

SECTION 9 – EROSION AND SEDIMENTATION CONTROL

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Drainage Criteria Manual

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9.1 GENERAL

The purpose of this section is to provide a resource document and policy to protect land and water resources from the adverse effects of erosion and sedimentation and, to promote compliance with the City of Round Rock's Municipal Separate Storm Sewer System (MS4) Phase II permit. Additionally, the criteria have been fashioned to complement the language of the Texas Pollution Discharge Elimination System (TPDES) General Permit (TXR150000).

The conversion of land from its natural state or agricultural use to urban use can accelerate the processes of erosion and sedimentation. These accelerated processes can negatively impact natural resources such as drinking water supply, aquatic life, floodplain capacity, natural beauty, and recreational resources. As additional development and urban growth takes place in the City of Round Rock, the City's natural resources will experience accelerated degradation if erosion and sedimentation is not properly controlled. The protection of these natural resources is easier and less expensive than their restoration.

Construction related sediment is a significant pollutant of streams, lakes, ponds and reservoirs. Sedimentation can also carry pesticides, phosphates and many other chemical pollutants on the soil particles. These pollutants are carried to the waterway on the sediment particle and further reduce the quality of the water.

Erosion can be quite destructive and can threaten property, roads, utilities, infrastructure and structures. During most development/construction projects, the major period for erosion potential exists between the time of existing vegetation removal at commencement of site work and the time of construction completion or final revegetation. There are numerous activities associated with construction and land development that accelerate the rate of erosion. Virtually all of these activities involve the removal of vegetation and/or disturbance of the native geologic structure. Appropriate planning and implementation of these activities and preventative measures will reduce the adverse impact upon the site and the environment in general

The erosion and sediment best management practices (BMPs) included in Appendix C provide several methods to address the dual problems of erosion and sedimentation, but are in no way an exhaustive list of possible actions; and alternative site specific methods may be required to adequately control the problems. The City shall approve BMPs not included in the manual prior to their use.

9.2 EROSION AND SEDIMENT CONTROL POLICY

The City of Round Rock Erosion and Sedimentation Control policy shall govern the planning, design, installation, maintenance and inspection of temporary and permanent erosion and sedimentation controls associated with development/construction within the City. This policy is the official criteria required by the TPDES MS4 Phase II permit, and as such strives to comply with all federal and state mandates associated with the permit.

Erosion and sediment BMPs are required for all construction, (conducted with or without a permit) and all other activities for which land clearing, trenching, or grading is a part. It is the intent of City of Round Rock policy to closely parallel the requirements set forth in the Texas Pollution Discharge Elimination System (TPDES) Construction General Permit (TXR150000), the City of Round Rock's MS4 Phase II Permit and any applicable updates to NPDES or TPDES.

The policy objectives are to:

- Ensure Municipal Separate Storm Sewer System (MS4) Phase II Permit & TPDES Construction General Permit compliance.
- Minimize the erosion and transport of soil resulting from development/construction activities.
- Minimize sedimentation in streams, creeks, lakes, waterways, storm drains, etc.
- Protect and improve the quality of surface water and maintain and improve the quality and quantity of recharge to groundwater supplies, especially the Edwards aquifer.
- Minimize flooding hazards and silt removal cost associated with excessive sediment accumulation in storm drains and waterways.
- Preserve and protect existing vegetation to the greatest extent possible, particularly native plant and wildlife habitats.
- Provide for revegetation of sites to minimize the negative environmental impacts of construction activity.

9.3 PLANS AND COMPUTATIONS

Implementation of an effective erosion and sedimentation control plan requires a project management approach where responsibility is assigned during each phase to assure proper design, installation, maintenance, inspection, and when necessary, repair or replacement of controls during the construction. The project owner/developer, engineer and contractor are all integrally involved in this process from start to finish. In addition, an understanding by the responsible individuals of the complete process required to design and implement erosion and sedimentation controls will assist them in preparing appropriate plans, speed the review and approval process, result in fewer on-site changes or problems, and provide the appropriate degree of protection for the environment.

The following section presents the minimum requirements for the planning, design, construction, operation and maintenance of erosion and sedimentation control facilities. Design professionals may select an appropriate control method or combinations of methods or structures described in Appendix C and are responsible for both the adequacy and implementation of an effective erosion and sedimentation control plan. Following the end of construction activities, the developer/developer, contractor and engineer are responsible for ensuring proper erosion and sedimentation control until all areas are stabilized.

9.3.1 Submittal Requirements

All projects disturbing natural conditions are required to plan, design, and implement BMPs to minimize erosion and sedimentation to the greatest extent practicable. All activities requiring a permit shall submit an erosion and sedimentation control plan that identifies, addresses, and minimizes to the reviewer's satisfaction all potential sources of sediment and other construction related pollution.

Development/construction disturbing greater than one (1) acre shall also develop and implement a Storm Water Pollution Prevention Plan (SWPPP) as outlined in TPDES Construction General Permit (TXR150000).

Erosion and Sedimentation plan sheets shall include:

- A. A comprehensive plan addressing limits of disturbance, phasing, temporary and permanent erosion and sedimentation BMPs that complies with all applicable Federal, State and Local regulations.
- B. The graphics necessary to illustrate, review and construct the BMPs minimize erosion and sedimentation to the greatest extent practicable; (and where appropriate, correlate with those outlined in the SWPPP).
- C. Standards and schedules for maintenance and replacement for all temporary BMPs in the plans.
- D. Standards for top soil, vegetative materials and schedules for irrigation for all vegetation BMPs in the plans.
- E. BMPs design that avoids causing a flooding to adjacent property or rights-of-way.
- F. Computations for BMPs that rely on detention, sedimentation, filtration, diversion and velocity control. A Licensed Professional Engineer shall certify all engineering computations with competence in this area as required by Texas Engineering Practice Act, Section 137. (The reviewer may deny an application if the applicant cannot support Erosion and Sedimentation control designs with appropriate calculations.)

9.3.2 Procedures during Construction

Proper installation, maintenance, and inspection of the approved control methods during the construction of a project are the final steps in assuring effective control of erosion and sedimentation. Implementation requires the combined efforts of the project engineer, contractor, owner, city inspectors, and, when needed, reviewers working together to achieve the best feasible control.

- A. The contractor is responsible for installing, inspecting and maintaining all BMPs according to the approved erosion and sedimentation controls (and SWPPP as appropriate).
- B. The contractor (and inspector) is responsible for reporting any identified problem areas to the design engineer for recommended additions or revisions to the erosion and sedimentation control plan.
- C. The design engineer is responsible for modifying the plan as needed to minimize erosion and sedimentation to the greatest extent practicable.
- D. The owner, contractor and design engineer are responsible for installing and maintaining BMPs in a manner that complies with all applicable Federal, State and Local regulations.

9.3.3 Revisions to Controls

Most erosion and sedimentation controls will normally require some minor adjustments or additions during construction. These are known as “field revisions” and will not require a plan revision if approved by the Engineer and the inspector. Significant modifications to the controls or the SWPPP, however, will require a plan revision and resubmittal to the City for review and approval.