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**Section 1. Approved Plan.**

The approved plan is also known as the Sediment & Stormwater Management Plan and includes the sealed plans, special provisions, specifications and standard details. If any changes occur to the approved Plan which affects the Erosion, Sediment & Stormwater aspects, the Stormwater Engineer must review and approve in order to update. The approved Plan expires after three (3) years from the date they are signed by the Stormwater Engineer.

- 1.1 Disturbances within the LOC. Ensure that all disturbance of the soil is kept within the limits of construction. This is not to say that use of the TCE is prohibited. If soil disturbance occurs outside the LOC then it is to be listed as an automatic failure.
  
- 1.2 Conformance with the approved plan. Conformance in the field must mirror the plans as closely as possible in order to maintain compliance. Ensure that changes are documented and logged make all the difference during an audit. Conformance also includes any and all Environmental requirements of the project (i.e. wetland impacts, fish & wildlife impacts). Examples of non-conformance that receive an automatic failure are: sediment discharge into a wetland and/or stream, removal of perimeter controls prior to permanent vegetative stabilization, practices not conforming to the approved plan, out of sequence, etc.
  - 1.2.1 Disturbance prior to initial E & S controls being placed in the specific area. The contractor is required to contact the CCR in order to schedule an inspection of the projects perimeter controls prior to any clearing and grubbing other than for the installation of those controls. This shall be discussed at the ES2M Pre-Construction Meeting with the contractor.
  
  - 1.2.2 Removal of E & S controls. The CCR can recommend removal of minor E & S controls as warranted during construction but final determination is left with the Stormwater Engineer and/or his designee. Perimeter controls are to remain in place until final permanent vegetation has been established per the Standard Specification under which the contract was advertised.
  
  - 1.2.3 Final Permanent Vegetative Establishment Period. When the project is substantially completed, the contractor has demobilized and 100% permanently stabilized this is the only box in Section 1 to be answered Yes or No.
  
- 1.3 Plan Changes. The Department has an internal standard operational practice for these types of changes. Any approved changes that revise the plan will come directly to the CCR from the Stormwater Engineer and/or his designee. If changes occur in the field without submission to the Stormwater Engineer's office and it directly affects the ES2M plans, notify the Stormwater Engineer immediately and mark the statement for non-compliance. Upon completion of the inspection discuss with the Project Supervisor to ensure compliance.
  
- 1.4 Approved Revisions. Observe and report whether the revisions have been implemented as designed. Failure to implement the revision is considered non-compliance with the approved plan and is automatic failure.

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- 1.5 Stockpiles, Staging & Waste Collection Areas. Observe and report whether these areas are being maintained only if within the LOC. DelDOT is not responsible for offsite areas used by the contractor.
- 1.6 Sediment Discharge to Waters of the United States. Observe and report all of the outfalls when an area of a project is inspected. Determine the source of the sediment discharge. List as a deficiency. Environmental Studies will direct the removal process if significant (wetland or stream).
- 1.7 Tracking. Observe and report on the tracking of soils, stone and/or any material considered a pollutant outside and/or within the project limits by the contractor.

**(904) Set aside for later use.**

**Sections 2. INSTALLATION AND and Section 3. MAINTENANCE.** These sections pertain to Installation and Maintenance, respectively, of the project best management practices (bmps) devices. Each device has a Standard Detail for the correct construction and proper placement of the device in the field. Maintaining the device is included in the item and shall be provided by the Contractor.

**(903) Pollution Prevention**

- **Waste Management Practices.**
  - **Waste Collection.** The contractor is required on a daily basis to monitor and clean up all trash and debris including solid waste, i.e. excess asphalt, construction debris, litter etc.
    - Waste Receptacle(s) are clearly marked & in a designated area within the LOC.
    - Waste Receptacle Size. The waste receptacle must be of sufficient size to handle the trash being placed in it. This may be different for each project and location. A plastic bag is not a receptacle.
    - Waste Receptacle Cover. Each waste receptacle will have a cover available for use at the end of each work day and/or during a weather event that produces stormwater runoff. Observe and report if a cover is onsite and available for use.
    - Waste Receptacles are located away from inlets that drain to a water body.
    - Waste material(s) are routinely picked up and disposed of in the appropriate receptacle(s). Waste Receptacles are emptied when they reach capacity.
  - **Sanitary Facilities.** Observe and report:
    - Sanitary facilities are within the LOC and well-maintained, tie-downs and/or staking in place to prevent overturning.
    - Located a minimum of 50 feet from storm drains and/or waterways.
- **Equipment and Vehicle Fueling and/or Maintenance Practices.**
  - Observe and report the following:

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- Designated and clearly marked areas for on-site fueling operations and/or maintenance.
  - Check for a spill kit in these areas.
  - Leaks, spills and/or other sources of water pollutants from vehicles & equipment.  
Example: Check surface areas within the LOC and report any spills or leaks.
  - Observe and report spent or excess fluids within the LOC for proper containment & disposal.
- **Dewatering Equipment.**
    - Secondary Containment. Pumps and/or various types of equipment located within the stream bed shall have secondary containment provided. Some of these pumps come as a self-contained system. Have the contractor provide that information if this is the case.
    - Where at all possible, the contractor shall remove fuel & pumps from the influence of waters of the State at the end of each work day. Check only to ensure that the regulation is complied with.
- **Designated Washout Areas.**
    - Observe and report on the following:
      - Designated and clearly marked areas. Standard Detail E-1/Concrete washout areas. There are no specific requirements for the signage, only that it be clear and visible. The threshold for signage will be a minimum 18" x 18" white background with black lettering of sufficient size to be visible to construction personnel and/or subcontractors.
      - These types of facilities are not limited to concrete but include control of paints, solvents, stucco, etc. Observe and report on any designated and clearly marked areas for applicable materials. The device and/or constructed BMP require Engineer approval prior to use.
      - Areas are located a minimum of 50 feet from a storm drain and/or any waterways. Area must be approved by the Engineer.
      - Capacity will not exceed 75% (E-1).
- **Storage and Staging Areas.**
    - Observe and report on the following:
      - All potential pollutants (paints, solvents, pesticides, fuels, oils, and other hazardous materials) are under cover or secured in areas with secondary containment. Examples: Storage trailers, drums on pallets and covered with a tarp, topsoil stockpiles stabilized and/or covered with perimeter controls, etc.
      - Fuel tanks above 250 gallons require secondary containment systems. Double-lined tanks meet the secondary containment requirement. Example: Placement of tanks exceeding 250 gallons is covered under Delaware Code. Observe and report only if

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secondary containment has been provided. Size and conformity is the responsibility of the contractor to comply with any Federal or State Laws and Regulations.

- Areas are designated for activities such as fueling, mixing, washing, etc.
- Areas are maintained.
- **Equipment/Vehicle Washing.**
  - Observe and report on the following:
    - Designated and clearly marked areas.
    - Areas are a minimum of 50 feet from storm drains and/or waterways.
    - No detergent use.
    - Discharge water is routed to sanitary systems whenever possible.

**(905) Sediment Trapping Practices.**

- Silt Fence (905001, 905002). Includes all perimeter controls to include Silt Fence (SF), Reinforced Silt Fence (RSF) installed & maintained as indicated on the Plans and Standard Construction Details, Silt Fence.
  - Construction/Installation in accordance with 905.03.A.1 & 2.
    - Standard Detail E-2
  - Maintenance & Removal in accordance with 905.03.A.3 & 4.
- Sediment Trap (905003). Includes construction & maintenance as indicated on the Plans and Standard Construction Detail, Sediment Trap.
  - Construction/Installation in accordance with 905.03.B.1.
    - Standard Detail E-3
  - Maintenance & Removal in accordance with 905.03.B.2 & 3.
- Inlet Protection (905004, 905005, 905006). Includes all drainage inlet protection devices to include Inlet Protection, Drainage Inlet; Inlet Protection, at Grade; Inlet Protection, Culvert Inlet. Alternate designs may be submitted to the Stormwater Engineer for approval prior to use.
  - Construction/Installation in accordance with 905.03.C.1.
    - Standard Detail E-4 Drainage Inlet Protection & Curb Inlet Protection
    - Standard Detail E-5 Culvert Inlet Protection
  - Maintenance & Removal in accordance with 905.03.C.2 & 3.

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**(906) Dewatering Practices.**

- Portable Sediment Tank (906001). Includes construction & maintenance as indicated on the Plans and Standard Construction Detail, Portable Sediment Tank. Alternate designs must be submitted to the Stormwater Engineer for approval prior to use.
  - Construction/Installation in accordance with 906.03.A.1.
    - Standard Detail E-6
  - Maintenance & Removal in accordance with 906.03.A.2 & 3.
- Dewatering Bag (906002). Dewatering Bags are sized according to the pump size. Ensure the proper size bag is installed and that it is maintained to provide sediment free water.
  - Construction/Installation in accordance with 906.03.B.1.
    - Manufacturer's recommendations & guidelines for maximum performance.
  - Maintenance & Removal in accordance with 906.03.B.2 & 3.
- Sump Pit (906003)
  - Construction/Installation in accordance with 906.03.C.1.
    - Standard Detail E-7
  - Maintenance & Removal in accordance with 906.03.C.2 & 3.
- Skimmer Dewatering Device (906004)
  - Construction/Installation in accordance with 906.03.D.1.
    - Standard Detail E-8
  - Maintenance & Removal in accordance with 906.03D.2 & 3.
- Well Point System (906005). The contractor must apply and receive a permit from DNREC prior to placement. All pumping must comply with Section 902 Dewatering.
  - Construction/Installation in accordance with 906.03.E.1.
    - No Standard Detail
  - Maintenance & Removal in accordance with 906.03.D.2 & 3.

**(907) Water Control Practices.**

- Stone Check Dam (907011). Alternate materials may be submitted to the Stormwater Engineer for approval prior to use.
  - Construction/Installation in accordance with 907.03.A.1.

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- Standard Detail E-9
  - Maintenance & Removal in accordance with 907.03.A.2 & 3.
- Temporary Slope Drain [(12") 907012, (18") 907013, (21") 907014, (24") 907015, (30") 907016] Diameter of pipes range from 12" up to 30". Ensure that the correct sized pipe is installed in accordance with the Plans, Details and Specifications.
  - Construction/Installation in accordance with 907.03.B.1.
    - Standard Detail E-10
      - Maintenance & Removal in accordance with 907.03.A.2 & 3.
- Riprap Energy Dissapator
  - Constructed per the Standard Detail E-20.
  - Maintain as a function of eliminating erosion and scour.
- Stone Outlet
  - Constructed per the Standard Detail E-21.
  - Maintain as a function of eliminating erosion and scour.

**(908) Soil Stabilization Practices.**

- Permanent Stabilization (908014, 908015, 908016, 908019). This will be one of the following dry ground, wet ground, or stream bank seeding. When inspecting for Sections 2 & 3 ensure to observe processes for stabilization:
  - Seedbed prep and topsoil requirements 908.02 & 908.03, vertical tracking of applicable areas (slopes) 908.03.C.
  - 7 days upon reaching final grade (document progress towards this point in your notes section and any discussions relating to performing final stabilization). Within 72 hours of seedbed prep, loosening to a depth of 3".
  - Mulching is incidental to these items unless specifically called out in the plans (swales get ECB in bottom of the flow channel always). Bottom line is mulching must be sufficient, as per manufacturer guidelines for optimum performance and no bare ground visible 908.03.D. Ask for the product information from the DelDOT Inspector. They are to receive from the Contractor prior to placement. Indicate in the notes section whether the Contractor provided DelDOT with the information.
    - When mulch is called out on the plans it will be installed per the manufacturer's guidance for maximum performance.
    - Swales (Permanent & temporary)

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- ECB installed per the Standard Detail E-12.
- TRM 1 & 2 installed per the Standard Detail E-13.
- Discussions should give the CCR an idea of when seeding is to take place. Periodic inspection during seeding operations is warranted.
- Temporary Seeding & Stabilization (908017). This will be applied according to the applicable Table D in 908.02.
  - 908.01
    - 7 days to temporary stabilize with seed & mulch upon complete installation of Sediment controls (i.e. ST, ditches).
    - 14 days from the time land disturbing activities cease in a location. If a contractor anticipates reentry into an area within 28 calendar days, the Department will permit alternative methods of stabilizing the soil without seed (i.e. soil binders or straw mulch no seed). (See 908.03.C.1.b.ii.).
      - Any product used for temporary stabilization must be submitted to the Stormwater Engineer for approval prior to use in the field.
    - Should the area in question continue past the 28 calendar days the Contractor must be prepared to temporary seed & mulch. Upon exceeding 28 days it becomes a deficiency. Try to discuss prior to reaching this point.
    - It will be important for the CCR to track (notes) these dates to ensure compliance.
    - Incremental stabilization (E-11) during embankment progress. Vertical tracking & temporary stabilization provided at 10 feet vertical face intervals.
    - Stockpiles are to be stabilized as the pile progresses.
  - Stabilized Construction Entrances (908009). These require inspection on a daily basis by DelDOT Project Staff. Review each point of egress/ingress weekly.
    - Construction/Installation in accordance with 908.03.E.1.
      - Standard Detail E-14
    - Maintenance & Removal in accordance with 908.03.E.2 & 3.

**(909) Waterway Construction Practices.**

- Sandbag Dike/Diversion. This item is usually included within the Stream Diversion item (909005) and Standard Plan.
  - Construction/Installation in accordance with 909.03. A & 909.03.B.1.
    - Standard Detail E-15 & E-16

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- Maintenance & Removal in accordance with 909.03.2 & 3.
- Thoroughly inspect the upstream & downstream dike/diversion and/or applicable Stream Diversion each week.
- Geotextile Lined Channel Diversion (909003). Ensure that the channel mirrors the existing stream conditions & grades.
  - Construction/Installation in accordance with 909.03.C.1
    - Standard Detail E-17
  - Maintenance & Removal in accordance with 909.03.C.2 & 3.
- Turbidity Curtain, Floating (909004). Manufacturer's drawings & technical specifications are to be submitted to the Engineer prior to installation. Ensure these are provided as part of the item.
  - Construction/Installation in accordance with 909.03.D.1
    - Standard Detail E-18
  - Maintenance & Removal in accordance with 909.03.D.2 & 3.
- Stream Diversion (909005). Alternate designs are considered revisions to the approved plan and the Contractor shall submit to the Stormwater Engineer for review prior to installation.
  - Construction/Installation in accordance with 909.03.E.1
    - No Standard Detail (assembled devices of Section 909)
  - Maintenance & Removal in accordance with 909.03.E.2 & 3.
- Stilling Well (909006). Inspect and ensure that the intake of the pump is floating and/or surfaces are lined with geotextile and riprap.
  - Construction/Installation in accordance with 909.03.F.1
    - Standard Detail E-19
  - Maintenance & Removal in accordance with 909.03.F.2 & 3.

**Section 4. STABILIZATION.** This section is heavily weighted as critical compliance components. Ratings can be greatly affected by this section. The first part deals strictly with the overall adequate stabilization of the project. Ask questions and make determination through observing outfalls and other applicable areas.

- **ADEQUATE STABILIZATION.** Is the section applicable at this time? This will be a subjective call on the part of the CCR. On a standard bridge project this may not be applicable until placement of permanent stabilization measures. Medium & Major projects will use this quite frequently and require assessment throughout the project limits. Items requiring adequate stabilization are embankments exceeding 10 feet vertical face of the slope, bare ground areas undisturbed for longer than 14 days, significant erosion and/or sediment discharges, temporary topsoil stockpiles, etc.

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- **4.1.2 Areas not meeting final grade.**
  - 4.1.2.a. **Temporary Grass Seeding – Dry Ground (908.02 – Table D.).** Mulch is incidental to this item. Areas that exceed 14 days with no construction disturbance up to 6 months are to receive temporary seeding. Stockpiles are to be seeded in acceptable stages during placement; incremental stabilization with temporary seeding as the embankments are built; temporary swales prior to use; etc. Mulch products will be placed for optimum performance according to manufacturer’s guidelines. No bare ground shall be visible.
  - 4.1.2.b. **Temporary Soil Stabilization (908.02.C.b.ii).** There will be weather events and/or conditions (frozen ground, continuous rain events, snow, etc.) that will prevent reasonable efforts by the contractor to meet compliance deadlines for temporary seeding, however these discussions should take place at the time the original deficiency is noted. The expectation is for the Contractor to anticipate project progress and all work on a daily basis. Erosion control is no exception. Acceptable practices for stabilizing the soil will be reviewed and approved by the Stormwater Engineer to provide interim stabilization of the soil surface until such time the contractor can provide temporary seeding, not to exceed 28 calendar days.
  - 4.1.2.c. **No bare ground.** Mulching must be sufficient and secured in such a way as to provide soil cover on a temporary basis.
- **4.1.3 Areas meeting final grade.**
  - **4.1.3.a. Permanent Seeding – Dry Ground (908.02 – Table A & Table D for the applicable seasonal nurse crop or Table C with no nurse crop.).** Upon placement & final grading of the topsoil the Contractor shall complete permanent seeding. Mulching is incidental to the seeding item unless called out on the plan sheets. Mulch products will be placed for optimum performance according to manufacturer’s guidelines. No bare ground shall be visible. Mulching must be sufficient.
    - **ECB Erosion Control Blanket (Old Type 5):** shall be installed per the Standard Detail E-12. Inspect anchor trenches at both ends, staggered staple pattern and alignment with the flow channel.
    - **TRM Type 1 or TRM Type 2 (Turf Reinforcement Mat Old Type 6 & 7):** shall be installed per the Standard Detail E-13. Inspect anchor trenches, staggered staple pattern and alignment with the flow channel and/or application.
    - **4.1.3.b. Permanent Grass Seeding – Wet Ground (908.02<sup>3</sup> – Table B.)**
      - Table B. Wet Ground Seeding receives no wood fiber mulch.
      - Table E. Streambank Seed Mix. (908019) Streambank stabilization requires ECB which is incidental to the Seeding for this specific mix.
- **4.1.4 Best Management Practices**
  - Vertical tracking is essential for minimizing erosion along the face of embankments and slopes in general.

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- Perform as per 908.01.
- **4.1.5 Final Vegetative Stabilization will be determined by the Erosion & Sediment Program Manager and/or their designee at the appropriate time.** There should be no time that the CCR needs to use this line.
- **STABILIZATION TIME FRAMES.**
- **4.2.1. This section is not applicable at this time.** There will be times when this section is not applicable. Mark “X” in the yes column should this occur.
- **4.2.2. Temporary Stabilization (908.01 Maximum Exposure Times)** If an area is to remain inactive after 14 days and up to 6 months then this item is applicable. Once a project exceeds the 6 months, permanent seeding must implemented. Keep track in notes section.
- **4.2.3. Temporary Soil Stabilization (908.01 Maximum Exposure Times).** As indicated in 4.1.2.c., there will be times when this is applicable. All products will be pre-approved prior to placement in the field and placed per manufacturer’s guidelines for optimum performance. Not to exceed 28 calendar days. Keep track in notes section.
- **4.2.3. Permanent Stabilization (908.01 Maximum Exposure Times).** Inactive areas previously temporarily stabilized and over 6 months inactivity. Areas meeting final grade will be stabilized within 7 calendar days.
- **4.2.4. Incremental Stabilization (908.01 and Standard Detail E-11.)** Performed as described.

**Section 5. CORRECTIVE ACTIONS – PREVIOUS DEFICIENCIES.** This section primarily addresses the responsibility of the Contractor to make the required corrections in order to maintain compliance with the approved plan. At times, deficiencies may be corrected during the site inspection. It is permissible to log the deficiency and state it was corrected immediately during the inspection and assign the applicable points.

- **5.1** Have all deficiencies been corrected?
- **5.2** Completion by due date (MM/DD/YYYY).
- **5.3** An initial inspection is required upon installation of the perimeter controls.

**Current Deficiencies.**

- All deficiencies will be provided a photograph as part of the documentation. Describe the problem as brief as possible and prescribe the repair/fix. Be direct with the approved plan, standard detail and specifications.
- Except for temporary stabilization, most corrections are required to occur within 7 days. “Immediate” corrections, please note the date (MM/DD/YYYY) with the term “Immediate”.
- Any alternative methods are to be recommended not directed.

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**Previous Deficiencies.**

- The Contractor is to provide correction by the due date (MM/DD/YYYY) in order to be compliant.
- Provide a photograph of the deficiency or correction.
- At times deficiencies will occur for the same area repeatedly. If documented that a correction occurred by DelDOT inspection then a new due date (MM/DD/YYYY) for the deficiency will be established and reinserted as a Current Deficiency.

**NOTES.**

- **Date all remarks (MM/DD/YYYY).**
- **Include discussions, explanations of conditions and/or observations (MM/DD/YYYY).**