

DETAILED SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL
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DEFINITIONS & ABBREVIATIONS

Whenever in the specifications, or in any documents or instruments in construction operations where the specifications govern, the following abbreviations, terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

Abbreviations

AASHTO	The American Association of State Highway and Transportation Officials
ASTM	The American Society of Testing and Materials
ECRM	Erosion Control Revegetative Mats
NR	Wisconsin Department of Natural Resources Administrative Code
PAL	Wisconsin Department of Transportation Product Acceptability List
WDNR	Wisconsin Department of Natural Resources

Definitions

1. Change Order shall be understood to mean a written order by the authorized representative of the Owner covering work not otherwise provided for, revision in or amendments to the Contract, or conditions specifically prescribed in the specifications as requiring contract change orders. Such document becomes part of the Contract.
2. City, Municipality, Owner shall be understood to mean the City of Fond du Lac, Wisconsin.
3. Contractor shall be understood to mean the individual, firm, partnership or corporation or a combination of any or all jointly submitting a proposal to whom the Contract is awarded by the Owner or its heirs, executors, administrators, successors, or assigns.
4. Contract shall be understood to mean the written agreement between the Owner and the Contractor setting forth the obligations of the parties to the contract, including, but not limited to, performance of the work, furnishing of labor and materials, and basis of payment. The Contract includes the advertisement for bids, proposal, contract form, performance bond, detailed specifications, special provisions, addenda, general plans, detailed plans, notice to proceed, and contract change orders and agreements required to complete the construction of the work in an acceptable manner, including authorized extensions, all of which constitute one instrument.
5. Disturbance, Disturbed shall be understood to mean any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover that may result in runoff and lead to an increase in soil erosion and movement of pollutants into the municipal separate storm sewer or waters of the state. Land disturbing construction activity includes clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities, and soil stockpiling.
6. Erosion Control Revegetative Mats shall be understood to mean a blanket like covering laid on top of a prepared seed bed to protect soil and seed from erosive forces of nature and include erosion mat class I, II, and IIIA on the PAL.
7. Engineer shall be understood to mean the City Engineer of the City of Fond du Lac, Wisconsin or any person designated by the City Engineer to perform a particular task. The Engineer shall have the full decision-making authority on behalf of the City as described or reasonably implied in this Contract.
8. Plans shall be understood to mean all drawings or reproductions of drawings, including profiles, sections, and sketches which have been made for the purpose of representing the work to the Contractor, all of which are to be considered a part of the Contract. Plans and drawings are used synonymously.

9. Special Provisions shall be understood to mean the special body of directions, provisions, or requirements peculiar to a project, and otherwise not thoroughly or satisfactorily detailed or described in the specifications. The requirements of these Special Provisions shall govern the work and shall take precedence over the specifications or plans whenever they conflict.
10. Stabilization, Stabilized shall be understood to mean that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established, with a density of at least 70% of the cover, for the unpaved areas and areas not covered by permanent structures, or that employ equivalent permanent stabilization measures.
11. Trackout shall be understood to mean the relocation of material from its intended location to offsite surfaces by vehicles.

GENERAL EROSION AND SEDIMENT CONTROL REQUIREMENTS

Scope

This section describes the general construction site pollutant control requirements to minimize the discharge of sediment and construction materials as shown and specified until site restoration, landscaping, and paving are complete.

General Requirements

1. Erosion and sediment control practices shall be installed and maintained in accordance with the requirements outlined in the *WDNR Conservation Practice Standards* (Technical Standards).
2. Erosion and sediment control shall strictly comply with the guidelines and requirements set forth in Section 628 of the *Standard Specifications for Highway and Structure Construction*.
3. The Contractor shall comply with all requirements of the State of Wisconsin Construction Site Storm Water Runoff General Permit.
4. The methods and types of erosion and sediment control will be dependent on the location and type of work involved and shall be adjusted to meet field conditions at the time of construction. Sediment control practices shall be installed prior to any grading or disturbance of existing surface material. All temporary sediment control practices shall remain until the site has been completely stabilized and removed at that time.
5. Permanent site restoration and soil stabilization shall commence when land disturbing activities cease and final grade has been reached. In the event of winter construction, said restoration work shall be completed as soon as the weather is conducive to vegetation growth. Temporary stabilization activity shall commence when land disturbing activities have temporarily ceased and will not resume for a period exceeding 14 calendar days.
6. Erosion and sediment control practices shall be inspected for integrity weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hour period. Any damaged practices shall be corrected and restored by the end of each working day.

Materials

Approved Products

All manufactured erosion and sediment control products shall be from the PAL. Contact the Engineer when there are no products on the PAL. Install products from the PAL conforming to those manufacturer's specifications and as modified within the *Detailed Specifications for Erosion and Sediment Control* and detailed plans.

Submittals

The Contractor shall submit to the Engineer 2 copies of current manufacturer's specifications and construction details for review prior to installation. All submittals shall be provided a minimum of 2 weeks before a proposed material will be used or installed. Each submittal shall indicate the proposed material, compliance with specified standard(s), supplier and manufacturer's name, address and phone number. The Contractor may consider a submittal reviewed upon receiving written approval from the Engineer. Any submittal rejected by the Engineer shall be resubmitted for approval prior to installation. No materials subject to construction detail review shall be ordered prior to receipt of an approved submittal. Materials installed shall match approved submittals. The Owner reserves the right to randomly sample and test at any time during the project.

Substitution of Materials

Whenever, in any part of the Contract documents, an article, material, or equipment is defined by a proprietary product, or by using the name of a manufacturer or vendor, the term "or equal", if not inserted, shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency, and quality desired and shall not be construed in such manner as to exclude manufacturer's products of comparable quality, design, and efficiency.

The Contractor shall submit plans, manufacturer's data, shop drawings, specifications, test results, certifications, or other pertinent data for any materials other than those covered by the contract documents. In all cases the proposed substitute must be approved by the Engineer in writing. The Engineer shall have the sole discretion to make this determination. In the event of such substitution, the Owner may require from the Contractor a credit deduction from the contract amount equal to any saving in material cost resulting from use of the proposed substitute.

Construction

Dust Control

The Contractor shall take all reasonable measures to protect the Owner from extensive complaints regarding dust, as well as complaints pertaining to dirt or debris dropped on streets leading to the waste disposal areas during old pavement removal and excavating operations. If in the Engineer's opinion, it becomes necessary to apply a dust palliative along the construction project to relieve abutting property owners from unreasonable dirt and dust conditions, the Contractor shall furnish and apply such dust preventives at his own expense. Dust control measures shall be applied in accordance with *WDNR Conservation Practice Standard 1068*.

Chemicals, Cement, and Other Building Compounds and Materials

Prevent the discharge of onsite chemicals, cement, and other building compounds and materials into storm sewers and waters of the state during the construction period.

Spill Prevention and Response

The Contractor shall ensure that all hazardous substances are properly labeled and that hazardous substances are stored, dispensed and/or used in a way that prevents release.

The Contractor shall provide spill response materials, including, but not limited to, the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times in which hazardous materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

The Contractor shall notify the Engineer and notify the WDNR in accordance with chapter NR 706, Wis. Adm. Code, in the event that a spill or accidental release of any substance results in the discharge of pollutants to the waters of the state. The WDNR shall be notified via the 24 hour spill hotline, 1-800-943-0003. Immediate containment actions shall be taken to minimize the effect of any spill or leak. As directed by the Engineer, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Owner.

Equipment Decontamination

All equipment and materials used within or adjacent to waterways and waterbodies shall follow the most recent WDNR approved washing and disinfection protocols and approved best management practices to avoid the spread of invasive species.

Basis of Payment

The cost for erosion and sediment control measures not having a discrete pay item shall be considered incidental to construction.

EROSION AND SEDIMENT CONTROL PRACTICES

Scope

This section describes providing erosion and sediment control practices to minimize erosion and the discharge of sediment until site restoration, landscaping, and paving are complete.

General Requirements

1. Install and maintain erosion and sediment control practices where the plans show or the Engineer directs.
2. Install or utilize trackout control practices to prevent, reduce, or mitigate trackout of sediment. Implement the following in series where conditions warrant:
 - A. Prevent trackout with stabilized work surfaces and reduced vehicle contact with soil.
 - B. Reduce trackout with stone tracking pad.
 - C. Mitigate trackout with street cleaning.
3. Install storm drain inlet protection at all storm water inlets where the contributing drainage area is temporarily disturbed.
4. Install perimeter control practices to prevent the discharge of sediment offsite and into adjacent waters of the state.
5. Install turbidity barrier or silt curtain whenever construction activities are occurring in or directly adjacent to a waterway or waterbody.
6. Install erosion control practices and ditch checks to prevent the discharge of sediment from drainage ways that flow off the site.
7. Discharge all sediment-laden water to dewatering practices before release into the storm sewer or drainage ways.
8. The Contractor shall submit and obtain any required WNDNR permits for dewatering or pumping of groundwater, including Dewatering Operations WPDES General Permit.
9. Dewatering wells shall not be installed or operated, for which the single or aggregate capacity exceeds 70 gallons per minute, unless the Contractor obtains a high capacity dewatering well permit from WDNR.
10. Apply temporary seeding, install perimeter control practices, or apply soil stabilizer, type A or type B to prevent the discharge of sediment from all soil stockpiles existing more than 7 days.

11. Prevent the discharge of untreated wash water from vehicle and wheel washing into waters of the state or storm sewers.

Materials

Riprap

1. Use geotextile fabric as specified in Section 645 of the *Standard Specifications for Highway and Structure Construction*. Use type R fabric for light riprap and type HR fabric for medium and heavy riprap.
2. Use riprap as specified in Section 606 of the *Standard Specifications for Highway and Structure Construction*. Waste concrete slabs may only be used with permission of the Engineer.
3. Use riprap grout as specified in Section 606 of the *Standard Specifications for Highway and Structure Construction*.

Erosion Mat

1. Use erosion mat products of the type and class shown on the plans or directed by the Engineer.
2. Use urban erosion mat anchoring devices from the PAL or other natural or biodegradable anchoring devices approved by Engineer for class I and class II erosion mats. Metal pins or staples are not allowable.

Temporary Seeding

1. Use annual oats for spring and summer plantings and winter wheat or agricultural rye for fall plantings after September 1.
2. Use annual oats with a minimum purity of 98% and minimum germination of 90%. Use winter wheat with a minimum purity of 95% and minimum germination of 90%. Use agricultural rye with a minimum purity of 97% and minimum germination of 85%.

Soil Stabilizers

Use soil stabilizer products from the PAL.

Polyethylene Sheeting

Use 6 mil or thicker polyethylene sheeting conforming to **ASTM D4397**.

Silt Fence

Use silt fence materials, including supports and geotextile fabric, as specified in *WDNR Conservation Practice Standard 1056*.

Log-type Perimeter Control

1. Use temporary ditch check products from the PAL.
2. Use a product within a minimum height of 12 inches unless indicated otherwise on the plans or directed otherwise by the Engineer.

Rock Bags

1. Use high-density polyethylene or geotextile as specified in Section 628 of the *Standard Specifications for Highway and Structure Construction*.
2. Use bags with minimum dimensions of 18 inches in length, 12 inches in width, and 6 inches in height unless indicated otherwise on the plans or directed otherwise by the Engineer.
3. Fill bags with coarse aggregate No. 1 (**AASHTO M43, No. 67**) as specified in Section 501 of the *Standard Specifications for Highway and Structure Construction*.

4. Use rock bags for silt fence relief, ditch checks, culvert pipe checks, and inlet protection.

Ditch Checks

1. Use ditch check products of the type shown on the plans or directed by the Engineer.
2. For log-type and manufactured product ditch checks, use temporary ditch checks from the PAL. Use a product with a minimum height of 16 inches unless indicated otherwise on the plans or directed otherwise by the Engineer.
3. For temporary and permanent stone ditch checks, use stone as specified in *WDNR Conservation Practice Standard 1062* unless indicated otherwise on the plans or directed otherwise by the Engineer.
4. For bale ditch checks, use straw, hay, or other Engineer-approved materials, in good condition.

Inlet Protection

1. Use type FF fabric, as specified in the PAL, for type A, B, C, or D inlet protection.
2. Use type R, DF, and HR fabrics as specified in Section 645 of the *Standard Specifications for Highway and Structure Construction* for type D-M, D-HR, or D-RF inlet protection.

Stone Tracking Pad

1. Use stone meeting the material and gradation requirements in *WDNR Conservation Practice Standard 1057* or select crushed material as specified in Section 312 of the *Standard Specifications for Highway and Structure Construction*.
2. Use type R fabric as specified in Section 645 of the *Standard Specifications for Highway and Structure Construction*.

Dewatering Practices

1. Use geotextile filter bags and geotextile filter basins fabricated using type R fabric as specified in Section 645 of the *Standard Specifications for Highway and Structure Construction*. Geotextile filter bags shall have a minimum footprint of 100 square feet.
2. Use settling basins/tanks or manufactured filtering practices such as sand, wound cartridge or membrane filters in accordance with manufacturer's specifications meeting the requirements in *WDNR Conservation Practice Standard 1061*.
3. Use polymer approved by the WDNR and meeting the criteria in *WDNR Conservation Practice Standard 1051* unless directed otherwise by the Engineer.

Sediment Basins

Provide temporary outlet structure in accordance with the plans when required.

Waterway Sediment Control

1. Use turbidity barrier as specified in Section 628 of the *Standard Specifications for Highway and Structure Construction*.
2. Use silt curtain meeting the requirements in *WDNR Conservation Practice Standard 1070*.

Construction

Riprap

1. Prepare subgrade in accordance with Section 606 of the *Standard Specifications for Highway and Structure Construction*.
2. Install geotextile fabric in accordance with Section 645 of the *Standard Specifications for Highway and Structure Construction*.

3. Place riprap in accordance with Section 606 of the *Standard Specifications for Highway and Structure Construction*.
4. When the plans specify grouted riprap, place riprap grout in accordance with Section 606 of the *Standard Specifications for Highway and Structure Construction*.

Erosion Mat

1. Install and anchor erosion mat in accordance with manufacturer's instructions and meeting the minimum anchor frequency from the PAL.
2. Install degradable net where the plans show or the Engineer directs. All erosion mat installed in terrace areas between the sidewalk and curb and gutter shall have degradable netting.

Temporary Seeding

1. Apply temporary seeding to disturbed areas as shown on the plans or as directed by the Engineer.
2. Prepare a seedbed of loose soil to a minimum depth of 2 inches.
3. Sow at a rate of 3 pounds per 1,000 square feet on areas directed by the Engineer.
4. Apply to disturbed areas when land disturbing activities have temporarily ceased and will not resume for a period exceeding 14 calendar days or more frequently as directed by the Engineer.
5. Temporary seeding areas shall be fertilized, mulched and watered as necessary to establish adequate vegetation.

Soil Stabilizers

1. Apply soil stabilizer with conventional hydraulic seeding equipment or by dry spreading. Apply the material at the manufacturer's recommended rate. Do not exceed the maximum application rate specified in the PAL.
2. Apply visible tracer or colorant to visually track application.

Polyethylene Sheeting

1. Secure the sheeting from wind and water dislocation.
2. Before placing, remove stones, roots, sticks, and other materials that interfere with the sheeting bearing completely on the soil.
3. Overlap adjacent sheets a minimum of 3 feet in the direction of flow; and seal the edges with waterproof tape or other Engineer approved method.

Construction Site Diversions

1. Construct berms or channels to intercept, divert, and safely convey runoff as shown on the plans. Stabilize berms, channels, and outfall before initiating down slope land-disturbing activities.
2. Install temporary slope drains to limit runoff onto disturbed areas. Discharge non-erosive flows to a stabilized area or storm sewer. Install energy dissipation devices as needed.

Silt Fence

1. Install silt fence with a minimum of 8 inches of fabric trenched in the ground.
2. Backfill and compact soil over the trenched-in portion of the silt fence.
3. Post spacing shall not exceed 3 feet for non-woven silt fence and 8 feet for woven fabric.
4. Extend the ends of the fence upslope to prevent water from flowing around the ends of the fence.

Log-type Perimeter Control

1. Entrench products on disturbed ground a minimum of 2 inches and ensure continuous ground contact.
2. Products installed on vegetated ground do not require entrenchment. Fill all gaps and ruts.
3. Overlap product a minimum of 24 inches or as required by manufacturer if more restrictive.
4. Stake or anchor as needed to maintain constant ground contact along the entire length of the product at all times and to prevent lateral movement and/or flotation. Stake in accordance with manufacturer's instructions. At a minimum, provide 1 inch by 1 inch stakes placed at the end of each log and every 10 feet and staked to a depth of 12 inches.
5. Extend the ends of product installations upslope to prevent water from flowing around the ends of the product.

Rock Bag Silt Fence Relief

1. Install a base of 2 horizontal rows of bags with 1 bag on each side of the silt fence. Install 1 row of bags on top of the base. The top of the bags should be a minimum of 6 inches below top of silt fence.
2. Make silt fence opening a minimum of 3 feet unless indicated otherwise on the plans or directed otherwise by the Engineer.
3. Use metal t-posts at silt fence opening.
4. Overlap silt fence a minimum of 18 inches.

Ditch Checks

1. Place ditch checks immediately after shaping the ditches or slopes.
2. All ditch checks shall have a minimum height of 10 inches after installation.
3. Place ditch checks such that the resultant ponding will not adversely impact or damage adjacent areas.
4. Extend ditch checks up the slope such that the bottoms of the ends are at least 6 inches higher in elevation than the top of the lowest middle section.
5. Install ditch checks such that 1 ditch check is installed for each 18 inches of elevation drop in the channel.
6. Excavate temporary upstream sumps as directed by the Engineer.
7. Install log-type and manufactured product ditch checks as specified below:
 - A. Entrench products on disturbed ground a minimum of 2 inches and ensure continuous ground contact.
 - B. Products installed on vegetated ground and channels with an ECRM installed do not require entrenchment. Fill all gaps and ruts.
 - C. Overlap product a minimum of 24 inches or as required by manufacturer if more restrictive.
 - D. Stake or anchor as needed to maintain constant ground contact along the entire length of the product at all times and to prevent lateral movement and/or flotation. Stake in accordance with manufacturer's instructions. At a minimum, provide 1 inch by 1 inch stakes placed at the end of each log and every 10 feet and staked to a depth of 12 inches.
8. Install rock bag ditch checks as specified below:
 - A. Entrench rock bags on disturbed ground a minimum of 2 inches and ensure continuous ground contact.
 - B. Ditch checks installed on vegetated ground and channels with an ECRM installed do not require entrenchment. Fill all gaps and ruts.
 - C. Stagger the joints between adjacent rows of rock bags.
 - D. Place rock bags tightly against each other to prevent voids.
9. Install stone ditch checks as specified below:

- A. Provide a minimum top width of 24 inches and a maximum slope of 2:1 (2 horizontal to 1 vertical) on the upslope and downslope sides.
 - B. Key base into the soil to a depth of 6 inches.
10. Install bale ditch checks as specified below:
- A. Use 2 rows of bales per check with bales on their sides so the twine wrapped around the bale is off the ground. Stagger the joints between adjacent rows of bales.
 - B. Anchor bales tightly against one another using 2 wooden stakes driven flush with the top of the bale.
 - C. Embed or entrench each bale 4 inches deep.
 - D. When installed on bare soils, place channel erosion mat on the downstream side and extend a minimum of 6 feet.

Culvert Pipe Checks

1. Place culvert pipe checks immediately after installing new pipes or culverts and before beginning land disturbing construction activities in areas with existing pipe and culverts.
2. Place rock bag culvert pipe checks on the inlet end of the pipe or culvert only.

Inlet Protection

1. All inlet protection installations shall be type D-M or type D-RF, unless indicated otherwise on the plans or directed otherwise by the Engineer.
2. Use type B or type C inlet protection where there is insufficient depth to install type D series inlet protection with the permission of the Engineer.
3. Type D-M and type D-RF inlet protection shall use a type R filtering fabric.
4. Inlet protection on "Pod" type inlets shall use rock bags placed around the inlet or an inlet protection product designed for curb inlets and approved by the Engineer.

Trackout Control Practices

1. Construct stone tracking pads at all vehicle egress points from the construction area. Ensure that the stone tracking pad is at least 50 feet long and the full width of the access point.
2. Design the installation to divert surface water flow away from stone tracking pads and, if field conditions dictate, provide a culvert to channel flow under the tracking pad.
3. Stone tracking pads shall be underlain with a type R geotextile fabric.

Dewatering Practices

1. Utilize a floating suction hose or equivalent method to minimize the potential for pumping sediment directly from the bottom of a pond, pit, or trench.
2. The Contractor shall at all times be prepared to discharge into geotextile filter bags, geotextile filter basins, or provide other acceptable dewatering methods in accordance with *WDNR Conservation Practice Standard 1061* for all projects requiring utility construction or where groundwater may be encountered. Additional practices, such as secondary containment, will be required if adequate sediment control is not provided.
3. Geotextile filter bags shall be placed on a pallet, aggregate bedding, or some other means of raising the bag above the surface of the ground. Securely connect inflow hoses to filter bags to minimize leakage. Slowly increase the pumping rate to allow a filter cake to develop on the fabric and improve the ability of the fabric to remove soil particles that are smaller than the fabric openings.
4. The Contractor may use settling basins/tanks or manufactured filtering practices with the approval of the Engineer. Provide required documentation on system prior to use.

5. Use polymer with geotextile filter bags, geotextile filter basins, sediment basins, settling basins/tanks, and manufactured filtering practices unless permitted otherwise by the Engineer. Apply in accordance with manufacturer's instructions. Verify proper dosing with the manufacturer and limit to WDNR allowable usage rate. Provide appropriate contact/mixing time prior to the filtering or settling practice.
6. Provide calculations as appropriate demonstrating that the proposed method will be adequate for the site soils and pumping rate.

Sediment Basins

1. Install sediment basins and detention ponds prior to general grading activities.
2. Use proposed detention ponds as a sediment basin until the contributory drainage area has been stabilized. Existing detention ponds shall not be used as a sediment basin.
3. Install temporary outlet structure when required in accordance with the plans and the *Detailed Specifications for Sewer Construction*.

Waterway Sediment Control

1. Install turbidity barriers in accordance with *WDNR Conservation Practice Standard 1069*.
2. Install turbidity barrier parallel to the direction of flow.
3. Install silt curtains in accordance with *WDNR Conservation Practice Standard 1070*.

Vegetative Buffers

The Contractor shall keep all construction equipment and materials out of areas shown on the plans or marked in the field as vegetative buffers.

Mulching

Mulching may be used as a temporary control where soil grading or landscaping has taken place or in conjunction with temporary seeding with the permission of the Engineer. Use a soil stabilizer, type A.

Maintenance

General

1. All erosion and sediment control measures shall be maintained until the site is stabilized.
2. Remove sediment control measures and restore site when the site is stabilized or, in the case of inlet protection and culvert pipe checks used to protect existing structures, when the existing structure has been removed from service.
3. Begin erosion control corrective action within 24 hours of the Engineer's written or verbal order and promptly complete items on the written or verbal order.

Erosion Mat

1. If there are signs of erosion under the mat, install more staples or more trench anchors. If erosion becomes severe enough to prevent vegetation, remove the section of mat where the damage has occurred. Fill eroded area with topsoil, compact, reseed and replace section of mat, trenching and overlapping ends per manufacturer's recommendations. Provide additional staking at points of repaired erosion.
2. If the reinforcing plastic netting has separated from the mat, remove the plastic and if necessary replace the mat.

Temporary Seeding

Limit vehicle traffic and other forms of compaction in areas that are seeded.

Polyethylene Sheeting

Patch damaged areas with sheeting overlapped a minimum of 3 feet and seal the joints with waterproof tape or other Engineer-approved method.

Construction Site Diversions

1. Remove and properly dispose accumulated sediment once deposits reach approximately $\frac{1}{3}$ to $\frac{1}{2}$ the height of the diversion berm.
2. Fill eroded areas with topsoil, compact, and reseed.

Silt Fence

1. Replace silt fences when sections of the fence become damaged, decomposed, undercut, or flow channels form around the end of barriers.
2. Remove and properly dispose accumulated sediment once deposits reach approximately $\frac{1}{3}$ to $\frac{1}{2}$ the height of the fence.

Log-type Perimeter Control

1. Backfill voids with soil and compact to establish continuous contact between the ground and product when undermined.
2. Reposition and secure with additional stakes any products that move out of installed position.
3. Repair holes, rips, or tears less than 12 inches in any direction and located with the top $\frac{1}{3}$ of the product by stitching or wrapping a new piece of fabric around the product and securing. Remove and replace sections of product with rips, holes, or tears greater than 12 inches in any direction or located within the bottom $\frac{2}{3}$ of the product.
4. Repair or replace pinched, settled, or deformed products.
5. Replace products when sections become damaged, decomposed, or flow channels form around the end of barriers.
6. Remove and properly dispose accumulated sediment once deposits reach approximately $\frac{1}{3}$ to $\frac{1}{2}$ the height of the product.
7. A second product may be installed immediately upslope and in contact with the original product whenever the product is required to be repaired, replaced, or sediment removed.

Rock Bags

1. Replace bags that have degraded to a point that the bag is no longer sound.
2. Remove and properly dispose accumulated sediment once deposits reach approximately $\frac{1}{3}$ to $\frac{1}{2}$ the height of the installed bags.

Ditch Checks

1. Backfill voids with soil, compact, and install an ECRM when undermined or if flow channels form around the ends of barriers.
2. Replace products when sections become damaged, decomposed, or flow channels form around the end of barriers.
3. Remove and properly dispose accumulated sediment once deposits reach approximately $\frac{1}{3}$ to $\frac{1}{2}$ the height of the ditch check. Removal of sediment may require replacement of stone.
4. Remove stone ditch checks unless shown on the plans or directed by Engineer to remain in place as part of permanent stormwater management system.
5. Ditch checks shall remain until Engineer determines slopes and ditches are stable and the turf develops enough to make future erosion unlikely.

6. Reshape the ditch, fill sump and trenches, dispose of excess eroded material, and topsoil, fertilize, and seed the affected area when removing ditch checks.

Culvert Pipe Checks

Culvert pipe checks shall remain until Engineer determines slopes and ditches are stable and the turf develops enough to make future erosion unlikely.

Inlet Protection

1. When maintaining and removing inlet protection devices, exercise care to minimize sediment falling into the inlet. Immediately remove all material that has fallen into inlets. Deposit sediment removed from the device in a suitable area and stabilize.
2. Replace damaged inlet protection.
3. Remove sediment deposits when sediment has accumulated between $\frac{1}{3}$ to $\frac{1}{2}$ of the design height of type A, B, C, and D-RF inlet protection or when the device is no longer functioning as designed.
4. Remove sediment when it accumulates to within 6 inches of the bottom of the overflow holes of type D, D-M, and D-HR inlet protection.
5. Remove inlet protection devices prior to winter season. Replace inlet protection devices in spring until final stabilization. Use type D-RF inlet protection when inlet protection is required during winter season.

Trackout Control Practices

1. Trackout shall be cleaned and collected from paved roads located near the construction site daily or as directed by the Engineer.
2. Replace or rework material in the surface of stone tracking pads to minimize material tracked onto public roads.
3. Remove stone tracking pads when the site is stabilized, the vehicle egress point is no longer needed, or when pavement base course has been installed.

Dewatering Practices

1. Remove accumulated sediment from devices to maintain effectiveness. Properly dispose material and prevent discharge to waterways and waterbodies.
2. Replace clogged, torn, or damaged geotextile filters.
3. Operate and maintain manufactured filters per manufacturer's instructions. Properly dispose any backwash water.

Sediment Basins

1. If the outlet becomes blogged it shall be cleaned to restore flow capacity.
2. Remove temporary outlet structure when all contributing drainage areas are stabilized and with approval of the Engineer.
3. Clean sediment basins when the Engineer determines the sediment has accumulated to an extent that impairs the effectiveness of the sediment basin and when all contributing drainage areas are stabilized. Properly dispose surplus material.

Waterway Sediment Control

1. Maintain the integrity of the barrier as necessary to contain sediment from adjacent construction operations. Promptly correct deficiencies. Remove and dispose accumulations of soil and other detrimental material.

2. Turbidity barriers and silt curtains shall not be removed until the water behind the barrier has equal or greater clarity than the waterway or waterbody.
3. Care shall be taken when removing the barrier to minimize the release or re-suspension of accumulated sediment.

Vegetative Buffers

1. Repair and stabilize areas with erosion, ruts, compaction, and damage to vegetation.
2. Maintain a stand of dense vegetation to a height of 3 to 12 inches.

Mulching

Reapply and properly anchor mulch that has been displaced.

Basis of Payment

1. The cost for erosion and sediment control measures not having a discrete pay item shall be considered incidental to construction.
2. The replacement of any erosion or sediment control device due to damage, decomposition, or the device otherwise reaching the end of its useful life shall be considered maintenance, and will not be paid as an additional installation.
3. If the Contractor fails to begin corrective action within 24 hours of the Engineers written or verbal order, or fails to promptly install the required corrective action, the Owner will deduct \$500 per calendar day of delay. The Engineer may extend the 24-hour period for delays not the Contractor's fault.
4. The riprap items shall be measured by the square yard completed and accepted. Payment for the riprap bid items is full compensation for excavating; for preparing the bed; for providing and installing geotextile; for providing and placing riprap; for restoring adjacent work; and for disposing of surplus material. Payment for the grouted riprap bid items also includes placing and curing mortar.
5. The erosion mat items shall be measured by the square yard completed and accepted. No allowance will be made for portions of the mat that must be entrenched in the soil for any end or junction slot, or for required overlaps. Payment for the erosion mat bid items is full compensation for providing, protecting, and storing erosion mat materials on the project; for placing and anchoring the mat, including anchoring devices; for preparing seeded areas; for installing end and junction slots; for repairing and reseeding damaged areas; and for disposing of surplus material. The Owner will pay separately for covering class III types B, C, and D mats with an ECRM under the applicable erosion mat bid item.
6. The temporary seeding item shall be measured by the square yard completed and accepted. Payment for temporary seeding is full compensation for providing, handling, and storing seed; and for preparing the seed bed, sowing, covering, and firming the seed. Temporary seeding will only be paid at areas indicated on the plans and shall be incidental when temporary seeding is required due to the Contractor's scheduling of work.
7. The soil stabilizer, type B item shall be measured by the square yard completed and accepted. Payment for soil stabilizer, type B is full compensation for furnishing, mixing, and applying soil stabilizer. Soil stabilizer, type B will only be paid at areas indicated on the plans.
8. The polyethylene sheeting item shall be measured by the square yard completed and accepted. Payment for polyethylene sheeting is full compensation for furnishing and delivering the polyethylene sheeting to the project site; for storing on the project; for installing the sheeting; for all excavating and backfilling; for securing the sheeting and sealing the edges of the sheeting; for removing the sheeting; and for disposing of eroded material.

9. The diversion berm/swale item shall be measured separately by each individual location completed and accepted. Payment for the diversions berm/swale bid item is full compensation for excavating, stabilizing, maintaining, and removing diversions; for disposing of eroded material; and for restoring the site. Diversion berm/swale will only be paid for temporary diversions. Permanent diversions will be paid separately under the applicable bid items.
10. The slope drains item shall be measured separately by each individual location completed and accepted. Payment for slope drains is full compensation for furnishing, installing, maintaining, and removing slope drains; for disposing of eroded material; and for restoring the site.
11. The silt fence item shall be measured separately by the linear foot completed and accepted. This measurement shall be along the base of the fence, center-to-center of end post, for each section of fence. Payment for silt fence is full compensation for providing, protecting, and storing silt fence on the project; for erecting fence, including excavating, placing posts, backfilling, and attaching geotextile; and for removing the fence at project completion.
12. The log-type perimeter control item shall be measured separately by the linear foot completed and accepted. This measurement shall be along the base of the installed product, excluding required overlaps, for each section of product. Payment for log-type perimeter control is full compensation for providing, protecting, and storing perimeter control materials on the project; for installing and removing perimeter control measures at project completion or as the Engineer directs; for repairing and reseeding damaged areas; and for disposing of eroded material.
13. The rock bag silt fence relief item shall be measured separately by each individual location completed and accepted. Payment for rock bag silt fence relief is full compensation for providing rock bags; for periodic sediment removal; for removing rock bags and rock filler; for disposing of eroded material; and for restoring the site.
14. The ditch check items shall be measured separately either by each individual location and type or by linear foot of each type completed and accepted as the Contract indicates. Payment for the ditch check bid items is full compensation for providing, protecting, and storing ditch check materials on the project; for installing and removing ditch checks at project completion or as the Engineer directs; for repairing and reseeding damaged areas; and for disposing of eroded material.
15. The culvert pipe checks item shall be measured separately by each individual location or by linear foot completed and accepted. Payment for culvert pipe checks is full compensation for providing rock bags; for periodic sediment removal; for removing rock bags and rock filler; for disposing of eroded material; and for restoring the site.
16. The inlet protection items shall be measured separately by each individual location and type completed and accepted. Payment for the inlet protection bid items is full compensation for furnishing, transporting, and installing materials; and for maintaining and removing the inlet protection devices. The bid item "Inlet Protection – Type A" includes removal of the type A inlet protection and installation of a type B or type D series inlet protection immediately prior to the start of landscaping work.
17. The stone tracking pads w/ Type R fabric item shall be measured separately by each individual unit completed and accepted at locations approved by the Engineer. Payment for stone tracking pads is full compensation for providing tracking pads including aggregate and geotextile; for replacing or reworking material as required to maintain performance; and for removing the pad and restoring the site.
18. Dewatering is incidental to construction work unless specifically indicated otherwise on the plans.
19. The sediment basin temporary outlet item shall be measured separately by each individual unit completed and accepted. Payment for sediment basin temporary outlet is full compensation for furnishing, assembling, installing, maintaining, and removing temporary outlets on sediment basins.
20. Cleaning sediment basins during construction and at the completion of construction is incidental to construction.

DETAILED SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL

21. The turbidity barrier and silt curtain items shall be measured by the linear foot completed and accepted. This measurement shall be along the water surface, excluding required overlaps, for each section of turbidity barrier or silt curtain. Payment for the turbidity barrier and silt curtain bid items is full compensation for furnishing, assembling, installing, maintaining, and removing the turbidity barrier or silt curtain; and for sandbags, buoys, navigational markers, anchors, and anchor ropes.
22. Mulching applied as a temporary erosion control is incidental to construction work. Mulching applied with permanent seeding shall be measured and paid as indicated in the site restoration specifications.