inspection and rainfall in the 24 hours prior to the current inspection.
 - (d) Locations of BMPs inspected.
 - (e) Locations of BMPs that need maintenance and reasons why.
 - (f) Locations of BMPs that failed to operate as designed or intended.
 - (g) Locations where additional or different BMPs are needed and reasons why.
 - (h) A description of stormwater discharged from the site. The ECL shall note the presence of suspended sediment, turbid water, discoloration, and/or petroleum sheen.

- (i) Any water quality monitoring performed during inspection.
 - (j) General comments and notes, including a description of any BMP repairs, maintenance or installations made as a result of the inspection.
 - (k) A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance CЕСP. 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. If the site inspection indicates that the site is out of compliance, the ECL shall notify the Engineer immediately.
 - (l) Name, title, and signature of the ECL 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."
- h. BMP Removal
 - (1) After cleaning and removal, the drainage system shall not be used for temporary construction stormwater conveyance or storage.
 - (2) Sediment removed shall be placed away from drainage conveyances and permanently covered with hydro seed or other material as directed by the Engineer.
 - (3) Stormwater ponds used to contain construction stormwater runoff shall be returned to elevations shown on the plans.
 - (4) Temporary BMPs shall be removed upon permanent stabilization or as directed by the Engineer.
 - (5) Areas disturbed during removal of temporary BMPs shall be permanently stabilized.
 - (6) Permanent stabilization shall occur upon installation of:
 - (a) Concrete or asphalt pavement.
 - (b) On grades 3:1 and less, soil is covered by a minimum of 85% grass growth, as determined by the Engineer.
 - (c) On grades greater than 3:1 soil is covered by an approved erosion control blanket or bonded fiber matrix and a minimum of 85% grass growth, utilizing the "Line Intercept Method".
 - (d) All stormwater discharges from the project meet the following criteria:
 - (i) 0-25 NTUs.
 - (ii) 6.5-8.5 pH.
 - (iii) No visible sheen.

- (iv) No settleable solids.
 - (v) Washington State Stormwater Quality Standards (WAC 173-201A) at the receiving water, as determined by the Engineer.
- i. Emergency Response
 - (a) The CЕСSP shall contain information on how the Contractor shall control and respond to turbid water discharges, sediment movement, and fugitive dust. At a minimum, the Contractor's employee responsible for, or first noticing, the discharges shall take appropriate immediate action to protect the work area, private property, and the environment (e.g., diking to prevent pollution of state waters). Appropriate action includes but is not limited to the following:
 - (i) Hazard Assessment - assess the source, extent, and quantity of the discharge.
 - (ii) Securement and Personal Protection - If the discharge cannot be safely and effectively controlled, then immediately notify the ECL and the Engineer. If the discharge can be safely and effectively controlled, proceed immediately with action to protect the work area, private property, and the environment.
 - (iii) Containment and Elimination of Source - Contain the discharge with silt fence, pipes, sand bags or a soil berm down slope from the affected area. Eliminate the source of the discharge by pumping turbid water to a controlled area, building berms, piping clean water away from the area or other means necessary.
 - (iv) Cleanup - when containment is complete, remove sediment, stabilize, dispose of contaminated water and prevent future discharge.
 - (v) Notification - report all discharges immediately to the Engineer.

j. Construction Stormwater Management

Designer to verify specific discharge requirements and modify this section accordingly. In some cases, no construction stormwater discharge is allowed and alternative disposal methods, such as sanitary sewer or trucking off site need to be included.

- (1) Storm water and construction dewatering operations shall not discharge to the Storm Drain System (SDS) unless free from pollutants. Before discharge, water shall be measured using a properly calibrated, approved turbidity meter. Discharged water shall not exceed 25 Nephelometric Turbidity Units (NTUs) and pH levels shall be between 6.5 and 8.5.

- (2) Storm water and construction dewatering water shall not be discharged to the Industrial Wastewater System (IWS) unless free from pollutants. Before discharge, water shall be measured using a properly calibrated, approved turbidity meter. Discharged water shall not exceed 200 Nephelometric Turbidity Units (NTUs) and pH levels shall be between 6.0 and 9.0. There shall be no discharge to any catch basin without specific approval of the Engineer.
 - (3) The CESCOP shall address how the Contractor plans to manage clean and polluted water during the life of the project. Specific procedures shall be developed and included in the CESCOP when work includes excavation within 10 feet of any water, sewer, or storm system. Procedures shall address, at a minimum, locating, protecting, and connecting to existing pipes, as well as response plans for broken pipes.
 - (4) The Engineer shall be notified before any disposal, hauling, pumping, or treatment of water occurs. Notification shall include location of disposal and methods of treatment. Disposal tickets shall be provided to the Engineer upon request.
 - (5) Water shall not be pumped into ditches, gutters, drainage conveyance, catch basins, or any area that drains to one of these unless it meets the specifications outlined in this section and with prior approval of the Engineer.
 - (6) Chlorinated water used for disinfecting water pipes shall not be discharged to the storm drain system.
- k. Fugitive Dust Planning:
- (1) The CESCOP shall detail the Contractor proposed approach to fugitive dust management. The plan shall include the following:
 - (a) Identification of all fugitive dust sources for each work activity.
 - (b) Description of the fugitive dust control measures to be used for each source.
 - (c) Schedule, rate of application and calculations to identify how often, how much, and when the control method is to be used.
 - (d) Provisions for monitoring and recordkeeping.
 - (e) Contingency plan in case the first control plan does not work or is inadequate.
 - (f) Name and telephone number of the person responsible for fugitive dust control.
 - (g) Source and availability of fugitive dust control materials.
 - (2) The Contractor shall provide whatever means is necessary to keep fugitive dust on site and at an absolute minimum during working hours, non-working hours and any shut-down periods.

- (3) The Contractor's methods for fugitive dust control will be continuously monitored and if the methods are not controlling fugitive dust to the satisfaction of the Port, the Contractor shall improve the methods or utilize new methods at no additional cost.
- (4) The Contractor shall maintain as many water trucks on a site during working and non-working hours as required to maintain the site free from fugitive dust.
- (5) During time periods of no construction activity, water trucks must be ready with on-site Contractor's personnel available to respond immediately to a dust or debris problem as identified by the Engineer.
- (6) At no time shall there be more than a 10 minute response time to calls concerning fugitive dust/debris problems during work hours and a 90 minute response at all other times on a 24 hour basis.

I. Utilities Planning:

- (1) The CЕСSP shall identify when and how all underground utility work will be conducted so that water quality compliance is maintained. At a minimum, the Contractor shall:
 - (a) Have all shut off valves located and have procured the means to shut off valves within 10 minutes of a water line break.
 - (b) Before cutting into an existing water line, the Contractor shall verify to the Engineer that the water line is not pressurized.
 - (c) The Contractor shall not cut into an existing storm drain or connect new stormwater conveyance systems into existing systems until it has been verified to the Engineer there will be no discharge of non-compliant water during and after cutting and connection operations.
 - (d) The Contractor shall grout all holes, seams, cracks, joints, cast iron rings and grates within 24 hours of installation of each item.
 - (e) Storm systems to be demolished in place shall be first blocked at the point of connection to existing section to prevent contamination of existing storm system.
 - (f) Chlorinated water shall be discharged to sanitary sewer or removed from the site.
 - (g) Air plugs shall not be utilized for more than 24 hours and shall be in new condition with no leaks and monitored daily for proper air pressure.
 - (h) Mechanical plugs shall not be utilized for more than 5 calendar days and shall be used according to the manufacturer's instructions and engineering parameters. The Contractor shall submit instructions and engineering documentation before use.

- (i) When a plug needs to remain in place longer than 5 days, the Contractor shall utilize grout. The grout shall be installed so that the length is one and a half times the diameter of the pipe.
- m. Low Impact Development (LID) Protection Planning
 - (1) The CЕСP shall identify how all LID BMPs are to be protected from sedimentation, pollution and compaction.
- n. Education:
 - (1) The Contractor shall provide narrative in the CЕСP on how they will educate all personnel including subcontractors. At a minimum, the Contractor shall:
 - (a) Train staff through regularly scheduled meetings to discuss environmental protection subjects as related to this project. This may be added to any existing weekly meetings (such as safety meetings).
 - (b) Training shall emphasize water quality compliance, BMP installation and maintenance, sensitive areas, emergency response, spill prevention, and inspections.
 - (c) Minutes of the meetings detailing attendees and subjects discussed shall be kept and submitted to the Engineer weekly.
 - (d) Prior to commencing work, all Contractor and subcontractor personnel at any tier shall complete a Port of Seattle Environmental Compliance Orientation given with the required Safety Orientation.

3.03 EXECUTION OF WORK

A. CONSTRUCTION REQUIREMENTS

Remove anything that doesn't apply to work.

- 1. Saw cutting
 - a. Saw cut slurry and cuttings shall be vacuumed during cutting operations;
 - b. Saw cut slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight;
 - c. Saw cut slurry and cuttings shall not drain to SDS, IWS, or any other natural or constructed drainage conveyance;
 - d. Collected slurry and cuttings are the responsibility of the Contractor and shall be disposed of off site in a manner that does not violate groundwater or surface water quality standards.
- 2. Soil and Construction Debris Stockpiles
 - a. Soils and construction debris, including broken concrete and asphalt paving, shall be stockpiled within the work site or off site.

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- b. Stockpiles shall be covered with plastic and secured from blowing wind and/or jet blast.
 - c. Plastic shall be a minimum thickness of 6 mil.
 - d. Materials to be stockpiled on pavement shall be placed on plastic and contained within a bermed area.
 - e. Clean storm water runoff from the plastic covering shall be directed away from bare soil using pipes, sandbags, or other temporary diversion devices.
 - f. Stockpiles shall be covered so that no soil or debris are visible and shall be covered at the end of each work day, weekends and holidays
 - g. Stockpiles on the AOA shall not be allowed unless approved by the Engineer.
3. Construction Entrances, Exits and Haul roads
- a. Before leaving project site, all trucks and equipment shall be inspected for mud and debris.
 - b. At no time shall mud, debris, or visible sediment be allowed outside of the project boundaries and on any Port-owned and public roads.
 - c. Mud and debris shall be removed from pavement by vacuum sweeping and shoveling and transported to a controlled sediment disposal area identified in the CЕСP.
 - d. Mud and debris shall be considered contaminated by fuels, grease, metals or other pollutants and shall be disposed of in accordance with Section 01 57 23 - Pollution Prevention, Planning and Execution.
 - e. Use of water to wash concrete or asphalt pavement shall be allowed only after sediment has been removed by vacuum sweeping and shoveling, and a Road Wash Plan has been submitted and accepted by the Engineer.
 - f. Washing pavement, shall first be approved by the Engineer. Wash water shall not drain into the SDS, IWS or any other natural or constructed storm water conveyance and shall be contained and removed from Port property and disposed of off-site in accordance with local, state, and federal regulations. Disposal tickets shall be provided to the Engineer.
 - g. Power brooms shall not be utilized without prior approval by the Engineer.
 - h. Contractor shall have sufficient working vacuum sweepers on site at all times work is being performed. All sweepers shall have on-board water spray systems that shall be operating at all times.
 - i. Vacuum sweepers shall be dedicated to this project and shall not be utilized by any other contract, nor be hired out to another contractor.

- j. Sweeper systems shall function per manufacturer specifications, including, but not limited to, spray water systems, blowers, vacuum nozzles, hoses, debris hopper, hydraulics and electrical.
 - k. At no time shall debris hopper seals leak debris and or liquids.
 - l. At least one driver shall be assigned to a vacuum sweeper and shall do no other work.
 - m. Coverage shall be provided during lunch breaks, and during unfilling activities.
 - n. If, in the Engineer's opinion, the Contractor does not adequately manage the tracking of sediment, the Port may subcontract out the control of sediment tracking at the Contractor's expense.
4. Asphalt Curb and Asphalt berm
- a. Asphalt curbs or asphalt berms shall be constructed on project perimeters, when the project is surrounded by impervious surfaces.
 - b. Asphalt curb and berm shall be a minimum height of four inches.
 - c. Diesel shall not be used to clean tools and equipment
5. Catch Basin Protection
- a. All catch basins within the project limits, and outside the project limits but within the project drainage basin, including haul roads, shall be protected.
 - b. Catch basin protection shall be installed where shown in the project drawings, in all storm drainage structures within the work area, or as otherwise directed by the Engineer.
6. Concrete Truck and Equipment Washing
- a. Concrete truck chutes, concrete pumps, hand tools, screeds, floats, trowels, rollers and all other tools shall be washed out only into Washington State Department of Ecology (WDOE)-approved covered steel containers..
 - b. All contained concrete waste shall be disposed of offsite in a manner that does not violate groundwater or surface water quality standards.
 - c. All water used for washing, is defined by the WDOE as "process water" and shall be collected and disposed of in a manner that complies with all local, state and federal regulations.
7. Wheel Washes
- a. All haul vehicles exiting the work site to public roads shall pass through a wheel wash system to control sediment tracking. Any required modification, alteration or improvement needed on the existing wheel wash systems or supplemental vehicle washing for the successful control of dirt, debris or sediment tracking beyond

the wheel wash, either on Port haul roads or public roads, for the duration of the contract shall be the responsibility of the Contractor.

- b. No modifications of the wheel wash system are allowed that alter the design of a contained operation with recycled wash water with no release of sediment laden wash water. The sediment shall be contained and disposed of at an appropriate disposal facility off Port Property.
 - c. Wheel wash water shall be replaced weekly with fresh, clean water.
 - d. The wash water is "process water" and shall not be released on site or to the storm drain system and shall be disposed of in accordance with all water quality regulations.
 - e. Wheel wash water shall not exceed 100 NTU.
 - f. Contractor shall sample wheel wash water for turbidity 2 hours after start and 2 hours before shutdown of the system. Sampling results shall be entered into Contractor's daily inspection report.
8. Silt Fence
- a. Silt fence shall be constructed at the locations shown in the project drawings, in the approved Contractor Erosion and Sediment Control Plan, or otherwise directed by the Engineer.
 - b. The geotextile shall be attached to the up-slope side of the posts and the wire mesh using staples, wire rings, or in accordance to the manufacturer's recommendations.
 - c. Where seams are required to join two sections of fence material, the seams shall be taped together, wrapped three times around a 2" steel post and the post driven into the ground. All rips, tears, holes, and other damage to silt fences shall be repaired within 24 hours of locating the damage. When sediments deposits reach approximately one-third the height of the silt fence, the deposits shall be removed and disposed of outside Port property.
9. Straw Wattle
- a. The installation of straw wattles shall be per WSDOT Standard Plan I-30.30-00 "Wattle Installation on Slope", or as directed by the Engineer.
 - b. Straw Wattles shall not be installed on impervious surfaces.
10. Bonded Fiber Matrix Soil Stabilization
- a. The installation of Bonded Fiber Matrix Soil Stabilization shall be applied at a minimum rate of 3,000 pounds per acre and provide a minimum of 95% soil cover. Seed and fertilizer shall be included.
 - b. Contractor shall provide all Bonded Fiber Matrix, seed and fertilizer bags to the Engineer upon request.
11. Temporary Organic Mulch
- a. Temporary organic mulch shall be applied at a minimum rate of 1.5 tons per acre.

12. Swale Construction
 - a. Grass-lined swales shall be constructed to the lines and grades shown on the drawings. The swale includes excavating, grading, placement of topsoil, placement of erosion control blanket, and hydroseeding as detailed on the drawings. Excavated material from the swale construction shall be considered Excess Soil as defined in Section 31 23 00 – Excavation and Embankment.
13. Temporary Piping/Connections
 - a. The Contractor shall install temporary piping, catch basins and connections to the existing storm drain system in locations shown on the drawings. At the completion of the work, the piping shall be removed and the temporary connections plugged.
14. Temporary Pipe Plugging
 - a. The locations of piping to be temporarily plugged are indicated on the drawings. At the completion of the work, the plugs shall be removed.
15. Construction Stormwater Management
 - a. The Contractor shall construct stormwater tank pads in the size, location and as detailed on the drawings.
 - b. The Contractor shall install stormwater storage tanks, as specified, in the locations and quantities shown on the drawings.
 - c. The Contractor is responsible for conveying construction stormwater within each work area to the stormwater storage tank area shown on the drawings.
 - d. Temporary piping, structures and pump facilities required for the conveyance are the responsibility of the Contractor.
 - e. The construction stormwater shall be held in the storage tanks until hauled and disposed of by the Contractor on a Force Account basis.
 - f. The storage tank facilities including pads, access roads, ramps, temporary structures and piping shall be removed at the completion of the work or as directed by the Engineer
16. Surface Roughening:
 - a. All soil shall be roughened, loose and friable, by ripping or with equipment tracks before being permanently stabilized.
17. Water Filled Diversion Berms
 - a. Water filled diversion berms shall be installed such that offsite water is prevented from entering the job site and site water is kept within the project boundary.
 - b. Berms may be used to prevent contaminants and water from entering catch basins.

- c. Berms may be used on impervious surfaces.
- 18. Biofence
 - a. Stakes shall be driven into the ground a minimum of 12 inches and be spaced no more than 6 feet apart.
 - b. Fence ends shall be joined by wrapping ends together around a post 3 times and driven into the ground.
 - c. Burlap fabric shall be attached to the post in at least 3 places using staples or other method approved by the Engineer.
 - d. When used as a barrier fence, fabric shall not be trenched into the ground. When used as a silt fence, a minimum 8 inch flap shall be left at the bottom and held in place with straw wattles staked in as detailed in item 9 above.
- 19. Process Water Collection, Storage and Disposal
 - a. The Contractor shall provide and install stormwater storage tanks of sufficient size and volume to enable collection of 100% of the process water generated by the project.
 - b. The Contractor is responsible for conveying process water within each work area to storage tank(s).
 - c. Temporary piping, structures and pump facilities required for the conveyance are the responsibility of the Contractor.
 - d. The storage tank facilities including pads, temporary structures and piping shall be removed at the completion of the work or as directed by the Engineer.
 - e. Contractor shall provide process water disposal locations to the Engineer for review.
- 20. Low Impact Development (LID) Protection
 - a. At a minimum, the Contractor shall:
 - 1) At no time shall water exceeding 25 NTUs drain into bioretention, rain garden, or pervious pavement BMPs.
 - 2) At no time shall water exceeding pH range of 6.5 to 8.5 drain into bioretention, rain garden, or pervious pavement BMPs.
 - 3) At no time shall water containing sheen drain into bioretention, rain garden, or pervious pavement BMPs.
 - 4) Upon reaching final grade, native soils below infiltration BMPs shall be maintained such that designed infiltration is not impacted. Areas shall be fenced to prevent vehicle and foot traffic from entering.
 - 5) Pervious pavement BMPs fouled with sediment or debris such that designed infiltration rates are reduced shall be cleaned to the satisfaction of the Engineer, or replaced at the Contractor's expense.

3.04 DELIVERABLES

3.05 QUALITY ASSURANCE

PART 4 MEASUREMENT AND PAYMENT

Replace all of Part 4 language with following only with approval by the Erosion Control/Stormwater Engineer:

No separate measurement or payment will be made for the work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items in the Lump Sum price bid for the Project.

Otherwise, review items below, one or more may be used – add/remove to customize for specific project. If all TESC can be defined, Item A can be used independently. Any items where quantities cannot be defined (quantities may vary), select unit price items and/or Force Account to address variances

4.01 MEASUREMENT

- A. Measurement for “TESC – Plan and Execution” will be as a unit.
- B. Measurement for “TESC – Bonded Fiber Matrix Soil Stabilization” and “TESC-Temporary Organic Mulch” will be per square yard.
- C. Measurement for “TESC – Silt Fence”, “TESC – Straw Wattle”, “TESC – Asphalt Curb”, “TESC – Grass Lined Swale”, “TESC-Biofence” , will be per linear foot.
- D. Measurement for “TESC – Catch Basin Protection”, “TESC – Temporary Piping/Connections”, “TESC – Temporary Pipe Plug”, “TESC – Construction Roads, Entrances and Exits” , “TESC – Stormwater Storage Tank Pad” and “TESC – Water Filled Diversion Berms” will be per each.
- E. Measurement for “TESC – Stormwater Storage Tank” shall be per each per month.
- F. Measurement for “TESC – Force Account” and “TESC – Construction Stormwater Hauling” will be on a Force Account basis in accordance with Document 00 70 00 – General Conditions. An estimated amount has been entered in the Schedule of Unit Prices.

4.02 PAYMENT

- A. Payment for “TESC – Plan and Execution” will be made at the contract lump sum price as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials and tools to develop, implement and maintain the temporary erosion and sedimentation control plan including implementation of temporary stormwater conveyance facilities either as shown on the drawings or as required to complete the work, dust control, operation, maintenance and modification of wheel wash systems, construction of the stormwater tank pad areas as detailed on the drawings, control of sediment tracking, providing and operating vacuum sweepers and water trucks, and other measures as required as detailed on the drawings and specified herein through the duration of the contract, with the exception of those items measured and paid for separately. Payments will be made as follows:

Payment percentages may be adjusted (ie 20/60/20) to reflect specific project.

1. Upon acceptance of the Contractor's Erosion and Sediment Control Plan (CESCP) 25%.
 2. After NTP and before Substantial Completion, 50% will be prorated and paid monthly for compliance with the CESCP. Non-compliance will result in withholding of payment for the month of the non-compliance.
 3. After Substantial Completion, 25% for a clean and stabilized site.
- B. Payment for "TESC – Silt Fence" will be made at the contract unit price per linear foot as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials and tools necessary to complete the installation of the silt fence as detailed on the drawings or as directed by the Engineer and specified herein. The unit price shall include all maintenance, the removal of silt fencing, and restoration of the area at the completion of the work.
- C. Payment for "TESC – Biofence" will be made at the contract unit price per linear foot as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials and tools necessary to complete the installation of the biofence as detailed on the drawings or as directed by the Engineer and specified herein. The unit price shall include all maintenance, the removal of biofence, and restoration of the area at the completion of the work.
- D. Payment for "TESC – Catch Basin Protection" will be made at the contract unit price per each as stated in the Schedule of Unit Prices and shall be full compensation for all labor, equipment, tools, and materials to install inlet protection or filter on catch basins as shown on the drawings and specified herein. The unit price shall include all maintenance, removal and disposal of sediment material and the removal of the protection at the completion of the work.
- E. Payment for "TESC – Straw Wattle" will be made at the contract unit price per linear foot as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools necessary to install the straw wattles as directed by the Engineer. The unit price shall include all maintenance, removal and disposal of the material at the completion and the restoration of the area at the completion of the work.
- F. Payment for "TESC – Asphalt Curb" will be made at the contract unit price linear foot as stated in the Schedule of Unit Prices and shall be full compensation for all labor, materials, tools, and equipment necessary to complete the work to install the asphalt curb or berm as shown on the drawings or directed by the Engineer and specified herein, and remove and dispose of the material at the completion of the work.
- G. Payment for "TESC – Bonded Fiber Matrix Soil Stabilization" will be made at the contract unit price per square yard as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools including site preparation, and installation of the material as described in this section and as detailed on the drawings. The unit price shall be full compensation for multiple applications, in areas as required by the Engineer as the work progresses. The minimum application will be 500 square yards. The unit price shall include mobilization/demobilization for each application required.

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- H. Payment for “TESC – Temporary Organic Mulch” will be made at the contract unit price per square yard as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools including site preparation, and installation of the material as described in this section and as detailed on the drawings. The unit price shall be full compensation for multiple applications, in areas as required by the Engineer as the work progresses. The unit price shall include mobilization/demobilization for each application required.
- I. Payment for “TESC – Temporary Piping/Connections” will be made at the contract unit price per each as stated in the Schedules of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools to install the temporary piping of various sizes as shown on the drawings and described in this section, including the site preparation, excavation, hauling and disposal of material, required maintenance, including sediment removal, and removal of the piping and restoration of the area at the completion of the work or as directed by the Engineer. This item shall also include bends, anchors, supports, etc. necessary for a complete and operational system.
- J. Payment for “TESC – Temporary Pipe Plug” will be made at the contract unit price per each as stated in the Schedules of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools to furnish, install, maintain and remove the specified temporary pipe plug in location shown on the drawings or as directed by the Engineer.
- K. Payment for “TESC – Construction Roads, Entrances and Exits” will be made at the contract unit price per each as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, materials, equipment, tools to construct the construction entrance, regardless of size, including site prep, grading, furnishing and the installation of quarry spalls, crushed aggregate base, asphalt concrete, piping, as required to construct and maintain the entrances as shown on the drawing and specified herein. The unit price shall include maintenance, removal of the temporary improvement and restoration of the area at the completion of the work.
- L. Payment for “TESC – Grass Lined Swale” will be made at the contract unit price per linear foot as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, equipment, materials, and tools to construct the swale as detailed on the drawings, including the required site preparation, excavation, hauling and disposal of excavated material off Port Property, erosion control blanket, seeding and all incidentals to complete the work and the removal the swale and restoration of the area at the completion of work.
- M. Payment for “TESC – Stormwater Storage Tank Pad” will be made at the contract unit price per each as stated in the Schedule of Unit Prices and shall be full compensation for furnishing all labor, tools, equipment and material to construct the pad as detailed on the drawings including all excavation, crushed aggregate base, piping, grading, asphalt concrete pavement, maintenance of the pads, removal and restoration of the site at the completion of work or as directed by the Engineer.
- N. Payment for “TESC – Stormwater Storage Tank” will be made at the contract unit price per each per month as stated in the Schedule of Unit Prices, and shall be full compensation for furnishing the specified storage tank. The unit price per each per month shall include the cost of mobilization/demobilization, cleaning, hauling and all

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incidentals for the number of storage tanks required by the Engineer for a minimum of one month through the maximum for the duration of the contract.

- O. Payment for “TESC – Water Filled Diversion Berms” will be made at the contract unit price per each per month as stated in the Schedule of Unit Prices, and shall be full compensation for furnishing the specified diversion berms. The unit price per each shall include the cost of mobilization/demobilization, cleaning, hauling and all incidentals for the number of diversion berms required by the Engineer for the duration of the contract.
- P. Payment for “TESC – Construction Stormwater Hauling” as stated in the Schedule of Unit Prices will be made on a Force Account basis in accordance with Document 00 70 00 –General Conditions and shall be full compensation to transfer construction stormwater from the stormwater storage tanks to trucks for hauling and disposal in an existing stormwater pond.

Item of Work “TESC – Force Account “will be added to the Schedule of Unit Prices in Specification Section 00 41 00 – Bid Form. The Unit Price and Amount will be set by the Designer along with the Erosion Control / Stormwater Engineer.

- Q. Payment for “TESC – Force Account” as stated in the Schedule of Unit Prices will be made on a Force Account basis in accordance with Document 00 70 00 – General Conditions and shall be full compensation to complete only temporary erosion control measures that are not part of the contract work, not covered under existing bid items and are at the specific direction of the Engineer.

End of Section