**SECTION 31 25 00**

**EROSION CONTROL**

###### BASED ON DFD MASTER SPECIFICATION DATED 02/17/2016

This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.

This specification section describes erosion control requirements for typical construction projects involving sitework; it is not intended to provide definitive guidance where the primary scope of the project involves gabions, retaining wall structures, or shoreland restoration work. Modify this document to account for project specific conditions. Use “Track Changes” when editing and providing review submittals.

**PART 1 - GENERAL**

**SCOPE**

The work under this section consists of providing all work, materials, labor, equipment, and supervision necessary to provide and construct erosion control measures necessary to protect property and the environment. Included are the following topics:

Part 1 - GENERAL

Scope

Related Work

Reference Documents

Submittals

Erosion Control Plan

Part 2 - MATERIALS

General

Geotextile Fabric

Temporary Ditch Barriers

Silt Fence

Erosion Mat

Staples

Riprap

Gabion Stone

Soil Stabilizers

Soil Tackifiers

Part 3 - EXECUTION

General

Grading and Earthwork

Drainage

Tracking Control

Maintenance

RELATED WORK

***(The designer must determine if this work will impact other related work or Contractors and should revise these specifications accordingly to only include those Sections that apply to the project.)***

Applicable provisions of Division 1 govern work under this Section.

Related work specified elsewhere:

Section 02 41 13 – Demolition

Section 30 05 00 – Common Work Results For All Exterior Improvements

Section 31 20 00 – Earthmoving

Section 31 22 16.15 – Roadway Subgrade Preparation

Section 31 23 16.13 – Trenching

Section 31 23 16.16 -- Structural Excavation for Minor Structures

Section 31 23 19 – Dewatering

Section 32 92 20 – Native Seeding

Section 00 00 00 – (Section Title)

Provide erosion control in accordance with the following references:

* Erosion Control Product Acceptability List (“PAL”), current version as published by the WisDOT.
* Construction Site Erosion & Sediment Control Technical Standards, current version as published by the Wisconsin Department of Natural Resources WDNR.
* Storm Water Post-Construction Technical Standards, current version as published by the WDNR.

Method of measurement and basis of payment sections in any referenced erosion control documents shall not apply to this contract.

**REFERENCE DOCUMENTS**

Wherever PAL appears in this specification, it shall mean the Wisconsin Department of Transportation, Erosion Control Product Acceptability List (PAL), current edition.

**SUBMITTALS**

Submit shop drawings for the following erosion control features:

The A/E shall list applicable erosion control features that require submittals.

### erosion control plan

**(Note to the designer: The A/E will complete an erosion control plan and apply for a Water Resources Application for Project Permits (WRAPP), if necessary. If the WRAPP is not being completed by the A/E remove the bracketed sections below. If there is less than 1 acre of land disturbing activities, but an erosion control plan is included as part of the plan remove reference applying for the WDNR permits and process. Consult the “DFD Policy & Procedure Manual for A/E’s” for additional information. The following language should be used:)**

The A/E has prepared an erosion control plan for the project. [The A/E will complete, apply for, and pay for a Water Resources Application for Project Permits (WRAPP) to obtain acceptance for land disturbing activities in excess of 1 acre from the WDNR.] The Contractor will provide the A/E with submittals for materials used to implement the erosion control plan, as well as any modifications to the erosion control plan that are necessary due to the Contractor’s means and methods of construction.

Contractor shall comply with all the requirements of the erosion control plan, [and if applicable, the Construction Site Storm Water Runoff General Permit requirements as obtained from the WRAPP. Contractor shall be responsible for completing all construction site inspection reports for the duration of the project and the Notice of Termination form required by the WDNR].

**(Note to the designer: For projects with a limited amount of sitework (< 1 acre or work to be completed in less than 7 days), an erosion control plan may not be necessary. In this instance, the A/E should include the following language that requires the Contractor to address erosion control.)**

Contractor shall provide all erosion control measures necessary as noted in the drawings and defined in the specifications to protect property and the environment. Apply and pay for erosion control or land disturbing permits as required by local municipalities and state agencies.

**PART 2 – MATERIALS**

#### **General**

Erosion mats, soil stabilizers, and tackifiers shall be listed on the Wisconsin Erosion Control Product Acceptability List (PAL) as published by the Wisconsin Department of Transportation.

When the design or contract includes permanent erosion control or stormwater control features, the contractor may employ these items in his control of erosion and stormwater during his construction activities. However, these items shall be fully cleaned, restored, and in every way fully functioning for its intended permanent use prior to acceptance of the work.

**(Note to the designer: For projects where work will occur within a correctional or mental health facility, specify that no hard, pointy objects that could be used as weapons or could be modified into weapons shall be used.)**

**GEOTEXTILE FABRIC**

Type FF geotextile fabric meeting the requirement of the PAL shall be used for inlet protection.

### TEMPORARY DITCH Barriers

Rectangular bales of hay or straw, tightly bound with twine, not wire. Anchor stakes shall be “T” or “U” steel posts, or hardwood, 2-inches by 2-inches nominal. Rebar shall not be used for anchor bales.

Temporary ditch checks meeting the requirements of the PAL and installed per the manufacturer’s instructions may be used in lieu of bales. Temporary ditch checks may also be classified as silt logs, silt logs, or wattles. Temporary ditch checks shall be American Excelsior, Erosion Tech, Western Excelsior, or approved equal.

### Silt Fence

Fence fabric shall comply with the requirements of Standard Specifications for Highway and Structure Construction 628.2.6, in 3 foot tall rolls, with 4’ tall 2" x 2" nominal cross section hardwood posts spaced a maximum of 10’ o.c. Silt fence shall be Mirafi, Trevira, Amoco, CFM, or approved equal.

### Erosion Mat

**(Note to the designer: Erosion mat specified in this section is intended for short-term use i.e. 6 months or less. Alternate material shall be specified for instances requiring long term stabilization. The Class I; Type A erosion mat is intended for seeded areas that will be mowed less than 6 inches. Due to the risk of animal entrapment this mat should not be used on Wisconsin DNR projects, even in mowed areas. Delete the first paragraph entirely and only use the second paragraph Class I; Urban Type B erosion mat for seeding on Wisconsin DNR projects.)**

A light duty, organic mat encased in a light weight photodegradable or biodegradable netting on both the bottom and top sides. Erosion mat shall comply with the requirements of Class I; Type A erosion mat as defined by Standard Specifications for Highway and Structure Construction and the PAL. Erosion mat shall be American Excelsior, Erosion Control Systems, North American Green, or approved equal.

For environmentally sensitive areas that have a high probability of trapping animals or for establishing natural areas with taller vegetation it is recommended that an urban mat is used. Erosion mat shall comply with the requirements of Class I; Urban Type B erosion mat as defined by Standard Specifications for Highway and Structure Construction and the PAL. Erosion mat shall be American Excelsior-Curlex Net-Free, Erosion Control Blanket-S32BD, Western Excelsior-Excel SS-2 All Natural, Ero-Guard EG-25 (NN), Erosion Tech ETRS2BN or approved equal.

### Staples

**(Note to the designer: Erosion mat specified in this section is intended for short-term use i.e. 6 months or less. Alternate material shall be specified for instances requiring long term stabilization.)**

**If urban erosion mat is specified for use on the project, biodegradable staples shall be used to hold the erosion mate in place. If urban erosion mat is not being used, that section can be deleted from the specifications.**

Use staples conforming to Standard Specifications for Highway and Structure Construction 628.2.3 to anchor erosion mat. Staples shall be U‑shaped of No. 11 gauge or heavier steel wire, or other approved materials, with a width of one to two inches, and a length of not less than 6 inches for firm soils and not less than 12 inches for loose soils.

Use biodegradable staples in accordance with manufacturer’s recommendations for anchoring urban erosion mats. Acceptable anchoring devices are listed in the PAL. Wood and metal staples are not allowed for use with urban erosion mats.

### Riprap

**(Note to the designer: For correctional or mental health facility projects where riprap is to be specified within a secured area, verify if riprap and staples are allowable.)**

Riprap shall be the class specified in the plan and shall conform to Standard Specifications for Highway and Structure Construction 606.2. If a class is not specified in the plan, medium riprap shall be used.

#### **Gabion Stone**

Gabion stone shall be washed stone or rock free of organic material, fines or other debris. Gabion stone shall meet the following gradation:

|  |  |
| --- | --- |
| Sieve Size | % Passing |
| 7” | 100 |
| 6” | 90 |
| 4” | 40 |
| 3” | 10 |

### Soil Stabilizers

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Soil stabilizers shall be non-asphalt-based products of the type specified, and meeting the requirements of the PAL.

#### **Soil Tackifiers**

Soil tackifiers shall be non-asphalt-based products of the type specified, and meeting the requirements of the PAL.

**PART 3 - EXECUTION**

**GENERAL**

Install erosion control measures as required by the erosion control plan and contract documents. Provide additional erosion control measures as dictated by Contractor’s means and methods, or by differing site conditions. Notify DFD Project Representative of additional erosion control features that are provided, but not shown on the plan.

Contractor shall provide all erosion control measures necessary to protect property and the environment. Perform all work in accordance with manufacturer's instruction where these specifications do not specify a higher requirement.

## Grading and Earthwork

Install all temporary or permanent erosion control measures prior to any onsite grading or land disturbances.

Clear only those areas designated for the placement of improvements or earthwork before placement of the final cover. Perform stripping of vegetation, grading, excavation, or other land disturbing activities in a logical sequence and manner which will minimize erosion. If possible, schedule construction for times of the year when erosion hazards are minimal.

Do not clear the site of topsoil, trees, and other natural ground covers before the commencement of construction. Retain natural vegetation and protect until the final ground cover is placed.

Do not stockpile soil within 25 feet of any roadway, parking lot, paved area, or drainage structure or channel. Provide temporary stabilization and control measures (seeding, mulching, covering, erosion matting, barrier fencing) for the protection of disturbed areas and soil piles which will remain unfinished for a period of more than 14 consecutive calendar days.

Remove surplus excavation materials from the site immediately after rough grading. The disposal site for the surplus excavation materials shall also be subject to these erosion control requirements.

### Drainage

### Minimize water runoff and retain or detain on-site whenever possible so as to promote settling of solids and groundwater recharge.

### Convey drainage to the nearest adequate public facility. Do not discharge water in a manner that will cause erosion or sedimentation of the site or receiving facility.

Protect storm sewer inlets and catch basins in accordance with the erosion control plan, if provided. If not specified, protect inlets with straw bale barriers, silt fencing, filter basket, gabion stone weepers, or other equivalent methods approved by the A/E which provide the necessary erosion protection.

Divert roof drainage and runoff from all areas upslope of the site around areas to be disturbed or channel them through the site in a manner that will not cause erosion.

Minimize the pumping of sediments when dewatering. Discharge to a sedimentation basin or sedimentation vessel to reduce the discharge of sediments. Do not discharge water in a manner that will cause erosion or sedimentation of the site or receiving facility.

**Tracking Control**

Provide each entrance to the site with a stone tracking pad. Tracking pad shall be constructed of Gabion Stone or Breaker Run.

If necessary, provide a crushed aggregate paved parking area.

If applicable, wash water shall be discharged to sedimentation basins, sedimentation vessels, or other such control areas. Untreated wash water shall not be discharged to storm sewers or surface water bodies.

**MAINTENANCE**

Inspect all erosion control measures within 24 hours of the end of each rainfall event that exceeds 0.25” or daily during period of prolonged rainfall, or weekly during periods without rainfall. Immediately repair and/or replace any and all damaged, failed, or inadequate erosion control measures.

Maintain records of all inspections and any remedial actions taken.

Maintain stockpile stabilization measures as necessary after rainfall events and heavy winds. Replace tarps, re-seed, and reapply mulch, tackifiers and stabilizers as necessary.

Remove sediment from stormwater and erosion control structures, basins and vessels as necessary.

Repair or replace damaged inlet protection.

Replace or supplement stone tracking pads with additional stone when they become ineffective.

Remove any sediment reaching a public or private roadway, parking lot, sidewalk, or other paved. Do not remove tracked sediments by flushing. Completely remove any accumulations not requiring immediate attention at least once daily at the end of the workday.

Frequently dispose of all waste and unused construction materials in licensed solid waste or wastewater facilities. Do not bury, dump, or discharge, any garbage, debris, cleaning wastes, toxic materials, or hazardous materials on the site, on the land surface or in detention basins, or otherwise allow materials to be carried off the site by runoff onto adjacent lands or into receiving waters or storm sewer systems.

##### END OF SECTION