

234 **Erosion Control**

1. Except for routine yard maintenance or gardening, no person may undertake, authorize or permit any excavating, grading, filling or other change in the earth's topography that violates or is not in compliance with an approved grading and erosion control plan approved by the City Engineer and a required erosion control permit issued by the Minnehaha Creek Watershed District or the Minnesota Pollution Control Agency.
2. The Grading and Erosion Control plans shall be prepared in accord with the **Table One** Performance Standards attached to and made part of this ordinance.
3. The applicant shall implement an approved grading and erosion control plan as follows:
 - i. If the applicant is required to obtain a permit from the Minnesota Pollution Control Agency, or a permit from a Minnehaha Creek Watershed District, that permit must be on file with the City before construction activity begins.
 - ii. The applicant must properly install any required erosion control measures in locations specified on the approved plan, before demolition, construction or grading activity begins.
 - iii. All erosion control measures and devices, must be regularly inspected and maintained by the applicant. Damaged erosion control measures or devices shall be immediately repaired.
 - iv. If a grading and erosion control plan has been implemented but is reasonably considered by the City Engineer or Building Official to be inadequate in achieving the policy objectives of the Comprehensive Plan or the City Code of Ordinances or Performance Agreement, the City Engineer may require applicant to modify the plan and its implementation to achieve those objectives.

Table One Performance Standards

This Table is made part of Section 211 – Vegetation Removal; Grading; Filling; Shoreline Preservation and Post construction, Section 212 Wetlands Management, Section 234 – Grading and Erosion Control, Section 515 – Illicit Discharge and Connection of the City Code of Ordinance

WAIVER OF POST-CONSTRUCTION STORMWATER RUNOFF REQUIREMENTS (Section 211)

The City Engineer shall not waive post-construction stormwater runoff requirements if one or more of the following exist:

- a. New or substantially new development or building, or redevelopment where one or more acres of land are disturbed by construction or landscaping, or any subdivision of land where 5 or more residential dwelling units are to be built;
- b. Any improvements to a Country Club, Church or Public Facility, Park, or Public Open Space in which such improvements are greater than 5,000 square feet;
- c. A land use requiring a General National Pollution Discharge Elimination System (NPDES) Permit for stormwater discharges associated with industrial activities;
- d. Any new hard surface roads or trails or substantial regrading of existing roads or trails;
- e. Any improvement involving the material and substantial installation of new storm drains or substantial and material alteration to existing storm drains;
- f. Any non-residential land use involving vehicle and/or equipment fueling, washing, or maintenance areas;
- g. New construction or substantial rehabilitation of an existing land uses where run off from the property will cause pollution to Lake Minnetonka or not conform to the City's Comprehensive Plan Water Quality Management Plan or Storm water.
- h. Any non-residential land use involving commercial or industrial waste handling or storage, excluding typical office or household wastes.

GRADING, EROSION AND SEDIMENT CONTROL PLAN REQUIRED

An erosion control permit must be obtained from the Minnehaha Creek Watershed District in the following circumstances:

- a. Excavation, grading, filling or other change in the earth's topography being proposed that would result in the movement of more than 50 cubic yards of material.
- b. Excavation, grading, filling or other changes to the earth's topography being proposed that would result in the movement of material encompassing more than 5,000 square feet in an area or areas on the same or adjoining lots.

A grading, erosion and sediment control plan must be submitted for City Engineer approval in the following circumstances:

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

- a. The Development of land that is a part of an application for grading and erosion control permit required by: City Code of Ordinances Section 211, Section 234 or Section 515, the Minnehaha Creek Watershed District (MCWD) or Minnesota Pollution Control Agency (MPCA)
- b. The Development is part of a required building permit for new construction, an addition to the existing land use where the earth is to be substantially materially altered by new construction. 2. The project includes land to be altered within 20 feet of a private or public street or neighboring property, or where the water flow from the subject property to a neighboring property is proposed to be changed due to the project. 3. The project is within 75 feet of Lake Minnetonka's OHWL or within 25 feet of a protected wetland. 4. The project is adjacent to or within a Flood Plain, Flood Prone Area, or Area identified in the City Engineer's Report "Drainage Study" dated November 12, 2013 as an area subject to flooding. 5. The existing or proposed slopes on the land to be altered exceed 1.5%

The grading and erosion control plan and erosion control measures must meet the following requirements and standards:

- a. The grading and erosion control plan drawing must be on a certificate of survey show the existing topography and show the proposed topography at least at 2-foot contour intervals, at a scale and in detail as to be reasonably understood, interpreted and enforceable. The plan drawing must also: 1. have existing and proposed impervious surface calculations, if the impervious surface is changing, 2. show all existing and proposed improvements on the property, show the location of the stormwater inlets and show plan details using MCWD standards for the following: construction entrance, silt fence or other acceptable devices, typical signs to be posted on the slit fence prohibiting construction activity beyond the erosion control measures, stormwater sewer inlet protection, tree protection for trees in Regulated Areas, and other related details requested by the City Engineer.
- b. The grading and erosion control plan must include a soil storage or removal plan and methods to protect adjoining property and trees during grading operations (Section 512). The plan must show how the material will be stored on the site and how the material will be removed from the site or delivered to the site including the truck routes to be used and how the public streets will be protected during removal or delivery operations.
- c. If the applicant is required to obtain a permit from the Minnesota Pollution Control Agency, or a permit from a Minnehaha Creek Watershed District, that permit must be on file with the City before construction activity begins
- d. The applicant must properly install any required erosion control measures in locations specified on the approved plan, before demolition, construction or grading activity begins.
- c. No filling or grading shall be allowed on slopes greater than twelve percent (12%).
- d. Temporary ground cover acceptable to the City Engineer must be used immediately after grading operations are complete and permanent ground cover, such as sod must be planted as soon as possible.
- e. Sediments must be retained on site by with diversions, silting basins, terraces, and other methods to trap sediments

The erosion and sediment control Site Plan and its implementation of the site must specifically meet the NPDES Municipal Separate Storm Sewer System (MS4) Permit requirements contained in the MS4 Permit including the following:

1. Use BMPs to minimize erosion,

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

2. Use BMPs to minimize the discharge of sediments and other pollutants,
3. Use BMPs for dewatering activities,
4. Use City Engineer approved criteria of temporary sediment basins,
5. Provide for scheduled City Engineer inspection,
6. Provide and implement BMPs maintenance schedule,
7. Provide for the management of solid and hazardous waste on the site and its transportation from and to the site,
8. Final stabilization upon completion of construction activity including the use of perennial vegetative sod cover of all exposed soils or equivalent stabilization methods

Fill must be stabilized according to accepted engineering standards.

The Applicant and Contractor must attend a preconstruction meeting with designated City officials

The site must be inspected by the City Engineer prior to approving the plan and after completion of grading or filling activities, but before permeant ground cover is applied to the site.

PLAN AND DESIGN REQUIREMENTS

For projects greater than one acre and projects less than one acre that are part of a larger common plan of development or sale, the rules of the MPCA shall apply as contained in Part III Stormwater Pollution Prevention Program Permit No. MNR040000 paragraph 5 pages 15 through 18, and as may be amended from time to time.

Unless post-construction stormwater runoff requirements are waived by the City Engineer , the property owner shall submit a post-construction stormwater runoff plan drawn on a certificate of survey containing at least the following:

- a. Be consistent with the City’s Comprehensive Plan Water Quality Management Plan/SWPPP, Phosphorous Removal Program
- b. Be consistent with the MCWD Rules,
- c. Showing the type and location of the post-construction Best Management Practices (BMP) methods that will be used to reduce pollution
- d. Showing Hydrologic Soil Groups (HSG)
- e. Showing Hydrologic calculations: predevelopment and post-development stormwater runoff calculations prepared by a civil engineer, hydrologist, or hydrogeologist registered in the State of Minnesota;
- f. Provide Hydrologic calculations including runoff volume, velocities, and peak flow rates by sub watershed for the 2-yr, 10-yr, and 100-yr, 24-hr storm events. These shall include:
Stormwater runoff rate control calculations showing the following:
 1. Post-construction peak flow rates with no abstraction and filtration;
 2. Post-construction peak flow rates with abstraction and filtration;
 3. Assumed runoff curve numbers;
 4. Times of concentration used in calculations;
- g. Hydrologic calculations for retaining soil particles greater than 5 microns (80% reduction) for construction sites adjacent to Lake Minnetonka or wetlands and greater than 20 microns (40% reduction) for all other construction sites resulting from a 1-yr, 24-hr storm event.
- h. Runoff rate control hydrologic calculations: All runoff calculations in

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

accordance with the methodology described in the USDA Natural Resources Conservation Service’s Technical Release 55, “Urban Hydrology for Small Watersheds” (commonly known as TR-55). For residential land use, use curve number of 51 for Hydrologic Soil Group (HSG) A, 68 for HSG B, 79 for HSG C, and 84 for HSG D.

- i. For sites with heavily disturbed soils, curve numbers for the hydrologic calculations should be lowered by one HSG.

STORMWATER MANAGEMENT PERFORMANCE STANDARDS AND DESIGN CRITERIA

Performance Control Standards: Proposed design, suggested location, and phased implementation of effective, practicable stormwater management measures for plans shall be designed, engineered, and implemented in accord with the following performance requirements::

- a. The Minnehaha Creek Watershed District Rules, MPCA Rules, the MS4 Storm Water Permit;
- b. Stormwater Volume Control: Using the appropriate Hydrologic Soil Group the saturated infiltration rate must be at least the first one inch of runoff from a 24-hr storm.
- c. Stormwater sediment control: Soil particles greater than 5 microns (80% reduction) for construction sites adjacent to Lake Minnetonka or protected wetlands and greater than 20 microns (40% reduction) for all other construction sites resulting from a 1-yr, 24-hr storm event must be retained on site.
- d. Oil and grease control: Stormwater plans for the Country Club, Church, Public Works Facility, and any other non-residential use where the potential for pollution by oil or grease or both exists, have the first 0.5 inches of runoff been treated using the best oil and grease removal technology available? This requirement may be waived by the City Engineer only when the applicant can demonstrate to the City Engineer that installation of such practices is not necessary.
- e. Except as provided below, hardcover shall not exceed thirty percent (30%) of a lot or combination of adjacent lots under one ownership or Planned Unit Development. In calculating hardcover, a twenty-five percent (25%) credit shall be given for hardcover that the City Engineer or Planning and Zoning Administrator approves in writing for the particular lot as qualifying for one or more of the following Design and Treatment Best Management Practices (“BMPs”):
 - A. Pervious pavers, pervious asphalt or pervious concrete that allows for stormwater infiltration.
 - B. Boulder walls that reduce the impact of impervious surface to storm water runoff.
 - C. Decks that allow free flow of stormwater to pervious surface below the deck.
 - D. Stone or crushed granite surfacing that allows for stormwater infiltration.

For example, if an approved pervious paver system covers 100 square feet of the lot area it would only count as 75 square feet of hardcover.

The total adjustment credit received for the use of items A-D list above may not exceed five percent (5%) of the lot area.

- f. Incorporate Green Roofs with the minimum following standards:
New buildings having a roof area of at least 5000 square feet or more must

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

provide a Green Roof on at least 50% of the roof area of the building not including any roof area occupied by mechanical equipment

The owner of every building having a Green Roof must maintain the planting media and plant material in accordance with generally accepted landscape maintenance practices, replacing each as necessary to optimize the storm water retention capability of the roof.

All buildings including residential building having a Green Roof will be provided a fifty percent (50%) impervious surface credit for the area covered by the Green Roof.

Without receiving credit toward impervious surface coverage to accomplish the performance standards of Volume, Rate and Sediment control contained in this Section, the Applicant shall use the following Design Control, Treatment Control and Source Control BMPs of this Table or equivalent methods approved by the City Engineer:

- a. Incorporate the use of natural topography and land cover such as natural swales, vegetated buffer edge, and depressions as they exist before development to the degree that they can accommodate the additional flow of water without compromising the integrity or quality of Lake Minnetonka or a wetland. The development shall minimize impact to significant natural features including steep slopes, bluff impact zone, shore impact zone, wetlands, wooded areas of significance, rare and endangered species habitat, areas designated by the County Biological Survey or public lands, parks, and open space;
- b. Minimize Directly Connected Impervious Areas:
- c. Where landscaping is proposed, drain rooftops into adjacent landscaping prior to discharging to the stormwater conveyance system;
- d. Where landscaping is proposed, drain impervious parking lots, sidewalks, walkways, trails, and patios into adjacent landscaping, filtration basins and other devices designed to infiltrate stormwater runoff;
- e. Maximize canopy interception and water conservation;
- f. Preserve existing native trees and shrubs;
- g. Plant additional native trees and large shrubs;
- h. Establish landscaped buffer zones using selected BMPs adjacent to wetlands and Lake Minnetonka.

TREATMENT CONTROL BMPS

Treatment control BMPs, such as rain gardens, that are designed to primarily function as infiltration devices, shall meet the following conditions (these conditions do not apply to treatment BMPs which allow incidental infiltration and are not designed to primarily function as infiltration devices, such as grassy swales, detention basins, vegetated buffer strips, constructed wetlands, etc.):

- a. Runoff from non-residential uses shall undergo pretreatment, such as filtration, to remove both physical and chemical contaminants prior to infiltration.
- b. The vertical distance from the base of any infiltration structural treatment BMP to the seasonal high groundwater mark shall be at least 3 feet.
- c. The horizontal distance between the base of any infiltration structural BMP and any water supply wells shall be 50 feet.

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

- d. Treatment Control BMPs shall be designed and maintained to reduce the production of adult mosquitoes.
- e. Treatment control BMPs shall conform to Pat III Stormwater Pollution Prevention Program Permit No. MNR040000 as may be amended from time to time.

SOURCE CONTROL BMPS

For non-residential parking lots and driveways, to minimize pollutants, the following design criteria are required:

- a. Reduce impervious surface of the parking lot by the use of permeable surfaces;
- b. Direct runoff from paved surfaces to appropriate landscaping to infiltrate and treat stormwater;
- c. Treat to remove oil and petroleum hydrocarbons at parking lots with 25 or more parking spaces or in areas where a concentration of oil and petroleum hydrocarbons are likely to occur;
- d. Ensure adequate operation and maintenance of treatment systems, particularly sludge and oil removal, and system fouling and plugging prevention.

New or reconstructed stormwater conveyance systems shall:

- a. Include energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to Lake Minnetonka or a wetland.

Ditches, vegetative swales, and other open conveyance systems shall:

- a. Be lined with vegetation, with rock or other material to delimit the vegetation to minimize erosion of the bed and bank;
- b. Reduce conveyance system channel velocities and provide treatment of stormwater runoff; vegetation shall be the preferred lining provided the critical velocity/shear stress does not exceed the permissible velocity/shear stress of vegetation;
- c. Provide a vegetated buffer to protect exposed soils and to filter and abstract stormwater runoff before entering the conveyance system.

Landscaping:

- a. Preserve existing native trees, shrubs, and ground cover to the maximum extent practicable;
- b. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution;
- c. Where landscaped areas are used to detain or retain stormwater, use plant species that are tolerant of saturated soil conditions;
- d. The use of phosphorus on landscaped areas is prohibited.

Trash storage areas for non-residential uses shall be:

- a. Paved with an impervious surface;
- b. Designed not to allow run-on from adjoining areas, and screened or walled to prevent off-site transport of trash;
- c. Contained by a roof or awning to minimize direct precipitation or contain attached lids on all trash containers that exclude rain.

Pools, spas, and fountains: Pools including swimming pools, hot tubs, spas, and fountains shall:

- a. Not be connected directly to storm drains or the sanitary sewer system;

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

- b. Be drained to designated landscaped areas adequate to contain and infiltrate the water.

Roofs, gutters, and downspouts: All roofs, gutters, and/or downspouts shall discharge to landscaping, other pervious surface, or devices such as rain barrels, pop-up sprinklers designed and maintained appropriately to prevent soil erosion and to retain, infiltrate and dissipate stormwater runoff.

Loading and unloading dock areas for non-residential uses: To minimize the material spill potential, the following design criteria are required:

- a. Cover loading dock areas or design drainage to preclude stormwater run-on and runoff;
- b. Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.

Outdoor Material Storage Areas for non-residential uses:

- a. Smaller quantities of materials and wastes (e.g., pesticides, fertilizers, etc.) with the potential to contaminate stormwater must be placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system;
- b. If it is not practicable to cover larger quantities of materials and wastes (e.g., soil, compost, treated lumber, etc.), the area must be designed to preclude stormwater run-on;
- c. Storage areas for liquid materials and wastes must have a permanent cover (e.g., roof) designed to keep rainwater out of the storage area and be protected by secondary containment structures such as berms, dikes, or curbs to contain all the liquid from the largest liquid container stored.

Processing areas in non-residential uses:

- a. Processing areas shall be paved and performed indoors or under a cover to keep rainwater out of the processing area;
- b. If the processing area is outdoors, grade or berm the processing area to prevent run-on from surrounding areas;
- c. Installation of storm drains in processing areas is prohibited;
- d. For processing areas that generate liquid wastes, slope the area to a drain to the sanitary sewer system or other approved collection system.

Vehicle/equipment repair and maintenance areas in non-residential uses must include the following:

Vehicle/equipment repair and maintenance shall be performed in a designated area indoors, or if such services must be performed outdoors, the area must be covered and designed to prevent the run-on and runoff of stormwater;

Secondary containment shall be provided for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries, or other hazardous materials or hazardous wastes are used or stored;

Stormwater drains shall not be installed within the secondary containment areas. All drains shall be connected to the sanitary sewer system;

Tanks, containers or sinks used for parts cleaning or rinsing shall not be connected to the storm drain system;

Tanks, containers, or sinks used for such purposes may only be connected to a closed-loop system or the sanitary sewer system.

Vehicle/equipment wash areas in non-residential uses: Wastewater from vehicle and equipment washing operations shall not be discharged to the storm drain system.

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Grading & Erosion Control

Food service equipment cleaning in non-residential uses:

Have a sink or other area for cleaning floor mats;

Containers and equipment shall be connected to a grease interceptor prior to discharging to the sanitary sewer system;

The cleaning area shall be large enough to clean the largest mat or piece of equipment to be cleaned.

Fueling areas in non-residential uses:

Fueling stations must be covered with an overhanging roof structure or canopy. The canopy's minimum dimensions must be equal to or greater than the area within the grade break. The canopy must not drain onto the fuel dispensing area, and the canopy downspouts must be routed to prevent drainage across the fueling area;

All fuel-dispensing areas must be paved with concrete (or equivalent smooth impervious surface), and the use of asphalt shall be prohibited. All fuel dispensing areas must have a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater to the extent practicable. At a minimum, the concrete fuel dispensing area must extend 6.5 feet from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less;

Above-ground fuel tanks must be protected with a secondary containment structure of sufficient volume to contain all of the fuel in the event of a tank rupture or leak.

POST-CONSTRUCTION MAINTENANCE PLAN

An agreement assigning maintenance responsibility to the property owner and providing remedies should the property owner not maintain and repair the treatment control will be executed between the City and the property owner. The agreement would be recorded among the deed records at the County Recorder's Office so that it would run with the title to the land.

New development and redevelopment projects with land disturbances greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, within the City's jurisdiction and that discharge to the City's MS4, must be in compliance with the Post-Construction Stormwater Management requirements of Part III D.5 (1)-(5) of the MS4 Permit.

APPROVAL FROM OTHER JURISDICTIONS

If required, the following jurisdiction must approve the Site Plan before the City approves the Site Plan and issues any permits;

Minnesota Pollution Control Agency

Ord. 103, 2nd Series – Effective 8/30/15

Ord. 44 - Enact. Grading & Erosion Control 12/13/04 – Effective 1/9/05

Minnesota Department of Natural Resources
Minnesota Department of Transportation
United States. Army Corps of Engineers
Federal Emergency Management Agency
Minnehaha Creek Watershed District