

UNIVERSITY OF MINNESOTA
SECTION 312500 - EROSION PREVENTION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Control of sedimentation of waterways, open drainage ways and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.
- E. MPCA Storm Water Pollution Prevention Plan requirements.

1.2 RELATED SECTIONS

- A. Division 01 for Quality Control
- B. Section 311000 - Site Clearing
- C. Section 312200 – Grading
- D. Section 312316 – Excavating
- E. Section 312316.13 – Trenching

1.3 REFERENCES

- A. ASTM D 4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus); 1999.
- B. ASTM D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a.
- C. ASTM D 4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 1991 (Reapproved 1996).
- D. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 1991 (Reapproved 1996).
- E. ASTM D 4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; 1999a.
- F. ASTM D 4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2001.
- G. EPA 832-R-92-005 - Storm Water Management for Construction Activities; U.S. Environmental Protection Agency; 1992.
- H. MPCA NPDES Construction Site Requirements under General Permit MNR100001

- I. Minnesota Department of Transportation Standard Specifications for Construction, 2016 Edition and Corresponding Supplements.

1.4 PERFORMANCE REQUIREMENTS

- A. Follow standards for inspection and maintenance of Best Management Practices (BMPs), as identified in the MPCA Erosion and Sedimentation Control Manual.
- B. Follow all permit requirements, the project-specific Storm Water Pollution Prevention Plan (SWPPP), and University policy for Stormwater Compliance (<http://policy.umn.edu/operations/environment-proc04>).
- C. Provide at least one certified installer for each contractor or subcontractor to oversee all installation and maintenance of BMPs and implementation of the SWPPP. In addition, provide at least one certified individual to conduct inspection and maintenance of all erosion prevention and sediment control BMPs in accordance with the requirements of the permit and University policy. Evidence of certification of each individual shall be furnished by the Contractor at the preconstruction meeting.
- D. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained. Obtain construction stormwater permit from the MPCA in accordance with University specified procedure below (see Part 1.5(E)). DO NOT submit an application for permit coverage on University property without first obtaining specific Department of Environmental Health and Safety (DEHS) staff or its designated campus storm water point-of-contact approval, which constitutes "Owner's Signature".
- E. Install all temporary and permanent BMPs at the project site as identified by the SWPPP, and as detailed by detail sheets. Maintain BMPs at the project site to control stormwater, prevent on-site and off-site soil erosion, to minimize on-site and off-site sedimentation, and to minimize soil compaction and devegetation. Additional BMPs may be necessary to achieve permit compliance or the provisions of this part, which shall be taken at no cost to the Owner.
 - a. Timing. Install BMPs identified in the SWPPP prior to disturbance of surface cover and before precipitation occurs. Follow project phasing indicated in SWPPP.
 - b. Maintenance. Maintain temporary preventive measures until permanent measures have been established to 90%. Permit termination may be requested after 70% vegetative cover across the entire project site has been established. University staff will terminate permit in accordance with University specified procedure below (see Part 1.5(H)).
 - c. Temporary Sediment Basins and Traps. In the event that temporary sedimentation basins will be used or required, construct basins concurrently with the start of soil disturbing activities. Direct stormwater runoff from localized watersheds into the basins. Mulch, seed, or both, the exposed side slopes of the basins as soon as possible, but within 14 days at the longest.
 - d. Construction Site Vehicle Entry/Exit. Prior to beginning work, install temporary construction exit(s) at each point where vehicles exit the construction site. Use a rock construction exit (see plans for detail), or other University-approved site exit control.
 - e. Prior to beginning work, complete the following:
 - i. Control drainage and erosion on the site, and mark or otherwise delineate areas on the site not to be disturbed.

- ii. Establish site location of any portable toilet, fueling area, spill kit location, concrete washout area, hazardous material handling area, litter control device area, staging area, stockpiling area and other SWPPP-designated areas.
 - iii. Establish traffic flow and patterns, including haul roads, to minimize soil disturbance, tracking, compaction, and to preserve native and existing vegetation.
 - e. Perform notification to University DEHS staff or its designated campus storm water point-of-contact for pre-construction inspection (see Part 1.5(F)).
- E. Mark/stake and maintain sensitive areas delineated on the SWPPP to prevent disturbance, compaction, erosion and sedimentation of sensitive areas. Use measures such as hand clearing and grubbing, limiting bare soil exposure time, expediting construction activities, and immediately establishing final vegetation to minimize sediment loss potential in these areas. Inspect marked/staked areas at each inspection to ensure areas are being protected from sedimentation and sediment loss. Additional measures to prevent fouling of permanent stormwater BMPs may be necessary, and should be implemented to maintain design operability at project turnover.
- F. Maintain precipitation records onsite for use in determining applicable precipitation events. Use one of the following online sources (which maintains an electronic record of events) or install an onsite rain gauge and keep a daily weather log onsite. Indicate the source of the weather data in the SWPPP materials.
 - St Paul projects: use <http://climate.umn.edu/doc/observatory.htm> , and click on "hourly" or "hourly data file".
 - Minneapolis projects: use <http://w2.weather.gov/climate/xmacis.php?wfo=mpx>. Select the Lower St Anthony Falls station (don't use the "Minneapolis Area") from the drop-down list, and change the month to the current month.
 - Other campus locations may use NOAA weather station sites within 1 mile of the project site in lieu of maintaining an on-site meter and precipitation log.
- G. Complete periodic required stormwater inspections as identified by the permit (weekly routine inspections and precipitation events). A University-provided inspection form or an alternate University-approved inspection form shall be used to document all routine and precipitation-event inspections. A project-specific University inspection form will be furnished upon submittal of the Project Initiation form (see Part 1.5(C)). Inspections shall continue periodically until termination of permit as described by Part 1.5(H). Maintain inspection records onsite and provide as requested by University or regulatory staff.
- H. Make corrective actions to findings of periodic inspections, as self-identified on periodic inspections, or as identified by University or other regulator inspections within 24 hours of discovery/notice. Maintain corrective action records onsite and provide as requested by University or regulatory staff.
- I. Update SWPPP as often as needed to reflect real-time site conditions and BMPs currently in place. Update locations of solid waste containers, on-site fueling and concrete washing as conditions at the site change. The updated SWPPP shall be posted at the project site and be made available upon request to University or regulator staff.
- J. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.

1. Prevent runoff into project and adjacent storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
 2. Any storm water discharge from disturbed areas must be visibly free of sediment and only contain stormwater or other permit-authorized discharges. Turbid or sediment-laden water must be treated prior to discharge (see Part 1.4(L)(5) for details).
 3. Inlet protection removed in accordance with the permit for the purposes of public safety must be reinstalled as soon as feasible after conclusion of the event initiating removal.
 4. Stormwater and other discharges from the site may not be discharged to the sanitary sewer.
- K. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
1. Control movement of sediment and soil from temporary stockpiles of soil.
 - a. Stockpiles shall not be placed in natural buffers or surface waters unless there is a bypass in place. Stockpiles shall be stabilized with temporary BMPs by the end of the work day or shift during which it was created.
 - b. Unless infeasible or otherwise project-specified, topsoil shall be preserved for site restoration and revegetation purposes, and shall be protected from wind or water erosion as described above.
 - c. Stockpiles transported off-site shall be covered to prevent wind erosion and off-site deposition.
 2. Control and minimize traffic and traffic paths throughout project site to minimize tracking, disturbance and compaction. Prevent development of ruts due to equipment and vehicular traffic.
 3. Immediately stabilize areas when construction activity in an area has temporarily ceased or ended and will not resume for at least 14 calendar days.
 4. If erosion, compaction or devegetation occurs due to non-compliance with these requirements, restore impacted areas at no cost to Owner.
- L. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water or soils leaving the project site due to construction activities for this project.
1. Prevent windblown soil from leaving the project site. Soils transported off-site shall be covered to prevent wind erosion and off-site deposition. Activities such as grinding, sanding, cutting and blasting shall be conducted in a manner so as to minimize fugitive dust, and to minimize accumulation on soils to be vegetated, and areas (eg. curb cutouts) that may be a conduit of stormwater.
 2. Prevent tracking of mud onto public roads outside site. If installation and maintenance of SWPPP-identified BMPs is not sufficient to prevent tracking, additional preventive measures shall be implemented at no cost to the Owner.
 3. Street sweeping. Sweep or otherwise remove all soil and sediment tracked or otherwise deposited on public or private paved areas on a daily basis. Use mechanical methods to remove solids first, followed by wet methods, only as needed.
 4. Prevent mud and sediment from flowing onto sidewalks and pavements.

5. Discharges within or from the project site shall meet the following requirements.
 - a. Water discharged from the project site must be comprised solely of stormwater, and be visibly free of sediment and floating solids. Other discharges require separate permitting authority.
 - b. Unless infeasible due to lack of pervious or vegetated area, discharges shall be made to vegetated areas, and with energy dissipation in place to prevent erosion. Discharges from the project site to the sanitary sewer require prior approval by University DEHS staff and the sewerage authority.
 - c. Water discharged must not cause nuisance conditions, erosion in receiving channels or downslope properties, or inundation of wetlands.
 - d. For turbid or sediment-laden water, provide a treatment plan for University pre-approval before pumping water from the site (see Part 1.5(J)).
 6. If off-site impacts occur due to non-compliance with these requirements, restore impacted areas at no cost to Owner.
- M. Sedimentation of Waterways: Prevent migration of sediment from project site to waterways on-site or off-site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
1. Project areas adjacent to or flowing directly to waters of the state have additional permit-required management standards, which include setbacks, enhanced BMPs, and requirements for rapid stabilization methods. Consult the SWPPP for specific provisions to be followed at the project site. If installation and maintenance of SWPPP-identified BMPs is not sufficient to prevent sedimentation, additional preventive or protective measures shall be implemented at no cost to the Owner.
 2. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner. Corrective measures include removal of deposited sediments from waters of the state. Prior to removal of sediment from waterways, obtain EHS approval, and any necessary permits; comply with requirements of authorities having jurisdiction.
 3. If sediment basins or devices are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
 4. Discharges within or from the project site shall meet the following requirements.
 - a. Water discharged from the project site must be comprised solely of stormwater, and be visibly free of sediment and floating solids. Other discharges require separate permitting authority.
 - b. Unless infeasible due to lack of pervious or vegetated area, discharges shall be made to vegetated areas, and with energy dissipation in place to prevent erosion. Discharges from the project site to the sanitary sewer require prior approval by DEHS and the sewerage authority.
 - d. Water discharged must not cause nuisance conditions, erosion in receiving channels or downslope properties, or inundation of wetlands.
 - e. For turbid or sediment-laden water, provide a treatment plan for University pre-approval before pumping water from the site (see Part 1.5(J)).
 5. If on-site or off-site impacts occur due to non-compliance with these requirements, restore impacted areas at no cost to Owner.
- N. Open Water: Prevent standing water that could become stagnant.

- O. Pollution Prevention Measures: Prevent contamination of stormwater from on-site materials and wastes. Activities occurring at a separate area (staging) in conjunction with the project are subject to the provisions in this part.
1. Any product or waste with the potential to contaminate stormwater must be stored inside or under cover in SWPPP designated areas only. Items must be stored in a closed, labeled container and in a manner to prevent releases through vandalism, theft, accident or otherwise. Items included in this provision include, but is not limited to: building materials, pesticides, treatment chemicals and by-products, landscape materials, fuels, oils and lubes, paints, paint waste and other hazardous wastes. Storage locations shall be indicated on the SWPPP, and be updated as necessary to reflect site conditions.
 2. Litter and solid waste at the site must be controlled to prevent release from the project site and be covered, except when adding or removing waste. Litter and wastes may not be buried or otherwise disposed at the project site. Solid waste must be collected and disposed off-site in a manner consistent with local and state solid waste rules. Solid waste storage locations shall be indicated on the SWPPP, and be updated as necessary to reflect site conditions.
 3. On-site fueling shall be conducted in SWPPP designated areas only, and shall have secondary containment in place to prevent fuel releases. In situations where permanent containment is not feasible, rubberized containers suitable for use under equipment during fueling operations is acceptable. Fueling locations shall be indicated on the SWPPP, and be updated as necessary to reflect site conditions.
 4. A spill kit containing materials appropriate to project-specific pollutants and quantities shall be located on the project site, and its location shall be indicated on the SWPPP.
 5. Portable toilets must be positioned so that they are secure, and will not be tipped or knocked over. On the UMD campus, a Standard Operating Procedure for portable toilets is also applicable. Sanitary waste must be disposed in a manner consistent with local and state rules.
 6. Vehicle and equipment washing is prohibited at the project site, including but not limited to the staging area.
 7. Concrete wash-out waste shall either be collected and managed off-site, or managed on-site in a SWPPP-designated concrete washout area. Materials in or destined for the washout area shall not contact the ground, nor shall water or other liquid discharge from the containment structure. Wastes collected must be disposed of off-site in a manner consistent with local and state solid waste rules. Washout areas shall be indicated on the SWPPP, and be updated as necessary to reflect site conditions; washout areas shall be signed at the project site. In cases where an on-site batch concrete or asphalt plant is used, a Plan for the management of fugitive dust, stockpiling, wastewater, solid waste, noise, traffic, location and other physical considerations shall be submitted to University DEHS staff or its designated campus storm water point-of-contact for approval prior to use of the plant (see Part 1.5(K)).
 8. Use methods and operational procedures that prevent discharge or placement of bituminous grindings, cuttings, millings, and other bituminous wastes from areas of existing or future vegetated soils and from all water conveyance systems, including inlets, ditches and curb flow lines.
 9. Use methods and operational procedures that prevent concrete dust, particles, concrete wash out, and other concrete wastes from leaving the project site, depositing in existing or future vegetated areas, and from entering stormwater conveyance systems, including inlets, ditches and curb flow lines. Use methods and operational procedures that

- prevent saw cut slurry and planning waste from leaving the project site and from entering stormwater conveyance systems including ditches and culverts.
10. Spill response and notification. In the event of a release to the environment, or an unexpected field observation (such as a tank, buried waste, or discolored soil), complete the University Spill Notification Form and submit to the University in accordance with the specified procedure below (see Part 1.5(H)).
 11. If on-site or off-site impacts occur due to non-compliance with these requirements, restore impacted areas at no cost to Owner.
- P. Establish final stabilization: Restore the project site to permit-required vegetative conditions and initiate permit termination process.
1. Complete soil disturbing activities and restore site to a uniform perennial vegetative cover with a density of 70%, or other equivalent measures, as approved by the University, to prevent soil failure under erosive conditions.
 2. Temporary BMPs shall be removed, unless specifically approved by University DEHS staff or its designated campus storm water point-of-contact.
 3. Permanent BMPs shall be fully installed and verified to be operating as designed. Any basins or other permanent BMPs also used as temporary BMPs during the construction phase, must be cleaned of accumulated sediment.
 4. Perform notification to University DEHS staff or its designated campus storm water point-of-contact for post-construction inspection (see Part 1.5(F)).
 5. Initiate termination (or transfer) of construction stormwater permit in accordance with University specified procedure below. DO NOT submit a Permit Termination form; University staff will terminate permit in accordance with University specified procedure below (see Part 1.5(H)).
 6. Note that compliance inspections, in accordance with the provisions of the permit, must continue to be completed until the permit is terminated.
 7. Growing seasons. Commencement of work in relationship to growing seasons and final stabilization efforts may impact the Contractor's selection of BMPs for final stabilization. That is, seeding or hydro-seeding of sites in the fall do not constitute final stabilization and will delay the ability to cease inspections and/or terminate the permit.

1.5 SUBMITTALS

- A. See Division 01 for Submittal Procedures.
- B. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements and signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.
- C. Project Initiation Form: complete the University DEHS Project Initiation Form after 90% completion of DD documents.
- D. Stormwater Pollution Prevention Plan (SWPPP), prepared as specified above.
- E. Stormwater Permit Application Procedure.
 1. Evidence of certification of individuals specified by Part 1.4(C) shall be furnished by the Contractor at the preconstruction meeting.
 2. Contractor follows the procedure in the University Standard Operating Procedure (SOP) for drafting the electronic Construction Stormwater (CSW) Permit Application on the MPCA eServices website. The SOP is located at: http://www.dehs.umn.edu/Docs/UMN_Proj_Initiation_MS4.docx.

3. Contractor drafts the electronic CSW permit application on the MPCA e-Services web page at: <https://rsp.pca.state.mn.us>. Prior to completing the certification and payment steps, exit the permit application and “share” the digital file with University SWPPP contact for review (see SOP for specifics).
 4. University DEHS staff or its designated campus storm water point-of-contact project contact reviews and approved the draft permit application, checks in the electronic file on the eServices web site and notifies the contractor of approval. University DEHS staff or its designated campus storm water point-of-contact signature on the hard-copy of the draft permit application constitutes University agreement that the project documents comply with applicable University policy and permits.
 5. Contractor completes payment and certification screens on the MPCA eSubmittal site after University approval. **The at-risk contractor SHOULD NOT apply complete these steps until the draft permit application has been reviewed and signed by or its designated storm water point of contact.**
- F. University Inspections/Notifications. Notify University DEHS staff or its designated campus storm water point-of-contact at each of the following project milestones:
- Pre-construction inspection: After BMPs have been installed in accordance with the SWPPP, prior to soil disturbing work is initiated.
 - Post-construction inspection: When the provisions of Part 1.4(P) for final site stabilization have been met, prior to removal of BMPs.
 - General inspections: University DEHS staff or its designated campus storm water point-of-contact will conduct general inspections throughout the course of the project for compliance monitoring.
- G. Inspection Reports. As indicated in Part 1.4(G), inspections shall be completed on University-provided forms, and shall be maintained onsite, to be provided to University or regulatory staff as requested.
- H. Stormwater Permit Termination Procedure. When the provisions of Part 1.4(P) for final stabilization have been met and a post construction inspection has been completed:
1. Contractor completes a hard-copy version of the MPCA Notice of Termination form (<http://www.pca.state.mn.us/index.php/view-document.html?gid=7388>) and submits to University EHS staff or its designated campus storm water point-of-contact for review and “Owner’s Signature”.
 2. University EHS staff or its designated campus storm water point-of-contact reviews document and submits to the MPCA. The contractor will be copied on correspondence to the MPCA.
- I. Spill Response and Notification. As indicated in Part 1.4(O), submit the University Spill Notification Form (at http://www.dehs.umn.edu/envircomp_sp.htm) to the University in the event of a release to the environment, or an unexpected field observation (such as a tank, buried waste, or discolored soil). If more than 5 gallons of petroleum product, or any volume of other substance causing pollution of water are released, as described on the Spill Notification Form, the contractor shall directly contact the University Department of Emergency Response (9-1-1 on UMTC campus) and the State Duty Officer at 651.649.5451. Follow the UMD Emergency Response Plan (3b-1) for projects on the UMD campus.
- J. Water Discharge Plan. As indicated in Part 1.4(L)(d)(1), submit a Plan for University approval, for the treatment and discharge of sediment laden water intended discharged off-site. The Plan shall include a description of the approximate volume to be treated and discharged, treatment method, equipment and chemicals proposed, dosage rate, treatment time/duration, discharge rate, and outlet location and energy dissipation measure(s) to be used at the outlet.
- K. On-Site Asphalt or Concrete Batch Plant Management Plan. As indicated in Part 1.4(O)(7), submit a Plan for the management of fugitive dust, stockpiling, wastewater, solid waste, noise, traffic, location and other physical considerations to University DEHS staff or its designated

campus storm water point-of-contact for approval prior to use of a batch concrete or asphalt plant.

- L. Materials and product shop drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Mulch: Per MnDOT Specification Section 3733, Type 3.
- B. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons. MnDOT Seed Mix #100 or #110 or approved equivalent.
- C. Silt Fence Fabric: Per MnDOT Specification Section 3886 for Standard Machine Sliced or Heavy Duty type. Preassembled silt fence is not allowed. Follow MnDOT standards.
- D. Geotextiles: Per MnDOT Specification Section 3733, Type V.
- E. Erosion Control Blankets: Per MnDOT Specification Section 3885, Category 4 Coconut for all slopes 4:1 or greater and within entire bioswale area, and Category 2 Straw 2S for all slopes 8:1 or greater.
- F. Erosion Stabilization Mats: Per MnDOT Specification Section 3888, Type 3 for Slope greater than 3:1 and at pipe outlets.
- G. Storm Drain Inlet Protection: Filter Bag insert or approved equivalent. Silt fence wrapped on casting or silt fence or strawbales surrounding catchbasin or manhole is generally not allowed as a primary means, but may be used for redundant protection.
- H. Filter Log: Per MnDOT specification Section 3897 Type Straw, Wood or Compost Log. Straw logs are considered to be marginally effective, and are only to be used, if at all, in very low-flow, low-slope areas.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.2 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.3 CONSTRUCTION ACTIVITY REQUIREMENTS

- A. STORM WATER POLLUTION PREVENTION PLAN

The Contractor must implement the SWPPP and the requirements of this part. The Best Management Practices (BMPs) identified in the SWPPP and in this permit must be installed in an appropriate and functional manner.

B. EROSION PREVENTION PRACTICES

1. The Contractor must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices that minimize erosion, so that the inspection and maintenance requirements are complied with. The location of areas not to be disturbed must be delineated (e.g. with flags, stakes, signs, silt fence etc.) on the development site before work begins. Phasing and special site areas to be marked/staked are indicated on the SWPPP.
2. All exposed soil areas with a continuous positive slope must have temporary erosion protection or permanent cover for the exposed soil areas year round, according to the following table of slopes and time frames (Maximum time an area can remain open when the area is not actively being worked):

Type of Slope	Time
Steeper than 3:1	7* days
10:1 to 3:1	14 days
Flatter than 10:1	21 days

These areas include constructed bioswale side slopes, and any exposed soil areas with a positive slope to a storm water conveyance system, such as a curb and gutter system, storm sewer inlet, temporary or permanent drainage ditch or other natural or man made systems that discharge to a surface water.

*Note that in project areas within 1 mile of a Specials Waters are subject to the provisions of Appendix A of the permit, which requires all areas to be stabilized within 7 days.

3. The normal wetted perimeter of any temporary or permanent drainage ditch that drains water from a construction site, or diverts water around a site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge to any surface water. Stabilization must be completed within 24 hours of connecting to a surface water.
4. Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours of connection to a stormwater conveyance system.

C. SEDIMENT CONTROL PRACTICES

1. Sediment control practices must minimize sediment from entering surface waters, including curb and gutter systems and storm sewer inlets.
2. Temporary or permanent drainage ditches and sediment basins that are designed as part of a treatment system require sediment control practices only as appropriate for site conditions.
3. If the down gradient treatment system is overloaded, additional upgradient sediment control practices must be installed to eliminate the overloading, and the SWPPP must be amended to identify these additional practices.
4. In order to maintain sheet flow and minimize rills and/or gullies, there shall be no unbroken slope length of greater than 75 feet for slopes with a grade of 3:1 or steeper.

5. Sediment control practices must be established on all down gradient perimeters before any upgradient land disturbing activities begin. These practices shall remain in place until final stabilization has been established.
6. The timing of the installation of sediment control practices may be adjusted to accommodate short-term activities such as clearing or grubbing, or passage of vehicles. Any short-term activity must be completed as quickly as possible and the sediment control practices must be installed immediately after the activity is completed. However, sediment control practices must be installed before the next precipitation event even if the activity is not complete.
7. All storm drain inlets must be protected by appropriate BMPs during construction until all sources with potential for discharging to the inlet have been stabilized and final University inspection has been completed.
8. Temporary soil stockpiles must have silt fence or other effective sediment controls, and cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches. Stockpiles not actively being worked shall be stabilized around the entire perimeter; stockpiles being worked shall be stabilized at the end of each work day. Preserved topsoil stockpiles shall additionally be covered.
9. Vehicle tracking of sediment from the construction site must be minimized by BMPs such as stone pads, concrete or steel wash racks, or equivalent systems. Streets must be swept daily.

D. DEWATERING AND BASIN DRAINING

1. Dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) related to the construction activity that may have turbid or sediment laden discharge water must be discharged to a temporary or permanent sedimentation basin on the project site whenever possible. If the water cannot be discharged to a sedimentation basin prior to entering the surface water, it must be treated with the appropriate BMPs, such that the discharge does not adversely affect the receiving water or downstream landowners. The Contractor must ensure that discharge points are adequately protected from erosion and scour. The discharge must be dispersed over natural rock riprap, sand bags, plastic sheeting or other accepted energy dissipation measures. Adequate sedimentation control measures are required for discharge water that contains suspended solids.
2. All water from dewatering or basin draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in receiving channels or on downslope properties, or inundation in wetlands causing significant adverse impact to the wetland.
3. All permits for dewatering need to be obtained by the Contractor prior to initiation any dewatering practice. Prior to permit application, the Contractor shall seek pre-approval from University EHS project contact, as described by Part 1.5(J).

E. INSPECTIONS AND MAINTENANCE

1. The Contractor must routinely inspect the construction site once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.

2. All inspections, maintenance and corrective actions conducted during construction must be recorded on a University-provided inspection forms and these records must be retained with the SWPPP. Use of the University inspection form (Part 1.4(G)) and weather log (Part 1.4(F)) accounts for permit-required elements.
3. Where parts of the construction site have undergone final stabilization, but work remains on other parts of the site, inspections of the stabilized areas may be reduced to once per month. Where work has been suspended due to frozen ground conditions, inspections may also be suspended until thaw at the site occurs.
4. All erosion prevention and sediment control BMPs must be inspected to ensure integrity and effectiveness. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs. The Contractor must investigate and comply with the following inspection and maintenance requirements:
 - a. All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the fence. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.
 - b. Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access.
 - c. Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment being deposited by erosion. The Contractor must remove all deltas and sediment deposited in surface waters, including drainage ways, catch basins, and other drainage systems, and restabilize the areas where sediment removal results in exposed soil. The removal and stabilization must take place within seven days of discovery unless precluded by legal, regulatory, or physical access constraints. The Contractor shall use all reasonable efforts to obtain access. If precluded, removal and stabilization must take place within seven calendar days of obtaining access. The Contractor shall contact University DEHS staff for permitting guidance; the Contractor is responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work.
 - d. Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all off-site paved surfaces, within 24 hours of discovery, or if applicable, within a shorter time if requested by the University. The Contractor is responsible for the operation and maintenance of temporary and permanent water quality management BMPs, as well as all erosion prevention and sediment control BMPs, for the duration of the construction work at the site. The Contractor is responsible until the University, or another owner/operator, has assumed control according to over all areas of the site that have not been finally stabilized or the site has undergone final stabilization, and a NOT has been submitted to the MPCA in accordance with the procedure identified in Part 1.5(H).
 - e. If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts

(e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets.)

5. All infiltration areas must be inspected to ensure that no sediment from ongoing construction activities is reaching the infiltration/filtration area and these areas are protected from compaction due to construction equipment driving across the infiltration area.

F. POLLUTION PREVENTION MANAGEMENT MEASURES

The Contractor shall implement the following pollution prevention management measures on the site:

1. Storage, Handling, and Disposal of Construction Products, Materials, and Wastes: The contractor shall comply with the following standards to minimize the exposure to stormwater of any of the products, materials, or wastes at University project sites. Products or wastes which are either not a source of contamination to stormwater or are designed to be exposed to stormwater are not held to this requirement:
 - a. Building products that have the potential to leach pollutants must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by a similarly effective means designed to minimize contact with stormwater.
 - b. Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover (e.g., plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by similarly effective means designed to minimize contact with stormwater.
 - c. Hazardous materials, toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste or hazardous materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable.
 - d. Solid waste must be stored, collected and disposed of properly in compliance with Minn. R. ch. 7035.
 - e. Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. On the UMD campus, a Standard Operating Procedure for portable toilets is also applicable. Sanitary waste must be disposed of properly in accordance with Minn. R. ch. 7041.
2. Fueling and Maintenance of Equipment or Vehicles; Spill Prevention and Response: The Permittee(s) shall take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible. In situations where permanent containment is not feasible, rubberized containers suitable for use under equipment during fueling operations is acceptable. The Permittee(s) must conduct fueling in a contained area unless infeasible. The Permittee(s) must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. The Permittee(s) must report

and clean up spills immediately as required by Minn. Stat. § 115.061, using dry clean up measures where possible.

3. Vehicle and equipment washing: No vehicle or equipment washing is allowed at University project sites, including but not limited to staging areas.
4. Concrete and other washouts waste: The Permittee(s) must provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the construction activity. The liquid and solid washout wastes must not contact the ground, and the containment must be designed so that it does not result in runoff from the washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes. In cases where an on-site batch concrete or asphalt plant is used, a Plan for the management of fugitive dust, stockpiling, wastewater, solid waste, noise, traffic, location and other physical considerations shall be submitted to University DEHS staff or its designated campus storm water point-of-contact for approval prior to use of the plant (see Part 1.5(K)).
5. Catch basins in concrete surfaces on the UMD Campus shall be stamped in accordance with 3c-1 Storm Drain Markings of the UMD SWPPP.

G. FINAL STABILIZATION

The Contractor must ensure final stabilization of the site. The Contractor shall follow the procedure described by Part 1.5(H) within 30 days after final stabilization is complete.

1. All soil disturbing activities at the site have been completed and all soils must be stabilized by a uniform perennial vegetative cover with a density of 70 percent over the entire pervious surface area, or other University-approved equivalent means necessary to prevent soil failure under erosive conditions and;
 - a. All drainage ditches, constructed to drain water from the site after construction is complete, must be stabilized to preclude erosion;
 - b. All temporary synthetic, and structural erosion prevention and sediment control BMPs must be removed as part of the site final stabilization, except as specifically authorized/required University DEHS staff or its designated campus storm water point-of-contact;
 - c. The Contractor must clean out all sediment from conveyances and from temporary sedimentation basins that are to be used as permanent water quality management basins. Sediment must be stabilized to prevent it from being washed back into the basin, conveyances or drainage ways discharging off-site or to surface waters. The cleanout of permanent basins must be sufficient to return the basin to design capacity.
 - d. On the UMD campus, all trees required to be planted must be planted in accordance with the Standard Operating Procedure 5a-1 (Tree Preservation, Protection, and Planting).

3.5 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed.

- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION 312500