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| --- | --- | --- | --- | --- |
| **REVIEW OF NEW SPECIFICATION OR SPECIFICATION CHANGE** | | | | **Log No.: 208-1** |
| **Specification Section No.:** 208 | | | **Item:** Erosion Control | |
| **Originating Office:** Project Support | | | **By:** Andrew Pihaly | |
| **Date Sent For Review:** February 20, 2019 | | | **Date Comments Due:** March 6, 2019 | |
| **Submit response to: Andrew Pihaly, Specifications Engineer, 3rd floor, CDOT HQ** | | | | |
| **Vote**  **Y/N** | **Concurrent Reviews – Others Commenting** | | The attached Draft Specification is submitted for your review and comments. If not returned by Date Comments Due, the draft specification will be considered to be approved unless the Standards and Specifications Unit of the Project Development Branch [(303) 757-9402] is advised otherwise.  **REMARKS:**  If these proposed changes are approved, our unit will issue these in a standard special provision. | |
|  | **Spec Committee Members:** | **✓** |
|  | Co-Chairman: Neil Lacey | **✓** |
|  | Region 1: Telecia McCline | **✓** |
|  | Region 1: Jason Lucerna | **✓** |
|  | Region 2: Jennifer Billings | **✓** |
|  | Region 3: Jarrett Spegele | **✓** |
|  | Region 4: Chris Boespflug | **✓** |
|  | Region 5: David Valentinelli | **✓** |
|  | Project Development: Neil Lacey | **✓** |
|  | Standards and Specifications: Shawn Yu | **✓** |
|  | Area Engineers: Straub, Zamora, & Ryburn | **✓** |
|  | Bridge: Hoang Bui | **✓** |
|  | Contracts & Market Analysis: Markos Atamo | **✓** |
|  | Materials: Mike Stanford | **✓** |
|  | Materials: Craig Wieden | **✓** |
|  | Traffic Engineering: Manjari Bhat | **✓** | **REVIEWER COMMENTS:**  ( ) Approved ( ) Disapproved ( ) Modified  If disapproved or modified, give reason why and show any modifications on the attached draft copy:    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_  Name/Signature Date | |
|  | Maintenance: Tyler Weldon | **✓** |
|  | FHWA: Kelly Galardi | **✓** |
|  | Attorney General: Leo Milan | **✓** |
|  | **Others:** |  |
|  | Colorado Contractors Assoc.: Jim Moody | **✓** |
|  | **Technical Committees:** |  |
|  | Bridge |  |
|  | PDAC | **✓** |
|  | Drainage Advisory Committee (DAC) |  |
|  | Water Quality Advisory Committee (WQAC) |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **COLORADO DEPARTMENT OF TRANSPORTATION**  **SUBMITTAL OF NEW SPECIFICATION OR SPECIFICATION CHANGE** | | | Log No. (Assigned by Standards and Specifications Unit)  208-1 | |
| TO: Standards & Specifications Unit Project Development Branch | | FROM:  MS4 Task Force & DTD/EPB Water Quality Section, HQ (Region, Branch or Technical Committee) | | |
| SPECIFICATION SECTION NO.  208 | ITEM  Erosion Control | | | Priority  Routine Fast x |
| Reason for this new or changed specification:  The Colorado Department of Public Health and Environment issued a new Colorado Discharge Permit System-Stormwater Construction Permit (COR400000), which becomes effective on April 1st, 2019.  The major changes to the specification are to reflect the changes necessary to stay in compliance with the new permit. Other changes were made to better reflect industrry standards for control measures (formerly called BMPs). | | | | |
| New or Revised Specification:  See attached. | | | | |
| NOTE: See Procedural Directive 513.1 for a description of appropriate specification development procedures. | | | | |

XXXXXX XX, 2019

1. REVISION OF SECTION 208

EROSION CONTROL

**NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction.* It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT’s Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use on all projects involving use of the Colorado Discharge Permit System-Stormwater Construction Permit (COR400000), which becomes effective on April 1st, 2019.

Section 208 of the Standard Specifications is hereby deleted for this project and replaced with the following:

**DESCRIPTION**

**208.01** This work consists of constructing, installing, maintaining, and removing when required, control measures during the life of the Contract to prevent or minimize erosion, sedimentation, and pollution of any State waters as defined in subsection 107.25, including wetlands.

Stormwater runoff from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This shall be accomplished through filtering, settling, or straining. The control measure shall be selected, designed, installed, and adequately sized in accordance with good engineering, hydrologic, and pollution control practices. The control measures shall contain or filter flows in order to prevent the bypass of flows without treatment and shall be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow).

The Contractor shall coordinate the construction of temporary control measures with the construction of permanent control measures to assure economical, effective, and continuous erosion and sediment control throughout the construction period.

When a provision of Section 208 or an order by the Engineer requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin affecting completion of the action and pursue it to completion in a manner acceptable to the Engineer, and in accordance with the Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) requirements.

**MATERIALS**

**208.02** Erosion control materials are subject to acceptance in accordance with subsection 106.01. Erosion control materials shall be subject to the following approval process:

|  |  |  |
| --- | --- | --- |
| Material | Approval Process | Notes: |
| Erosion Bales (Weed Free) | COC | The Contractor shall provide a transit certificate number or a copy of the transit certificate as supplied from the producer. |
| Silt Fence | COC |  |
| Silt Berm | APL |  |
| Erosion Log (Type 1, Type 2, and Type 3) | COC |  |
| Silt Dikes | COC |  |
| Pre-fabricated Concrete Washout Structures (above ground) | APL |  |
| Pre-fabricated Vehicle Tracking Pad | APL |  |
| Aggregate Bag | COC |  |
| Storm Drain Inlet Protection  (Type I, II, and III) | APL |  |
| COC = Certificate of Compliance; APL= Approved Product List | | |

The material for control measures shall conform to the following:

1. *Erosion Bales*. Material for erosion bales shall consist of Certified Weed Free hay or straw. The hay or straw shall be certified under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS. Each certified weed free erosion bale shall be identified by blue and orange twine binding the bales.

The Contractor shall not place certified weed free erosion bales or remove their identifying twine until the Engineer has inspected them.

The Contractor may obtain a current list of Colorado Weed Free Forage Crop Producers who have completed certification by contacting the Colorado Department of Agriculture, Weed Free Forage Program,   
305 Interlocken Pkwy, Broomfield, CO 80021. Contact the Weed Free Forage Coordinator at (303) 869-9038. Also available at [www.colorado.gov/ag/csd](http://www.colorado.gov/ag/csd).

Bales shall be approximately 5 cubic feet of material and weigh at least 35 pounds. Stakes shall be wood and shall be 2 inch by 2 inch nominal.

1. *Silt Fence*. Silt fence posts shall be wood with a minimum length of 46 inches. Wood posts shall be 1.5 inch width by 1.5 inch thickness actual dimensions with 1/8 inch tolerance. Geotextile shall be attached to wood posts with three or more staples per post.

Silt fence geotextile shall conform to the following requirements:

**Physical Requirements for Silt Fence Geotextiles**

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **Wire Fence Supported Requirements** | **Self-Supported Requirements**  **Geotextile Elongation <50%** | **Test Method** |
| Grab Strength, lbs | 90 minimum | 124 minimum | ASTM D4632 |
| Permittivity sec-1 | 0.05 | 0.05 | ASTM D4491 |
| Ultraviolet Stability | Minimum 70% Strength Retained | Minimum 70% Strength Retained | ASTM D4355 |

Silt Fence (Reinforced). Silt fence posts shall be metal "studded tee" T-post with a minimum length of 66 inches. Metal posts shall be “studded tee” with 0.095 inch minimum wall thickness. Wire fabric reinforcement for the silt fence geotextile shall be a minimum of 14 gauge with a maximum mesh spacing of 6 inches. Geotextile shall be attached to welded wire fabric with ties or nylon cable ties at 12 inches on center at top, middle and bottom wire. Welded wire fabric shall be attached to the post with a minimum three 12 gauge wire ties per post. Vinyl or rubber safety caps shall be installed on all T-post.

1. *Temporary Berms*. Temporary berms shall be constructed out of embankment (subsoil) and in no circumstance constructed out of salvaged topsoil.
2. *Temporary Slope Drains*. Temporary slope drains shall consist of fiber mats, plastic sheets, stone, concrete or asphalt gutters, half round pipe, metal or plastic pipe, wood flume, flexible rubber, or other materials suitable to carry accumulated water down the slopes. Outlet protection riprap shall conform to Section 506. Erosion control geotextile shall be a minimum Class 2, conforming to subsection 712.08.
3. *Silt Berm*. Silt berm shall consist of permeable multi-use material consisting of ultraviolet (UV) stabilized high-density polyethylene or other approved material effective in reducing water velocity. Designed and tested system shall be installed on a Turf Reinforcement Mat or Soil Retention Blanket in accordance with Section 216. The segment shall be secured to the ground with either metal or wood stakes. Minimum requirements for securing stakes shall be in accordance with the plans. Dimensions of individual segments shall meet the following criteria:

|  |  |
| --- | --- |
| Width | 6 - 11 inches |
| Height | 6 - 10 inches |
| Weight | > 0.25 lbs./sq. ft. |
| Percent Open Area | 20 – 50% |

1. *Rock Check Dam*. Rock Check dams shall be constructed of stone. Stone shall meet the requirements of Section 506.
2. *Sediment Trap*. In constructing an excavated sediment trap, excavated soil may be used to construct the dam embankment, provided the soil meets the requirements of subsection 203.03. Outlet protection riprap shall be the size specified in the Contract and shall conform to Section 506. Erosion control geotextile shall be a minimum Class 1, conforming to subsection 712.08.
3. *Erosion Logs*. Erosion logs shall be one of the following types unless otherwise shown on the plans:
4. Erosion Log (Type 1) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, photo-degradable tube netting. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.
5. Erosion Log (Type 2) shall consist of cylinder casings filled with Erosion Log (Type 2) Compost in accordance with subsection 212.02. The compost-wood chip blend may be pneumatically shot into a geotextile cylindrical casing or be pre-manufactured. The geotextile casing shall consist of HDPE or polypropylene mesh (knitted, not extruded) with openings of ⅛ to ⅜ inch and contain the compost-wood chip material while not limiting water infiltration.
6. Erosion Log (Type 3) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, 100 percent natural fiber cylinder netting (compostable) and shall have minimum dimensions as shown in Table 208-1, based on the diameter of the log shown on the plans. Netting shall be a woven cotton or cellulose base mesh that has an approval to compost certification with a maximum mesh size of 0.075 inches and index values as shown in Table 208-2. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.

Natural compostable fiber netting shall not contain any synthetic material woven into the netting such as polypropylene, nylon, polyethylene, or polyester dyes. Oxo-degradable or oxi-biodegradable petrochemical-based fiber shall not be part of the netting material. Burlap netting material shall not be used for Erosion Log (Type 3).

Erosion Log (Type 1, Type 2, and Type 3) shall have minimum dimensions as shown in Table 208-1, based on the specified diameter of the log.

**Table 208-1  
Nominal Dimensions of Erosion Logs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Diameter**  **Type 1 & 3**  **(Inches)** | **Diameter**  **Type 2**  **(Inches)** | **Length (feet)** | | **Weight (minimum) (pounds/foot)** | **Stake Dimensions**  **(Inches)** |
| **Min.** | **Max.** |
| 9 | 8 | 10 | 180 | 1.6 | ¾ thickness by ¾ width by 18 long |
| 12 | 12 | 10 | 180 | 2.5 | 1.5 thickness by 1.25 width by 24 long |
| 20 | 18 | 10 | 100 | 4.0 | 1.5 thickness by 1.25 width by 30 long |

Wood stake acceptable tolerance +/- 1/8 inch.

**Table 208-2  
Index Values for Natural Fiber Netting**

|  |  |  |
| --- | --- | --- |
| **Property** | **Requirement** | **Test Method** |
|
| Fabric Tensile Strength | >70 lbs. | ASTM D3822 |
| Biodegradable | 100% | ASTM D5988 |
| Mesh Pattern | Rib |  |

Stakes to secure erosion logs shall consist of pinewood or hardwood.

1. *Silt Dikes*. Silt dikes shall be pre-manufactured flexible sediment barrier that will fully rebound when driven over by heavy equipment. Material shall consist of outer geotextile fabric covering closed cell urethane or polyethylene foam core. The geotextile fabric aprons shall extend beyond the foam core a minimum of 8 inches on both sides.

**Table 208-3  
Geotextile Requirements**

|  |  |  |
| --- | --- | --- |
| **Property** | **Requirement** | **Test Method** |
|
| Water Flow Rate | 100-150 gallons per minute/square foot | ASTM D4491 |
| Grab Breaking Load | 200 lbs. minimum in each direction | ASTM D4632 |
| Ultraviolet Degradation | 70% of original unexposed grab breaking load after 500 hours | ASTM D4595 |

Each silt dike segment shall have the following dimensions:

**Dimension Length**

Vertical height after installation >5 inches

Geotextile sleeve section to interlock segments >8 inches

Silt dike segments shall be anchored down using the minimum requirements shown in Table 208-4.

**Table 208-4  
Silt Dike Segment Requirements**

|  |  |  |
| --- | --- | --- |
| **Surface** | **Nail** | **Washers** |
|
| Soil Surface | Installed in 4 inch deep trench with 6 inch nails no more than 4 feet O.C. (on center) | 1 inch washers |
| Hard Surface | 1 inch concrete nails no more than 4 feet O.C. | 1 inch washers and solvent-free adhesive |

1. *Concrete Washout Structure*. The Contractor shall construct a washout structure that will contain washout from concrete placement and construction equipment cleaning operations such as saw cutting, coring, grinding, grooving, and hydro-concrete demolition. Embankment required for the concrete washout structure may be excavated material, provided that this material meets the requirements of Section 203 for embankment. If the bottom of the excavated structure is within 5 feet of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5.

**Table 208-5  
Impermeable Synthetic Liner Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tested Property** | **Test Method** | **Units** | **Value** |
| Thickness | ASTM D5199 | mil | >30 +/- 1.5 |
| Tear Strength | ASTM D1004 | lbs | >8 |
| Low Temperature Impact | ASTM D1790 | °F | Pass at -20 |

1. *Pre-Fabricated Concrete Washout Structure.* Pre-Fabricated Concrete Washout Structures shall be one of the following types unless otherwise shown on the plans:
2. Pre-Fabricated Concrete Washout Structure (Type 1). Type 1 portable bins shall be used only when specified in the Contract. It shall consist of a watertight multi-use container designed to contain liquid concrete washout wastewater and solid residual concrete waste from washout operations such as sawcutting, coring, grinding, grooving, and hydro-concrete demolition. Minimum capacity including freeboard shall be 440 to 900 gallons. Each structure shall have capacity sufficient for installing (pouring) approximately 180 cubic yards of concrete.
3. Pre-Fabricated Concrete Washout Structure (Type 2). Type 2 portable bins shall be used only when specified in the Contract. It shall consist of a watertight one-time use container designed to contain liquid concrete washout wastewater and solid residual concrete waste from washout operations such as sawcutting, coring, grinding, grooving, and hydro-concrete demolition. The structure shall have a system to secure to the ground. Minimum capacity including freeboard shall be 50 to 100 gallons. Each structure shall have capacity sufficient for installing (pouring) approximately 20 cubic yards of concrete.
4. *Vehicle Tracking Pad (VTP)*. Aggregate for the vehicle tracking pad shall be crushed natural aggregate with at least two fractured faces that meets the following gradation requirements:

**Sieve size Percent by weight**

**Passing Square Mesh Sieves**

75 mm (3 inch) 100

50 mm (2 inch) 0-25

19.0 mm (¾ inch) 0-15

Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.

Erosion control geotextile shall be a minimum Class 2, conforming to subsection 712.08.

Pre-Fabricated or manufactured vehicle tracking pads shall only be used if specified in the Contract. Multi-use pads shall consist of industrial grade materials and shall be designed to minimize sediment leaving the project.

Minimum dimensions of the modular systems shall be:

|  |  |
| --- | --- |
| Width | 12 feet |
| Length of pad | 35 feet |

To accommodate construction traffic turning radii between the tracking pad and a stabilized surface, additional flare sections of approved pads or aggregate in accordance with this specification shall be used at no additional cost to CDOT.

|  |  |
| --- | --- |
| Weight (min.) (lbs./sq. ft.) | 8 |
| Crush strength (min.) (psi) | 400 |

If pads weigh less than 8 pounds per square foot, an anchoring system approved by the manufacturer shall be used for pads placed on soil and hard surfaces.

A thin layer of stone, geotextile, or other stable surface may be required to stop rutting under the pad or area where the vehicles mount or dismount the manufactured trackout control device.

1. *Aggregate Bag*. Aggregate bags shall consist of crushed stone or recycled rubber filled fabric with the following properties:

|  |  |
| --- | --- |
| **Diameter (inches)** | **Weight (minimum)**  **(pounds per foot)** |
| 6-8 | 6 |
| 10 | 10 |
| 12 | 15 |

Rubber used in bags shall be clean, 95 percent free of metal and particulates.

Crushed stone contained in the aggregate bags shall conform to Table 703-1 for Coarse Aggregate No. 6.

The aggregate bag shall consist of a woven geotextile fabric with the following properties:

|  |  |  |
| --- | --- | --- |
| **Property** | **Requirement** | **Test Method** |
| Grab Tensile Strength | 90 lbs. min. | ASTM D4632 |
| Trapezoid Tear Strength | 25 lbs. min. | ASTM D4533 |
| Mullen Burst | 300 psi | ASTM D3786 |
| Ultraviolet Resistance | 70% | ASTM D4355 |

1. *Storm Drain Inlet Protection*. Storm drain inlet protection shall consist of aggregate filled fabric with the following dimensions:

|  |  |  |  |
| --- | --- | --- | --- |
| **Storm Drain Inlet Protection Properties** | **Protection Types** | | |
| **Type I1** | **Type II2** | **Type III3** |
| Diameter | 4 in. | 4 in. | N/A |
| Minimum Section Length | 7 ft. | 5 ft. | 5 ft. |
| Apron Insert | --- | 30 in. or sized to grate | 30 in or sized to grate |
| 1Type I protection shall be used with Inlet Type R.  2Type II protection shall be used with Combination Inlet. Option A or B  3Type III protection shall be used with Vane Grate Inlet only. Option A or B  Note: Options A and B are shown on Standard Plan M-208-1. | | | |

The Storm Drain Inlet Protection (Type I, II and III) shall consist of a woven geotextile fabric with the following properties:

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **Test Method** | **Unit** | **Requirement** |
| Grab tensile strength | ASTM D4632 | lbs. | minimum 150X200 |
| Mullen Burst Strength | ASTM D3786 | lbs. | 400 |
| Trapezoid Tear Strength | ASTM D4533 | lbs. | minimum 60X60 |
| Percent Open Area | COE-22125-86 | % | ≥20 |
| Water Flow Rate | ASTM D4491 | gal./min./sq. ft. | ≥100 |
| Ultraviolet Resistance | ASTM D4355 | % | ≥70 |

Curb roll for Storm Drain Inlet Protection (Type I and II) shall have a weight >4 pounds per linear foot of device. The device shall be capable of conforming to the shape of the curb. Aggregate contained in the storm drain inlet device shall consist of gravel or crushed stone conforming Table 703-1 for Coarse Aggregate No. 6.

**CONSTRUCTION REQUIREMENTS**

**208.03 Project Review, Schedule, and Erosion Control Management.** Prior to construction, an on-site Environmental Pre-construction Conference shall be held. The conference shall be attended by:

1. The Engineer.
2. The Superintendent.
3. The Contractor's Stormwater Management Plan (SWMP) Administrator. The SWMP Administrator is equivalent to the CDPS-SCP Qualified Stormwater Manager.
4. Supervisors or Foremen of subcontractors working on the project.
5. The Region Water Pollution Control Manager (RWPCM).
6. CDOT personnel (e.g., CDOT Landscape Architect) who prepared or reviewed the Stormwater Management Plan (SWMP).

At this conference, the attendees shall discuss the SWMP, CDPS-SCP, sensitive habitats on site, wetlands, other vegetation to be protected, and the enforcement mechanisms for not meeting the requirements of this specification.

Prior to beginning construction, the Contractor shall evaluate the project site for storm water draining into or through the site. When such drainage is identified, control measures shall be used if possible to divert stormwater from running on-site and becoming contaminated with sediment or other pollutants. The diversion may be accomplished with a temporary pipe or other conveyance to prevent water contamination or contact with pollutants. Run-on water that cannot be diverted shall be treated as construction runoff and adequate control measures shall be employed.

The SWMP Administrator shall evaluate all non-stormwater coming onto the site, such as springs, seeps, and landscape irrigation return flow. If such flow is identified, control measures shall be used to protect off-site water from becoming contaminated with sediment or other pollutants.

The SWMP Administrator shall review existing inlets and culverts to determine if inlet protection is needed due to water flow patterns. Prior to beginning construction, inlets and culverts needing protection shall be protected and the location of the implemented control measure added to the SWMP site map.

Prior to construction, the Contractor shall implement appropriate control measures for protection of wetlands, sensitive habitat, and existing vegetation from ground disturbance and other pollutant sources, in accordance with the approved project schedule as described in subsection 208.03(b).

When additional control measures are required and approved by the Engineer, the Contractor shall implement the additional control measures and the SWMP Administrator shall record and describe them on the SWMP site map. The approved control measures will be measured and paid for in accordance with subsections 208.11 and 208.12.

1. *Project Review*. The Contractor shall submit modifications to the Contract’s control measures or SWMP in a written proposal to the Engineer. The written proposal shall include the following information:
2. Reasons for changing the control measures.
3. Diagrams showing details and locations of all proposed changes.
4. List of appropriate pay items indicating new and revised quantities.
5. Schedules for accomplishing all erosion and sediment control work.
6. Effects on permits or certifications caused by the proposed changes.

The Engineer will approve or reject the written proposal in writing within seven days after the submittal. The Engineer may require additional control measures prior to approving the proposed modifications. Additional modifications and additional control measures will be paid for at the Contract Unit Price for the specific items involved. If no items exist, they will be paid for as extra work in accordance with subsection 109.04.

1. *Erosion and Sediment Control Activities*. The erosion and sediment control activities shall be included in the weekly meeting update. The project schedule shall specifically indicate the sequence of clearing and grubbing, earthwork operations, and construction of temporary and permanent erosion control features and stabilization. The project schedule shall include erosion and sediment control work for haul roads, borrow pits, storage and asphalt or concrete batch sites, and all areas within the project limits. If during construction the Contractor proposes changes which would affect the Contract's control measures, the Contractor shall propose revised control measures to the Engineer for approval in writing. If necessary, the SWMP Administrator shall update proposed sequencing of major activities in the SWMP. Revisions shall not be implemented until the proposed measures have been approved in writing by the Engineer.
2. *Erosion Control Management (ECM).* Erosion Control Management for this project shall consist of SWMP Administration and Erosion Control Inspection. All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent will not be permitted to serve in an ECM role. The Erosion Control Inspector (ECI) and the SWMP Administrator may be the same person in projects with not more than 40 acres of disturbed area.
3. SWMP Administration. The SWMP shall be maintained by a SWMP Administrator. In the case of a project requiring only one TECS, the SWMP Administrator may also be the ECI for the project. The name of the SWMP Administrator shall be recorded on the SWMP Section 3.B. The SWMP Administrator shall have full responsibility to maintain and update the SWMP and identify to the Superintendent critical action items needed to conform to the CDPS-SCP as follows:
4. Complete the SWMP as described in subsection 208.03(d).
5. Participate in the Environmental Pre-construction Conference.

1. Attend weekly erosion and sediment control meetings.

1. Attend all Headquarter and Region water quality control inspections. The Contractor and the Contractor’s SWMP Administrator will be notified a minimum of five days in advance of each inspection by the region or headquarter water quality staff.
2. Coordinate with the Superintendent to implement necessary actions to reduce anticipated or presently existing water quality or erosion problems resulting from construction activities.
3. Coordinate with the Superintendent to ensure that all labor, material, and equipment needed to install, maintain, and remove control measures are available as needed.
4. During construction, the SWMP site map shall be updated to reflect current field conditions and include, at a minimum, the following:
5. Limits of Construction (LOC).
6. Areas of disturbance (AD), including areas of borrow and fill.
7. Limits of Disturbance (LDA).
8. Areas used for storage of construction materials, equipment, soils, or wastes.
9. Location of dedicated asphalt, concrete batch plants, and masonry mixing stations.
10. Location of construction offices and staging areas.
11. Location of work access routes during construction.
12. Location of waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt.
13. Location of temporary, interim and permanent stabilization.
14. Location of outfalls.
15. Flow arrows that depict stormwater flow directions on-site and runoff direction.
16. Location of structural and non-structural control measures.
17. Location of springs, streams, wetlands, and other State waters, including areas that require pre-existing vegetation be maintained within 50 horizontal feet of a receiving water, unless infeasible.
18. Location of stream crossings located within the construction site boundary.
19. The SWMP shall reflect the field conditions and shall be amended to reflect control measures.
20. A change in design, construction, operation, or maintenance of the site which would require the implementation of new or revised control measures; or
21. Changes when the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.
22. Changes when control measures are no longer necessary and are removed.
23. Complete vegetative survey transects when required in accordance with CDOT Erosion Control and Stormwater Quality Guide.
24. Start a new site map before the current one becomes illegible. All site maps shall remain as part of the SWMP.
25. Document all inspection and maintenance activities. The SWMP and documentation shall be kept on the project site.
26. When adding or revising control measures in the SWMP, add a narrative explaining what, when, where, why, and how the control measure is being used, and add a detail to the SWMP.

How to install and inspect the control measure.

Where to install the control measure.

When to maintain the control measure.

1. If using existing topography, vegetation, etc. as a control measure, label it as such on the SWMP site map; add a narrative as to when, where, why, and how the control measure is being used.
2. Indicate control measures in use or not in use by recording them on Standard Plans M-208-1, M-216-1, and M-615-1 in the SWMP.
3. Record on the SWMP, the approved Method Statement for Containing Pollutant Byproducts.
4. Update the Potential Pollutants list in the SWMP and Spill Response Plan throughout construction.
5. Vegetative buffers shall not be used as a sole control measure. They shall only be used as the final stage of a treatment train.
6. Erosion Control Inspection.

One ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04(e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04(e) will not be included in the 40 acres.

ECI duties shall be as follows:

1. Coordinate with the SWMP Administrator on reporting the results of inspections.
2. Review the construction site for compliance with the Stormwater Construction Permit.
3. Inspect with the Superintendent and the Engineer (or their designated representatives) the stormwater management system at least every seven calendar days. Post-storm event inspections shall be conducted within 24 hours after the end of any precipitation or snow melt event that may cause surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to commencing construction activities, but no later than 72 hours following the storm event. The occurrence of delay in inspections shall be documented in the inspection report. Form 1176 shall be used for all 7-day inspections and inspections following storm events. The Contractor shall notify the Erosion Control Inspector when a storm event occurs. Failure to perform inspections on time will result in liquidated damages in accordance with subsection 208.09.

Inspections are not required at sites when construction activities are temporarily halted, when snow cover exists over the entire site for an extended period and melting conditions do not pose a risk of surface erosion. This exception shall be applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, Headquarters and Region inspections, as well as the post-storm event inspections. The following information shall be documented on Form 1176 for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began.

The order of precedence for required inspections shall be as follows:

Headquarters or Region water quality routine audits

Post-storm event inspections

7-day inspections

When one of the listed inspections is performed, the inspections listed below it need not be performed on that day if the required CDOT and Contractor personnel participated in the inspection.

For example: A 7-day inspection is not required on the same day a headquarters or Region water quality routine audit is conducted, as long as all of the inspection scope requirements for a 7-day and post-storm event inspection are met. A sheet shall be placed in the inspections area of the SWMP to refer to the date the inspection was performed.

7-day inspections and post-storm inspections shall include inspection of the following areas, if applicable, for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to State waters:

1. Construction site perimeter
2. Disturbed areas
3. Designated haul routes
4. Material and waste storage areas exposed to precipitation
5. Locations where stormwater has the potential to discharge offsite
6. Locations where vehicles exit the site

Inspections shall include the following:

1. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
2. Determine if there are new potential sources of pollutants.
3. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
4. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with the CDPS-SCP.
5. Follow all other agency Stormwater requirements and inspections unless a waiver or other agreement has been made.
6. The Contractor shall report the following circumstances orally to CDOT, CDPHE, the Contractor’s Superintendent, and the SWMP Administrator within 24 hours from the time the permittee becomes aware of the circumstances, and shall mail to the Division a written report containing the information requested within five working days after becoming aware of the following circumstances:

Noncompliance which may endanger health or the environment, regardless of the cause of the incident.

Unanticipated bypass which exceeds any effluent limitations in accordance with the CDPS-SCP.

Upset conditions which causes an exceedance of any effluent limitation in accordance with the CDPS-SCP.

Daily maximum violations for any of the pollutants limited by the permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

1. Document spills, leaks, or overflows that result in the discharge of pollutants on the Form 1176. The ECI shall record the time and date, weather conditions, reasons for spill, and how it was remediated.
2. *Documentation Available on the Project*. The following Contract documents and references will be made available for reference at the CDOT field office during construction:

SWMP. The Engineer will provide an approved SWMP design at the Pre-construction Conference, which is and shall remain the property of CDOT. CDOT will initially provide the documentation for items (1) through (4), and (18) as listed below, when available. The Contractor shall provide the contents required for items (5) through (17). The SWMP shall be stored in the CDOT field office or at another on-site location approved by the Division. The SWMP Administrator shall modify and update the SWMP as needed to reflect actual site conditions prior to the change or as soon as practicable, but in no case more than 72 hours after the change. The following Contract documents and reports shall be kept, maintained, and updated in the SWMP under the appropriate items by the SWMP Administrator:

* + - 1. SWMP Plan Sheets – Notes, tabulation, site description. The SWMP shall include a site description which includes, at a minimum, the following:
         1. The nature of the construction activity at the site.
         2. The proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g. clearing, grading, utilities, vertical, etc.)
         3. Estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities.
         4. A summary of any existing data used in the development of the construction site plans or SWMP that describe the soil or existing potential for soil erosion.
         5. A description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage, in accordance with CDOT Erosion Control and Stormwater Quality Guide.
         6. A description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy.
         7. A description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge. If the stormwater discharge is to a municipal separate storm sewer system, the name of the entity owning the system, the location of the storm sewer discharge, and the ultimate receiving water(s).
         8. A description of all stream crossings located within the construction site boundary.
      2. SWMP Site Maps and Project Plan Title Sheet
      3. Specifications – Standard and project special provisions related to stormwater and erosion control.
      4. Standard Plans M-208-1, M-216-1 and M-615-1.
      5. Control measure Details not in Standard Plan M-208-1 – Non-standard details.
      6. Weekly meeting sign in sheet and weekly meeting notes.
      7. Calendar of Inspections – Calendar of inspections marking when all inspections take place.
      8. Contractor Stormwater Field Inspection Reports and ~~Weekly meeting notes~~ (Forms 1176, 1177, 1388).
      9. All Water Quality Audit Reports and Form 105(s) relating to Water Quality.
      10. Description of Inspection and Maintenance Methods – Description of inspection and maintenance methods implemented at the site to maintain all control measures identified in the SWMP and items not addressed in the design.
      11. Spill Response Plan – Reports of reportable spills submitted to CDPHE.
      12. List and Evaluation of Potential Pollutants – List of potential pollutants as described in subsection 107.25 and approved Method Statement for Containing Pollutant Byproducts.
      13. Other Correspondence e.g., agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List, and other miscellaneous documentation such as documented use agreements for areas outside of the permitted area.
      14. TECS Certifications of the SWMP Administrator and all ECIs, kept current through the life of the project.
      15. Environmental Pre-construction Conference – Conference agenda with a certification of understanding of the terms and conditions of the CDPS-SCP and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Environmental Pre-construction Conference has been held.

1. All Project Environmental Permits – All project environmental permits and associated applications and certifications, including, CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions, and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete batch plant, etc.
2. Photographs Documenting Existing Vegetation – Project photographs shall be time stamped on paper with a maximum of four colored images per 8 ½ inch by 11 inch sheet and/or a digital copy of all photographs on CD-ROM/Flash Drive in (JPG format), documenting existing vegetation prior to construction commencing. On the bottom of each photograph shall be a description using Station Number or Mile Post where the photograph was taken.
3. Permanent Water Quality Plan Sheets – Plan sheets and specifications for permanent water quality structures and riprap.

The Engineer will incorporate the documents and reports available at the time of award. The Contractor shall provide and insert all other documents and reports as they become available during construction.  
The SWMP Administrator shall finalize the SWMP for CDOT Maintenance use upon completion of the project. SWMP completeness shall be approved by the Engineer. Corrections to the SWMP shall be made at the Contractor’s expense.

Reference Materials. The following Reference materials shall be used:

* + - 1. CDOT Erosion Control and Stormwater Quality Guide.
      2. CDOT Erosion Control and Stormwater Quality Field Guide.

*Weekly Meetings*: The Engineer, the Superintendent, and the SWMP Administrator shall conduct a weekly meeting with supervisors involved in construction activities that could adversely affect water quality. The meeting shall follow an agenda prepared by the Engineer, or a designated representative, and have a sign in sheet on which the names of all attendees shall be recorded. The SWMP Administrator shall take notes of water quality comments and action items at each weekly meeting, and place the agenda and sign in sheet in the SWMP. At this meeting the following shall be discussed and recorded in tab 6 of the SWMP:

1. Recalcitrant, chronic, and severe inspection findings.
2. Unresolved issues from previous inspections.
3. Requirements of the SWMP.
4. Problems that may have arisen in implementing the site specific SWMP or maintaining control measures.
5. Control measures that are to be installed, removed, modified, or maintained, and associated SWMP modifications.
6. Planned activities that will affect stormwater in order to proactively phase control measures.

All subcontractors not in attendance at the Environment Pre-construction Conference shall be briefed on the project by the Engineer, Superintendent, and the SWMP Administrator prior to start of work. The SWMP Administrator shall record the names of these subcontractors as an addendum to the list of attendees, and add it to the SWMP.

**208.04 Control Measures for Stormwater.**

The SWMP Administrator shall modify the SWMP to clearly describe and locate all control measures implemented at the site to control potential sediment discharges.

Vehicle tracking pads shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the limits of construction (LOC) of the project site. Access shall be provided only at locations approved by the Engineer. The SWMP Administrator shall record vehicle tracking pad locations on the SWMP site map.

New inlets and culverts shall be protected during their construction. Appropriate protection of each culvert and inlet shall be installed immediately. When riprap is called for at the outlet of a culvert, it shall be installed within 24 hours of completion of each pipe. The Contractor shall remove sediment, millings, debris, and other pollutants from within the newly constructed drainage system in accordance with the CDPS-SCP, prior to use, at the Contractor’s expense. All removed sediment shall be disposed of outside the project limits in accordance with all applicable regulations.

Concrete products wasted on the ground during construction including, but not limited to, excess concrete removed from forms, spills, slop, and all other unused concrete are potential pollutants that shall be removed from the site or contained at a pre-approved containment area that has been identified in the SWMP. The concrete shall be picked up and recycled in accordance with 6 CCR 1007-2 (CDPHE Regulations Pertaining to Solid Waste Sites and Facilities) at regular intervals, as needed, or as directed by the Engineer. The uses of recycled concrete from permitted recycling facilities shall be in accordance with Section 203.

1. *Unforeseen Conditions*. The Contractor shall design and implement erosion and sediment control measures for correcting conditions unforeseen during the design of the project, or for emergency situations, that develop during construction. The Department’s Erosion Control and Stormwater Quality Guide shall be used as a reference document for the purpose of designing erosion and sediment control measures. Measures and methods proposed by the Contractor shall be reviewed and approved in writing by the Engineer prior to installation.
2. *Other Agencies*. If CDPHE, US Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), or a Local Agency reviews the project site and requires additional measures to prevent and control erosion, sediment, or pollutants, the Contractor shall cease and desist activities resulting in pollutant discharge and immediately implement these measures. If the work may negatively affect another MS4, the Contractor shall cease and desist activities resulting in the discharge and shall implement appropriate measures to protect the neighboring MS4, including installing additional measures. Implementation of these additional measures will be paid for at contract unit prices.
3. *Work Outside the Right of Way*. Disturbed areas, including staging areas, which are outside CDOT ROW and outside easements acquired by CDOT for construction, are the responsibility of the Contractor. These areas shall be subject to a separate CDPS-SCP and all other necessary permits, as they are considered a common plan of development if within a ¼ mile of the construction site. The Contractor shall acquire these permits and submit copies to the Engineer prior to any disturbance. These permits, shall be acquired and all erosion and sediment control work performed at the Contractor's expense. These areas are subject to inspections by CDOT or any other agency, as agreed upon in writing. A documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area that are utilized by the permittee’s construction site for compliance with the CDPS-SCP, but not under the direct control of the permittee shall be placed in the project’s SWMP.
4. *Construction Implementation*. The Contractor shall incorporate control measures into the project as outlined in the accepted schedule.
5. *Stabilization*. Once earthwork has started, the Contractor shall maintain erosion control measures until permanent stabilization of the area has been completed and accepted. Clearing, grubbing and slope stabilization measures shall be performed regularly to ensure final stabilization. Failure to properly maintain erosion control and stabilization methods, either through improper phasing or sequencing will require the Contractor to repair or replace sections of earthwork at his expense. The Contractor shall schedule and implement the following stabilization measures during the course of the project:
6. Temporary Stabilization. At the end of each day, the Contractor shall stabilize disturbed areas by surface roughening, vertical tracking, or a combination thereof. Disturbed areas are locations where actions have been taken to alter the existing vegetation or underlying soil of a site, such as clearing, grading, road bed preparation, soil compaction, and movement and stockpiling of sediment and materials. Other stabilization measures may be implemented, as approved. The maximum area of temporary stabilization shall not exceed 20 acres.

1. Interim Stabilization. As soon as it is known with reasonable certainty that work will be temporarily halted for 14 days or more, sediment and material stockpiles and disturbed areas shall be stabilized using one or more of the specified following methods:
2. Application of 1.5 tons per acres of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.
3. Placement of bonded fiber matrix in accordance with Section 213.
4. Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213.
5. Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, shall not be used as a stabilization method.

(5) Topsoil stockpiles shall receive interim stabilization in accordance with Section 207.

1. Summer and Winter Stabilization. Summer and winter stabilization is defined as stabilization during months when seeding will not be permitted. As soon as the Contractor knows shutdown is to occur, interim stabilization shall be applied to the disturbed area. Protection of the interim stabilization method is required. Reapplication of interim stabilization may be required as directed.
2. Permanent Stabilization. Permanent stabilization is defined as the covering of disturbed areas with topsoil, seeding, mulching with tackifier, soil retention coverings, and such non-erodible methods as riprap, road shouldering, etc., or a combination thereof as required by the Contract. Other permanent stabilization techniques may be proposed by the Contractor, in writing, and shall be used when approved in writing by the Engineer. All permanent stabilization requirements shown on the plans shall be completed within four working days of the placement of the topsoil in accordance with Section 207.
3. Final Stabilization. Final stabilization is achieved when all ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.
4. *Maintenance*. Erosion and sediment control practices and other protective measures identified in the SWMP as control measures for stormwater pollution prevention shall be maintained in effective operating condition until the CDPS-SCP has been transferred to CDOT. control measures shall be continuously maintained in accordance with good engineering, hydrologic, and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the effective height of the erosion control device. When possible, the Contractor shall use equipment with an operator rather than labor alone to remove the sediment.

Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the Contractor and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and disposal of sediment or addition of aggregate. Damages resulting from failure to maintain control measures shall be repaired at the Contactor’s expense.

Complete site assessment shall be performed as part of comprehensive inspection and maintenance procedures to assess the adequacy of control measures at the site and the necessity of changes to those control measures to ensure continued effective performance. Where site assessment results in the determination that new or replacement control measures are necessary, the control measures shall be installed to ensure continuous effectiveness. When identified, control measures shall be maintained, added, modified or replaced as soon as possible, immediately in most cases.

Approved new or replaced control measures will be measured and paid for in accordance with subsections 208.11 and 208.12. Devices damaged due to the Contractor's negligence shall be replaced at the Contractor’s expense.

From the time seeding and mulching work begins until project acceptance the Contractor shall maintain all seeded areas. Damage to seeded areas or to mulch materials shall be immediately restored. Damage to seeded areas or to mulch materials due to Contractor negligence shall be immediately restored at the Contractor’s expense. Restoration of other damaged areas will be measured and paid for under the appropriate bid item.

Temporary control measures may be removed upon completion of the project, as determined by the Water Quality Partial Acceptance walk-through. If removed, the area in which these control measures were constructed shall be returned to a condition similar to that which existed prior to its disturbance. Removed control measures shall become the property of the Contractor.

If a project delay occurs, the Contractor shall continue erosion and sediment control operations beyond the original contract time.

Sediment removed during maintenance of control measures and material from street sweeping may be used in or on embankment, provided it meets the requirements of Section 203 and is distributed evenly across the embankment.

Whenever sediment collects on the paved surface, the surface shall be cleaned. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed.

Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A control measure, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Aggregate bags, erosion logs or other permeable control measures shall not be used. Residue shall not flow into driving lanes. It shall be removed and disposed of in accordance with subsection 107.25(b). Material containment and removal will not be paid for separately, but shall be included in the work.

**208.05 Construction of Control Measures.** Control measures shall be constructed in accordance with Standard Plans M-208-1 and M-216-1, and with the following:

1. *Seeding, Mulching, Sodding, Soil Retention Blanket*. Seeding, mulching, sodding, and soil retention blanket installation shall be performed in accordance with Sections 212, 213, and 216.
2. *Erosion Bales*. The bales shall be anchored securely to the ground with wood stakes.
3. *Silt Fence*. Silt fence shall be installed in locations specified in the Contract.
4. *Temporary Berms*. Berms shall be constructed to the dimensions shown in the Contract, and sufficiently compacted to prevent erosion or failure. If the berm erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
5. *Temporary Diversion*. Diversions shall be constructed to the dimensions shown in the Contract and graded to drain to a designated outlet. The berm shall be sufficiently compacted to prevent erosion or failure. If the diversion erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.
6. *Temporary Slope Drains*. Temporary slope drains shall be installed prior to installation of permanent facilities or growth of adequate ground cover on the slopes. All temporary slope drains shall be securely anchored to the slope. The inlets and outlets of temporary slope drains shall be protected to prevent erosion.
7. *Silt Berm*. Prior to installation of silt berms, the Contractor shall prepare the surface of the areas in which the berms are to be installed such that are they free of materials greater than 2 inches in diameter and are suitably smooth for the installation of the silt berms, as approved. Silt berms shall be secured with spikes. The Contractor shall install the silt berm in a manner that will prevent water from going around or under the silt berm. Silt berms shall be installed on top of soil retention blanket or turf reinforcement blanket.
8. *Rock Check Dam*. Rock shall be installed at locations shown on the plans. Rock check dams shall conform to the dimensions shown on the plans.
9. *Rip rap Outlet Protection*. Geotextile used shall be protected from cutting or tearing. Overlaps between two pieces of geotextile shall be 1 foot minimum. Riprap size shall be as shown on the plans.
10. *Storm Drain Inlet Protection*. Prior to installation, the Contractor shall sweep the surface of the area in which the storm drain inlet protection devices are to be installed such that the pavement is free of sediment and debris. The ends of the inlet protection Type 1 and Type 2 shall extend a minimum of 1 foot past each end of the inlet.

The Contractor shall remove all accumulated sediment and debris from the surface surrounding all storm drain inlet protection devices after each rain event or as directed. The Contractor shall remove accumulated sediment from each Type II and III containment area when it is more than one third full of sediment, or as directed.

The Contractor shall protect storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, sand blasting, or abrasive water jet blasting are to take place.

1. *Sediment Trap*. Sediment traps shall be installed to collect sediment laden water and to minimize the potential of pollutants leaving the project site. Locations shall be as shown on the plans or as directed.

Sediment traps shall be constructed prior to disturbance of upslope areas and shall be placed in locations where runoff from disturbed areas can be diverted into the trap.

The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and roots.

Fill material for the embankment shall be free of roots or other vegetation, organic material, large stones, and other objectionable material.

Sediment shall be removed from the trap when it has accumulated to one half of the wet storage depth of the trap and shall be disposed of in accordance with subsection 208.04(f).

1. *Erosion Logs*. Erosion logs shall be embedded 2 inches into the soil. Stakes shall be embedded so that the top of the stake does not extend past the top erosion log more than 2 inches, at the discretion of the Engineer, a shallower stake depth may be permitted if adverse site conditions are encountered, e.g. rock or frozen ground.

The Contractor shall maintain the erosion logs during construction to prevent sediment from passing over or under the logs.

1. *Silt Dikes*. Prior to installation of silt dikes, the Contractor shall prepare the surface of the areas in which the silt dikes are to be installed such that they are free of materials greater than two inches in diameter and are suitably smooth for the installation of the silt dikes, as approved by the Engineer.
2. *Concrete Washout Structure*. The concrete washout structure shall meet or exceed the dimensions shown on the plans. Work on this structure shall not begin until written acceptance of location is provided by the Engineer.

Control measures designed for concrete washout waste shall be implemented. If the bottom of the excavated structure is within 5 feet of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5 or use a prefabricated washout.

The following requirements shall be met:

1. The structure shall contain all washout water.
2. Stormwater shall not carry wastes from washout and disposal locations.
3. The site shall be located a minimum of 50 horizontal feet away from State waters and shall meet all requirements for containment and disposal as defined in subsection 107.25.
4. The site shall be signed as “Concrete Washout”.
5. The site shall be accessible to appropriate vehicles.
6. Freeboard capacity shall be included in the structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
7. The Contractor shall prevent tracking of washout material out of the washout structure.
8. Solvents, flocculents, and acid shall not be added to wash water.
9. The structure shall be surrounded on three sides by a compacted berm.
10. The structure shall be fenced with orange plastic construction fencing to provide a barrier to construction equipment and to aid in identification of the concrete washout area.
11. Concrete waste, liquid and solid, shall not exceed ⅔ the storage capacity of the washout structure.
12. *Pre-fabricated concrete washout structures (Type 1 and Type 2).* Structures and sites shall meet the following requirements:
13. Structure shall contain all washout water. If bins are determined to be leaking, the Contractor shall replace the bin on-site and clean up the spilled material.
14. Structure shall be located a minimum of 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be as approved by the Engineer. The pre-fabricated structure shall be signed as “Concrete Washout”. Sign can be on portable bin.
15. The site shall be accessible to appropriate vehicles.
16. Washout bins shall be covered with a tarp tied down to the structure or staked to the ground when a storm event is anticipated.
17. Solvents, flocculants, and acid shall not be added to wash water.
18. Concrete waste, liquid and solid, shall not exceed ⅔ the storage capacity of the washout structure.
19. Prefabricated structures cannot be moved when they contain liquid, unless otherwise approved.
20. The concrete washout structure shall be installed and ready for use prior to concrete placement operations.
21. Washout areas shall be checked and maintained as required. On site permanent disposal of concrete washout waste is not allowed.

All liquid and solid wastes, including contaminated sediment and soils generated from concrete washout shall be hauled away from the site and disposed of properly at the Contractor's expense.

Delivery to the site shall not occur until written acceptance is provide by the Engineer for both the product and the concrete waste disposal facility.

1. *Vehicle Tracking Pad (VTP)*. Vehicle tracking pads shall be constructed to the minimum dimensions shown in the Contract, unless otherwise directed by the Engineer. Construction of approved vehicle tracking pads shall be completed before any disturbance of the area.

The Contractor shall maintain each vehicle tracking pad during the entire time that it is in use for the project. The vehicle tracking pad shall be removed at the completion of the project unless otherwise directed by the Engineer. Additional aggregate may be required for maintenance and will be paid for under Pay Item, Maintenance Aggregate (Vehicle Tracking Pad).

1. *Detention Pond*. Permanent detention ponds shown on the construction plans may be used as temporary control measures if all the following conditions are met:
   * + 1. The pond is designated as a construction control measure in the SWMP.
       2. The pond outfall and outlet are designed and implemented for use as a control measure during construction in accordance with good engineering, hydrologic, and pollution control practices. The stormwater discharges from the outfall shall not cause degradation or pollution of State waters, and shall have control measures, as appropriate.
       3. All silt shall be removed and the pond returned to the design grade and contour prior to project acceptance.
2. *Aggregate Bag*. Aggregate bags shall be placed on a stable surface, consisting of hardscape or compacted gravel. If approved by the Engineer, the aggregate bag may be placed on compacted dirt areas, where bags conform to the surface and can effectively minimize sediment transport. Aggregate bags shall not be placed in concentrated flow areas. Aggregate bags shall be placed to conform to the surface without gaps to ensure that discharge water does not cause erosion.
3. *Surface roughening*. Surface roughening creates horizontal grooves along the contour of the slope. Roughening may be accomplished by furrowing, scarifying, ripping, or disking the soil surface to create a 2 to 4 inch minimum variation in soil surface.
4. *Vertical Tracking*. Vertical tracking involves driving a tracked vehicle up and down the soil surface and creating horizontal grooves and ridges along the contour of the slope. Sandy soils or soils that are primarily rock need not be tracked.

**208.06 Materials Handling and Spill Prevention.** The SWMP Administrator shall clearly describe and record on the SWMP, all practices implemented at the site to minimize impacts from procedures or significant material that could contribute pollutants to runoff. Areas or procedures where potential spills can occur shall have a Spill Response Plan in place as specified in subsections 107.25(b) or 208.06(c). Construction equipment, fuels, lubricants, and other petroleum distillates shall not be stored or stockpiled within 50 horizontal feet of any State waters or more if the Contractor determines necessary. Equipment fueling and servicing shall occur only within approved designated areas.

1. *Bulk storage structures*. Bulk storage structures for petroleum products and other chemicals shall have impervious secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State waters. Secondary containment shall be capable of containing the combined volume of all the storage containers plus at least 10 percent freeboard. For secondary containment that is used and may result in accumulation of stormwater within the containment, a plan shall be implemented to properly manage and dispose of all accumulated stormwater which is deemed to be contaminated (e.g., has an unusual odor or sheen).
2. *Lubricant Leaks*. The Contractor shall inspect equipment, vehicles, and repair areas daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. The Contractor shall have onsite approved absorbent material or containers of sufficient capacity to contain any POL leak that can reasonably be foreseen. The Contractor shall inform all Spill Response Coordinators in accordance with the Spill Response Plan if unforeseen leakage is encountered. All materials resulting from POL leakage control and cleanup shall become the property of the Contractor and shall be removed from the site. Control, cleanup, and removal of by-products resulting from POL leaks shall be performed at the Contractor's expense.
3. *Spill Response Plan*. A spill Response Plan shall be developed and implemented to establish operating procedures for handling potential pollutants and preventing spills.

The Response Plan shall contain the following information:

1. Identification and contact information of each Spill Response Coordinator.
2. Locations of areas on the project site where equipment fueling and servicing operations are permitted.
3. Location of cleanup kits.
4. Quantities of chemicals and locations stored on site.
5. Label system for chemicals and Safety Data Sheets (SDS) for products.
6. Clean up procedures to be implemented in the event of a spill that does not enter State waters or ground water.
7. Procedures for spills of any size that enter surface waters or ground water, or have the potential to do so. CDOT’s Erosion Control and Stormwater Quality Guide contains spill notification contacts and phone numbers required in the Spill Response Plan.
8. A summary of the employee training provided.

Information in items (1) through (8) shall be updated in the SWMP when they change.

**208.07 Stockpile Management.** Material stockpiles shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be approved by the Engineer.

Erodible stockpiles (including topsoil) shall be contained with acceptable control measures at the toe (or within 20 feet of the toe) throughout construction. Control measures shall be approved by the Engineer. The SWMP Administrator shall describe, detail, and record the sediment control devices on the SWMP.

**208.08 Limits of Disturbance.** The Contractor shall limit construction activities to those areas within the limits of disturbance shown on the plans and cross-sections. Construction activities, in addition to the Contract work, shall include the on-site parking of vehicles or equipment, on-site staging, on-site batch plants, haul roads or work access, and all other activities which would disturb existing soil conditions. Staging areas within the LDA shall be as approved by the Engineer. Construction activities beyond the limits of disturbance due to Contractor negligence shall be restored to the original condition by the Contractor at the Contractor’s expense. The SWMP Administrator shall tabulate additional disturbances not identified in the CDPS-SCP application and indicate changes to locations and quantities on the SWMP. The Contractor shall report the changes and additional disturbances to the Engineer, Water Quality Control Division of CDPHE, and all other involved agencies.

The Contractor shall pursue stabilization of all disturbances to completion.

**208.09 Regulatory Mechanism for Water Quality.** The Department will identify and document findings not in compliance with the Water Quality Specifications, as specified in subsection 208.09(a)7, during Headquarters and Region water quality control inspections or observation by the Engineer. The Engineer will immediately notify the Contractor of these findings by issuing Form 105, which will be tracked in ESCAN/CARL software. Failure by the Contractor to clarify a finding location with the Engineer shall not interrupt the timelines noted in subsection 208.09(b).

Timelines noted in subsection 208.09(b) do not indemnify the Contractor from failing to comply with CDPS-SCP timelines for corrective actions. The CDPS-SCP (Part I.D.8) states corrective actions “…must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants.”

1. *Definitions*.
2. Compliance Assistance. A low risk event as determined by the Region Water Pollution Control Manager (RWPCM). Compliance assistance events are not considered Findings and not subject to the Regulatory Mechanism noted in subsection 208.09(b).
3. Deferment. A request from the Contractor to the Engineer to delay implementation of corrective actions for Regular Findings pertaining to Water Quality Specifications. Deferments may only be granted due to extraordinary circumstances. However, it is at the Department’s discretion to approve or reject these requests.
4. Finding. An incident discovered through inspection by the Department or by Engineer observation, which is noncompliant with the Water Quality Specifications. A Finding will be classified as one of the following:
5. Regular Finding. A situation upon inspection that is in noncompliance with the Water Quality Specifications.
6. Severe Finding. A discharge outside the project’s Limits of Construction (LOC), subsection 107.25(a), to State waters or to a live inlet where the pollutant cannot be reclaimed.
7. Chronic Finding. A Chronic Finding is assessed when the same Regular Finding at the same location is documented twice in the last three Headquarter or Region water quality control inspections. Engineer observed findings outside these inspections will not apply.
8. Inspection Form 105. The Form 105 issued by the Engineer documenting findings from Headquarters or a Region led water quality inspection in accordance with subsection 208.03(c).
9. Location. The place where the finding was observed; can be a document (e.g., stormwater management plan [SWMP]) or physical location. A physical location must be described with enough detail to guide an independent party to the spot of the finding. Physical locations must be supported with at least one photograph.
10. Recalcitrance. Contractor has shown willful negligence or misrepresentation or unwillingness to adhere to the Water Quality Specifications.
11. Water Quality Specifications. Subsection 107.25, Sections 208, 213 and 216, and Standard Plans M-208-1 and M-216-1.
12. *Liquidated Damages and Stop Work Orders.* The Contractor will be subject to Liquidated Damages for incidents of failure to comply with the Water Quality Specifications and implement corrective actions to resolve noncompliance in the time frame established in subsection 208.09(b and c). Liquidated damages will not be considered a penalty but will be assessed to recover costs associated with environmental damages, and engineering and administrative expenses incurred by the Department for the Contractor’s failure to comply with the Water Quality Specifications. Liquidated damages will accumulate for each finding, for each cumulative day that the finding remains uncorrected. Liquidated damages associated with incidents pertaining to this subsection do not indemnify the Contractor of other Liquidated Damages associated with this project.

In addition to Liquidated Damages, the Contractor will be subject to a project-wide Stop Work Order for recalcitrance and the Engineer may issue a Stop Work Order for Chronic and Severe Findings in accordance with subsection 105.01.

Findings are closed when the corrective action is complete, reported to ESCAN and accepted by the Department. The Department will notify the Contractor through ESCAN when the corrective action is accepted or denied. Liquidated damages will be assessed by the type of finding as follows and will continue until the corrective action is approved by the Department.

1. Regular Finding. The time required to repair a Regular Finding shall begin at 11:59 PM on the date the Inspection Form 105 is issued. The Contractor shall have no more than a 7 calendar day grace period to correct the Regular Finding before Liquidated Damages are assessed. The grace period extends until 11:59 PM on the 7th calendar day after the Inspection Form 105 was issued.

The Engineer will issue a Form 105 notifying the Contractor that Liquidated Damages are accruing at $1,500 per day for each full or partial calendar day a Regular Finding remains uncorrected after the 7-calendar day grace period. At 11:59 PM on the 14th calendar day, each uncorrected, undeferred Regular Finding will be assessed as recalcitrant and the Engineer will issue a project-wide stop work order. The Contractor shall fix each recalcitrant finding and submit a plan to avoid future instances of each recalcitrance to the Department for approval. The recalcitrance plan shall be in writing, signed by the Superintendent and shall include:

1. Each Recalcitrant Finding.
2. Why the corrective action for each Recalcitrant Finding was not implemented within 14 calendar days.
3. How the Contractor will avoid future recalcitrance.

The Department will discuss the recalcitrance plan and may meet with the Superintendent to recommend modifications, if needed. The Engineer will issue a Form 105 accepting or rejecting the recalcitrance plan within 24 hours of the Contractor submitting a plan or resubmitting a modified plan.

The Contractor will neither be reimbursed for costs incurred to fix each Recalcitrant Finding pertaining to a control measure in the SWMP plan nor costs to prepare the recalcitrance plan. The Contractor shall propose additional control measures, if needed, according to subsection 208.04(a). The project-wide Stop Work Order and Liquidated Damages will be assessed until approval of the corrective action for each Recalcitrant Finding and approval of the Contractor’s recalcitrance plan by the Department is given. After written approval by the Engineer, the project-wide Stop Work Order will be lifted and accrual of Liquidated Damages will cease.

1. Severe Finding. In response to a Severe Finding, the Engineer will issue Inspection Form 105 and immediately assess Liquidated Damages of $3,500 per Severe Finding. Severe Findings shall not be eligible for the 7 calendar day grace period (subsection 208.09(b)1). Liquidated damages will accrue at $3,500 per Severe Finding per calendar day beginning at 11:59 PM of day the Inspection Form 105 is issued.
2. If the Severe Finding is a discharge to State waters, the Contractor shall prevent any further discharge and shall reclaim discharge which has not yet entered State waters. The Contractor shall report the discharge to CDPHE in accordance with CDPS-SCP requirements.
3. If the Severe Finding is a discharge outside the LOC that does not enter State waters, the Contractor shall fully reclaim the discharge before it enters State waters and implement relevant CDPS-SCP noncompliance notification procedures.

The Engineer may require the Contractor to submit a plan for permanent stabilization of disturbed areas outside the LOC per 208.04(e)4 for approval. Permanent stabilization plans pertaining to Severe Findings and subsequent stabilization activities are not subject to 208.09(b).

The Contractor shall not be reimbursed for activities undertaken to reclaim the discharge, stabilize areas outside the LOC and implement relevant CDPS-SCP noncompliance notification procedures.

1. Chronic Finding. In response to a Chronic Finding, the Engineer will issue Inspection Form 105 and immediately assess Liquidated Damages of $1,500 per Chronic Finding. Chronic Findings shall not be eligible for the 7 calendar day grace period (subsection 208.09(b)). Liquidated damages will accrue at $1,500 per Chronic Finding per calendar day beginning at 11:59 PM of day the Inspection Form 105 is issued.

When the Chronic Finding is comprised of two Severe Findings, the Department will assess Liquidated Damages in accordance with this specification.

1. *Deferment*. If the Contractor seeks deferment, the Superintendent shall submit a deferment request to the Engineer by 11:59 PM of the day after the issuance of Inspection Form 105. Chronic and Severe Findings are not eligible for deferment. The deferment request shall be in writing, signed by the Superintendent and shall include:
2. Regular Findings to be deferred
3. The reasons why the Findings cannot be corrected in 7 calendar days
4. An action plan containing:
5. Methodology to protect water quality until each deferred Finding is corrected and accepted
6. Milestones to measure progress toward completion
7. Additional control measures to be implemented until each deferred Finding is corrected and accepted
8. Corrective completion dates for each Finding

The Department will discuss the deferment request and may meet with the Superintendent to recommend modifications to the action plan. The Engineer will issue a Form 105 accepting or rejecting the deferment request by 11:59 PM of the third calendar day after the Inspection Form 105 documenting the Regular Finding is issued. The Department will not accept a deferment for operational error, lack of resources, improperly installed control measures, inadequate control measures, lack of preventative maintenance, careless or improper operation, or other non-proactive reason.

Preparation of deferment documentation and additional materials, including additional control measures, required to complete the action plan shall be at the Contractor’s expense. Time frames noted in subsection 208.09(b)1 will not be stopped during the deferment review period, therefore, Liquidated Damages will be assessed beginning 11:59 PM on calendar day 7 if the deferment request is rejected and, furthermore, a rejected deferment plan (subsection 208.09(c)) shall not absolve the Contractor from recalcitrance.

The Engineer will assess Liquidated Damages in the amount of $1,500 per calendar day, and partial day, for each uncorrected Deferred Finding. These Liquidated Damages will start on the date the uncorrected work was deferred to be completed (subsection 208.09(c)(3)). In addition, Liquidated Damages of $1,500 per calendar day will be assessed retroactively to 11:59 PM of the day the finding was originally noted on the Inspection Form 105.

1. *Conflict* *Resolution*. Subsections 105.22, 105.23, and 105.24 detail the process through which the parties (CDOT and the Contractor) agree to resolve any issue that may result in a dispute.
2. *Exemptions*. The Engineer will exempt from subsection 208.09(b) situations of Compliance Assistance, Documented Upset Conditions, Documented Reportable Spills and Documented Winter Exemptions. Release from subsection 208.09(b) does not exempt the Contractor from compliance with CDPS-SCP, Part I.D.8.
3. Documented Upset Condition. The Contractor shall report, both verbally and in writing, the Upset Condition to CDPHE per CDPS-SCP Part II.A.6 and subsection 208.03(c) and provide written documentation to the Engineer. The Engineer will issue a Form 105 and recognize the exemption to the Regulatory Mechanism. The Contractor shall also update the SWMP with the Form 105 and the documented Upset Condition.
4. Documented Reportable Spills. The Contractor shall report, both verbally and in writing, the Reportable Spill to CDPHE per subsection 107.25(b) and provide written documentation to the Engineer. The Engineer will issue a Form 105 and recognize the exemption to the Regulatory Mechanism. The Contractor shall also update the SWMP with the Form 105 and the documented Reportable Spill.
5. Winter Exemptions. The Contractor is unable to address findings noted on the Region or Headquarter led water quality control inspection due to:
6. Snow covers the entire site for an extended period and;
7. No construction activity and;
8. Melting conditions posing a risk of surface erosion do not exist.

The Contractor shall request a Winter Exemption to the Department. If approved, the Engineer will issue a Form 105 and recognize the exemption to subsection 208.09(b). The Contractor shall also update the SWMP with the Form 105 and the documented Winter Exemption. Liquidated Damages, if assessed, will only accrue up to the point where the Winter Exemptions are approved.

1. Compliance assistance during Region or Headquarter led water quality control inspections. The RWPCM will record compliance assistance in ESCAN/CARL software.
   1. **Items to Be Completed Prior to Requesting Partial Acceptance of Water Quality Work.**
2. *Reclamation of Washout Areas*. After concrete operations are complete, washout areas shall be reclaimed in accordance with subsection 208.05(n) at the Contractor’s expense.
3. *Survey*. When Permanent Water Quality control measures are required on the project, the Contractor shall survey the control measures to confirm that they conform to the configuration and grade shown on the Plans. The survey shall conform to Section 625. The results of the survey shall be submitted as CAD drawing files and PDF files, showing both designed and final elevations and configurations. Paper versions of the drawings shall be submitted with the stamp and seal of the Contractor’s Surveyor.

The Engineer and the CDOT Hydraulics Engineer for the region will perform a walkthrough of the Permanent control measures to confirm conformance to material requirements, locations, and dimensions of the Permanent control measures. Permanent control measures not meeting the Contract requirements will be identified in writing by the Engineer, and shall be repaired or replaced at the Contractor’s expense. Correction surveys shall be performed at the Contractor’s expense to confirm the locations and dimensions of each Permanent control measure. Final as-built plans of the Permanent control measures shall be provided to the Engineer and the CDOT Region and Headquarter Permanent Water Quality Control Specialist for their records.

1. *Locations of Temporary Control Measures*. The Engineer will identify locations where modification, cleaning, or removal of temporary control measures are required and will provide these in writing to the Contractor. Upon completion of work required, the SWMP Administrator shall modify the SWMP to provide an accurate depiction of control measures to remain on the project site.

All punch list and walkthrough items shall be completed and approved by the Engineer and Maintenance.

**METHOD OF MEASUREMENT**

**208.11** Erosion Control Management will be measured as the actual number of days of ECM work performed, regardless of the number of personnel required for SWMP Administration and Erosion Control Inspection, including erosion control inspections, documentation, meeting participation, SWMP Administration, and the preparation of the SWMP. If the combined hours of SWMP Administration and Erosion Control Inspection is four hours or less in a day, the work will be measured as ½ day. If the combined hours of SWMP Administration and Erosion Control Inspection is more than four hours in a day, the work will be measured as one day. Total combined hours of ECM work exceeding eight hours in a day will still be paid as one day.

Erosion bales will be measured by the actual number installed and accepted.

Silt fence, silt berms, erosion logs, aggregate bags, silt dikes, temporary berms, rock check dams, temporary diversions, and temporary slope drains, will be measured by the actual number of linear feet that are installed and accepted. Measured length will not include required overlap.

Concrete washout structure will be measured by the actual number of structures that are installed and accepted.

Pre-fabricated concrete washout structures will be measured by the actual number of structures delivered to the site. It shall not include structures moved on-site.

Storm drain inlet protection will be measured by linear foot or actual number of devices that are installed and accepted.

Sediment trap quantities will be measured by the actual number installed and accepted.

Removal of trash that is not generated by construction activities will be measured by the actual number of hours that Contractor workers actively remove trash from the project. Each week the Contractor shall submit to the Engineer a list of workers and the hours spent collecting such trash.

Removal of accumulated sediment from traps, basins, areas adjacent to silt fences and erosion bales, and other clean out excavation of accumulated sediment, and the disposal of such sediment, will be measured by the number of hours that equipment, labor, or both are used for sediment removal.

Vehicle tracking pads will be measured by the actual number constructed and accepted.

Additional aggregate required for maintaining vehicle tracking pads will be measured as the actual number of cubic yards installed and accepted.

Pre-fabricated vehicle tracking pads will be measured by the actual number of pads delivered to the site and set up to the minimum dimensions. It shall not include pads moved on-site.

**BASIS OF PAYMENT**

* 1. ECM and control measures will be paid for at the Contract unit price for each of the items listed below that appear in the bid schedule.

Payment will be made under:

**Pay Item Pay Unit**

Aggregate Bag Linear Foot

Concrete Washout Structure Each

Erosion Bales (Weed Free) Each

Erosion Control Management Day

Erosion Log (Type 1) (\_\_\_\_\_ Inch) Linear Foot

Erosion Log (Type 2) (\_\_\_\_\_\_Inch) Linear Foot

Erosion Log (Type 3) (\_\_\_\_\_\_Inch) Linear Foot

Pre-Fabricated Concrete Washout Structure (Type 1) Each

Pre-Fabricated Concrete Washout Structure (Type 2) Each

Pre-Fabricated Vehicle Tracking Pad Each

Maintenance Aggregate (Vehicle Tracking Pad) Cubic Yard

Removal and Disposal of Sediment (Equipment) Hour

Removal and Disposal of Sediment (Labor) Hour

Removal of Trash Hour

Rock Check Dam Each

Sediment Basin Each

Sediment Trap Each

Silt Berm Linear Foot

Silt Dike Linear Foot

Silt Fence Linear Foot

Silt Fence (Reinforced) Linear Foot

Storm Drain Inlet Protection (Type\_\_) Linear Foot

Storm Drain Inlet Protection (Type\_\_) Each

Sweeping (Sediment Removal) Hour

Temporary Berm Linear Foot

Temporary Diversion Linear Foot

Temporary Slope Drain Linear Foot

Vehicle Tracking Pad Each

Payment for Erosion Control Management (ECM) will be full compensation for all labor, materials and equipment necessary for the SWMP Administrator and Erosion Control Inspectors to perform all the work described in this specification. This includes assembling items (5) to (18) in subsection 208.03(d)1 and required updates to the SWMP on-site.

The SWMP Administrator and ECI's commute times will not be measured and paid for separately, but shall be included in the work.

Modifications to the SWMP due to construction errors or survey errors by the Contractor shall be made at the Contractor’s expense.

Surface roughening and vertical tracking (temporary stabilization) will not be measured and paid for separately but shall be included in the work. Payment for each control measure item will be full compensation for all work and materials required to furnish, install, maintain, and remove the control measure when directed.

Payment for Removal and Disposal of Sediment (Equipment) will be full compensation for use of the equipment, including the operator. Payment for Removal and Disposal of Sediment (Labor) will be full compensation for use of the labor.

Payment for concrete washout structure, whether constructed or prefabricated, will be full compensation for all work and materials required to install, maintain, and remove the item. Maintenance and relocation, as required, of these structures throughout the duration of the project will not be measured and paid for separately, but shall be included in the work.

Silt berm spikes and wood spikes will not be measured and paid for separately, but shall be included in the work. When required, soil retention blankets will be measured and paid for in accordance with Section 216.

Compost and wood stakes for Erosion Log (Type 2) will not be measured and paid for separately, but shall be included in the work.

Spray-on mulch blankets required by the Contract, including those used in both interim and final stabilization, will be measured and paid for in accordance with Section 213.

Payment for storm drain inlet protection will be full compensation for all work, materials, and equipment required to complete the item, including surface preparation, maintenance throughout the project, and removal upon completion of the work. Aggregate will not be measured and paid for separately, but shall be included in the work.

Sweeping, when used as a control measure as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was used to pick up sediment. The operator will not be measured and paid for separately, but shall be included in the work.

Stakes, anchors, connections, geotextile, riprap, and tie downs used for temporary slope drains will not be measured and paid for separately, but shall be included in the work.

Payment for vehicle tracking pad will be full compensation for all work, materials and equipment required to construct, maintain, and remove the entrance upon completion of the work. Aggregate and geotextile will not be measured and paid for separately, but shall be included in the work. If additional aggregate for maintenance of vehicle tracking pads is required, it will be measured by the cubic yard in accordance with Section 304 and will be paid for under this Section as Maintenance Aggregate (Vehicle Tracking Pad).

Seeding, sod, mulching, soil retention blanket, and riprap will be measured and paid for in accordance with Sections 212, 213, 216, and 506.

Geotextile (Erosion Control) (Class 2) will be measured and paid for in accordance with Section 420.

All work and materials required to perform the permanent control measure survey and furnish the electronic files shall be included in the original unit price bid for surveying. Surveying will be measured and paid for in accordance with Section 625.

Payment will be made for control measures replaced as approved by the Engineer. Temporary erosion and sediment control measures required due to the Contractor’s negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer or for the Contractor's convenience, shall be performed at the Contractor’s expense. If the Contractor fails to complete construction within the contract time, payment will not be made for Section 208 pay items for the period of time after expiration of the contract time. These items shall be provided at the Contractor's expense.