



DENVER

THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS | ENGINEERING DIVISION

Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications

23.0 Storm Water Management Plans (SWMPs)

23.0.1 General

The SWMPs include obtaining all the Storm Water Discharge Permits necessary for construction activities (Construction Activities Stormwater Discharge Permit - CASDP Sewer Use and Drainage, State Stormwater Construction Permit and other related NPDES permits, etc.). The Contractor is required to submit these plans for approval by the Project Construction Engineer prior to obtaining permits through local agencies and the Colorado Department of Public Health and Environment, Water Quality Control Division. Depending on the size of the disturbance area, it is the responsibility of the Contractor to determine which jurisdiction requires permits for this project. The SWMPs shall consist of a narrative report, information worksheet and drawing set, as a minimum requirement. It is the responsibility of the Contractor to obtain minimum requirements from the applicable jurisdictions while preparing the SWMPs. No payment shall be made for this item if the approved Storm Water Management Plans (SWMPs) are not followed. All required permits must be in place prior to starting construction and must be closed prior to final payment.

23.0.2 Submittals

Unless otherwise specified, the Contractor must submit the SWMP to the Project Construction Engineer within ten (10) days following the Notice to Proceed. The SWMP must be stamped by a Professional Engineer, licensed in the State of Colorado, prior to submittal to the Project Construction Engineer.

23.0.23 Soil Erosion and Sediment Control Plan

The Contractor is required to submit a Soil Erosion and Sediment Control Plan for approval by the Project Manager prior to construction. This plan must include construction limits as well as areas which will be used for set-up, staging, storage, hauling, ingress and egress from site, and any other areas affected by the construction. Weekly updates are required as construction proceeds and as site conditions change. The Plan shall be based on the criteria and technical guidance for erosion and sediment control at construction sites as set forth in Volume 3 of the “Urban Storm Drainage Criteria Manual” and in the WMD guide, “Construction Activities Stormwater Management Plans – An Introduction Guide”. The SWMP will be paid for in accordance with Measurement and Payment item 43.1 and the associated bid item.

23.0.2.1 Objectives During Construction

1. Conduct all land disturbing activities in a manner that effectively reduces accelerated soil erosion and reduces sediment movement and prevents disposition off-site.
2. Schedule construction activities to minimize the total amount of soil exposed at any time to reduce the period of accelerated soil erosion.
3. Establish temporary or permanent cover on areas that have been disturbed as soon as possible after final grading is complete.
4. Design and construct all temporary and permanent facilities for the conveyance of water around, through, or from the disturbed area to limit the flow of water to non-erosive velocities.
5. Capture sediment caused by soil erosion from surface runoff water before it leaves the site.
6. Stabilize the areas of land disturbance with permanent vegetative cover or stormwater quality control measures.

23.0.2.2 Minimum Measures

1. The Contractor and/or their authorized agents shall remove all sediment, mud, construction debris, or other potential pollutants that may have been discharged to or, accumulate in, the flowlines, storm drainage appurtenances, and public rights of ways of the City and County of Denver as a result of construction activities associated with this site development or construction project . Said removal shall be conducted in a timely manner.
2. This Construction Activities Stormwater Management Plan has been submitted as part of an application for a Construction Activities Stormwater Discharge Permit filed with the Wastewater Management Division of the City and County of Denver. The contractor may be required to provide additional erosion and sediment control measures at the request of the permitting agency due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this plan shall be the obligation of the contractor; until such time as the plan is properly completed, modified or voided.

3. The Contractor shall prevent sediment, debris and all other pollutants from entering the storm sewer system during all demolition, excavation, trenching, boring, grading or other construction operations that are part of this project. The Contractor shall be held responsible for remediation of any adverse impacts to the storm drainage system, adjacent waterways, wetlands, etc., resulting from work done as part of this project
4. A layer of suitable mulch shall be applied to all disturbed portions of the site within fourteen (14) days of the completion of the overlot grading. Said mulch shall be applied at a rate of two (2) tons per acre and shall be tacked or fastened by an approved method suitable for the type of mulch used. Rough cut streets shall be mulched unless a layer of paving is to be applied to rough cut streets within the 14 day period after completion of the overlot grading.
5. The Contractor shall locate, install and maintain all erosion control and water quality Best Management Practices as indicated in the approved Construction Activities Stormwater Management Plan (Chapter 10, City and County of Denver, Department of Public Works Rules and Regulations Governing Sewerage Charges and Fees and Management of Wastewater).
6. The General Contractor, Grading Contractor and/or their authorized agents shall insure that all loads of cut and fill material imported to or exported from this site shall be properly covered to prevent loss of the material during transport on public rights of ways (Sec. 49-552; Denver Revised Municipal Code).
7. The use of rebar, steel stakes, or steel fence posts to stake down stray or hay bales; or to support silt fencing used as an erosion measure is strictly prohibited.
8. Soils that will be stockpiled for more than thirty (30) days shall be protected from wind and water erosion within fourteen (14) days of stockpile construction. Stabilization and protection of the stockpile may be accomplished by any of the following: Temporary/Permanent Revegetation Operations, Chemical Soil Stabilizer Application (requires Project Construction Engineer approval prior to application), or erosion control matting/Geotextiles. If stockpiles are located within 100 feet of a storm drainage facility, additional sediment controls such as temporary dikes, inlet protection or silt fences shall be required.
9. Approved erosion and sediment control “Best Management Practices” shall be maintained and kept in good repair for the duration of this project. At a minimum, the Contractor or his agent shall produce and retain weekly written inspection records for all BMPs and after significant precipitation events. All necessary maintenance and repair shall be completed immediately. Street sweeping is to be completed by the close of the business day or on an as needed basis. Accumulated sediment and debris shall be removed from a BMP when the sediment level reaches one half the height of the BMP or, at any time the sediment poses the risk of breaching the BMP during a storm event.
10. Modification of an active Construction Activities Stormwater Discharge Permit by the Contractor or their authorized agents shall require timely notification of and approval by the Wastewater Management Division. Discharge Permits expire if construction has not commenced within twelve (12) months of the acceptance of the Management Plan.

Termination of an active Construction Activities Stormwater Discharger Permit upon completion of the project requires notification of and approval by the Wastewater Management Division.

11. Water used in the cleaning of concrete truck delivery chutes shall be discharged into a predefined, bermed containment area on the jobsite. The required containment area is to be bermed so that wash water is totally contained. Wash water discharged into the containment area shall be allowed to infiltrate or evaporate. Dried concrete waste is to be removed from the containment area and properly disposed of. Should a predefined bermed containment area not be available due to the project size, or the lack of an area with suitable ground surface for establishing a containment area, proper disposal of ready mix washout and rinse off water at the jobsite shall conform to the approved techniques and practices identified in the Colorado Department of Public Health and Environment's training video entitled "Building For a Cleaner Environment, Ready Mix Washout Training" and its accompanying manual entitled, "Ready Mix Washout Guidebook, Vehicle and Equipment Washout at Construction Sites". The direct or indirect discharge of water containing waste concrete into the storm sewer system is strictly prohibited. (Sec. 56-102a, c; Denver Revised Municipal Code, City and County of Denver).
12. The Contractor shall protect all storm sewer facilities adjacent to any location where pavement cutting operations involving wheel cutting, saw cutting, or abrasive water jet cutting are to take place. The Contractor shall remove and properly dispose of all waste products generated by said cutting operations on a daily basis. The discharge of any water contaminated by waste products from cutting operations to the storm sewer system is strictly prohibited. (Sec 56-102a, c; Denver Revised Municipal Code, City and County of Denver).
13. Paved Surfaces which are adjacent to construction sites must be swept on a daily basis when sediment and other materials are tracked or discharged on to them. Either sweeping by hand or use of Street Sweepers is acceptable. Street Sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is strictly prohibited. (Sec 56-102a, c; Denver Revised Municipal Code, City and County of Denver).
14. Establishing diversion dikes along pipeline trench to prevent surface run-off from entering the construction trench.
15. Construction straw bale barriers and/or silt fences downstream from construction on headwalls and other structures.

23.0.2.3 Special Measures

1. Placement of temporary sediment traps below or above drainage structures to prevent sediment from entering any drainage facility.
2. Use of a removable plug to prevent flow through the pipe during construction. Movement of the plug should keep pace with construction so that as inlets are placed, they can be used.

3. The cleaning of concrete delivery trucks is prohibited at the job site. The Contractor shall be liable for all costs and penalties under law resulting from the cleanup of this type of illicit discharge.

23.0.2.4 Details

The following is a partial listing of BMPs with available details. Additional BMPs and associated details not listed must be approved by the Project Construction Engineer prior to incorporation into the SWMP.

1. Check Dam
2. Temporary Diversion Dike
3. Valley Inlet Protection
4. Curb Inlet Protection
5. Inlet Protection Using Curb Sock
6. Construction Staging Pad
7. Vehicle Tracking Control
8. Straw Bale Erosion Barrier
9. Temporary Sediment Trap
10. Silt Fence Erosion Barrier