

2.01 EROSION AND SEDIMENT CONTROL PERFORMANCE STANDARDS

A. Total Suspended Solids Removal Goals (Ref: NR 151.11 and 12)

1. The Erosion and Sediment Control Plan shall include best management practices (BMPs) that, by design, achieve to the maximum extent practicable, a reduction of 80 percent of the sediment load carried in runoff based on an average annual rainfall, as compared with no sediment or erosion controls until the construction site has undergone final stabilization. An 80 percent sediment reduction shall meet the requirement of this paragraph. Erosion and sediment control BMPs may be used alone or in combination to meet the requirements of this paragraph. Credit toward meeting the sediment reduction may be given for limiting the duration or area, or both, of land-disturbing construction activity.
2. If BMPs cannot be designed and implemented to reduce the sediment load by 80 percent, based on an average annual rainfall, the plan shall include a written and site-specific explanation as to why the 80 percent reduction goal is not attainable, and the sediment load shall be reduced to the maximum extent practicable.
3. WDNR is required by recent rule revisions to develop technical standards to provide guidance for measurement and evaluation of this performance standard. Measurement and evaluation of this performance standard shall be based on guidance published by the WDNR. Until such guidance is published, total suspended solids removal shall be achieved to the maximum extent practical through implementation of approved BMPs.

B. Required Best Management Practices

Where appropriate, the plan shall include sediment controls to do all of the following to the maximum extent practicable:

1. Each site shall provide an access drive and parking area of sufficient dimensions and design, surfaced with a material that will prevent erosion and minimize tracking or washing of soil onto public or private roadways. All nonpaved access drives shall be designed so that stormwater runoff from adjacent areas does not flow down the drive surface. Stone tracking pad shall conform to the WDNR Stone Tracking Pad and Tire Washing Technical Standard (1057).
2. Any significant amount of runoff from upslope land area, rooftops, or other surfaces that drain across the proposed land disturbance shall be diverted around the disturbed area, if practical. Any diversion of upslope runoff shall be done in a manner that prevents erosion of the flow path and the outlet.

3. Any cuts and fills shall be planned and constructed to minimize the length and steepness of slope and stabilized in accordance with the approved erosion control plan timelines and standards of this document.
4. Open channels shall be stabilized with an engineered BMP design to prevent erosion.
5. Inlets to storm drains, culverts, and other stormwater conveyance systems shall be protected from siltation until final site stabilization.
6. Water pumped from the site shall be treated by temporary sedimentation basins or other appropriate controls designed for the highest dewatering pumping rate. Water may not be discharged in a manner that causes erosion of the site or receiving channels.
7. All waste and unused building materials shall be properly disposed of and not allowed to be carried by runoff into a receiving channel or storm sewer system.
8. All off-site sediment deposits occurring as a result of a storm event shall be cleaned up by the end of the next workday. All other off-site sediment deposits occurring as a result of land-disturbing activities shall be cleaned up by the end of the workday. Flushing may not be used unless the sediment will be controlled by a filter fabric barrier, sediment trap, sediment basin, or equivalent.
9. All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at one time. Existing vegetation shall be maintained as long as possible.
10. Soil stockpiles shall be located no closer than 25 feet from lakes, streams, wetlands, ditches, drainageways, or roadway drainage systems. Stockpiles shall be stabilized by mulching, vegetative cover, tarps, or other means if remaining 20 days or more.
11. For any disturbed area that remains inactive for greater than seven working days, or where grading work extends beyond annual permanent seeding deadlines, the City of Onalaska may require the site to be treated with temporary stabilization measures.
12. When the disturbed area has been stabilized by permanent vegetation or other means, temporary BMPs such as silt fences, straw bales, and sediment traps shall be removed and these areas stabilized.

C. Maintenance and Inspection

The landowner, or the landowner’s representative, shall inspect erosion and sediment control practices weekly, and within 24 hours following a rainfall of 0.5 inches or greater. Written documentation of each inspection shall be maintained at the construction site and shall include the time, date and location of inspection, the phase of land disturbance at the construction site, person conducting the inspection, assessment of control practices, and a description of any erosion or sediment control measure installation or maintenance performed in response to the inspection. A copy of the inspection results shall be provided to the City, upon request. WDNR Form: 3400-187 is an example.

2.02 STORMWATER MANAGEMENT PERFORMANCE STANDARDS

A. Total Suspended Solids (Ref: NR 151.12)

1. BMPs shall be designed, installed, and maintained to control total suspended solids carried in runoff from the postconstruction site as follows:
 - a. For new development, by design, reduce to the maximum extent practicable the total suspended solids load by 80 percent, based on the average annual rainfall, as compared to no runoff management controls. An 80 percent total suspended solids reduction shall meet the requirements of this subdivision.
 - b. For redevelopment sites one acre or larger, by design, reduce to the maximum extent practicable the total suspended solids load by 40 percent, based on the average annual rainfall, as compared to no runoff management controls. A 40 percent total suspended solids reduction shall meet the requirements of this subdivision.
 - c. Notwithstanding items a. and b., if the design cannot achieve the applicable total suspended solids reduction specified, the stormwater management plan shall include a written and site-specific explanation why that level of reduction is not attained, and the total suspended solids load shall be reduced to the maximum extent practicable.
 - d. Measurement and evaluation of this standard shall be based on guidance published by the WDNR. In the absence of such guidance, total suspended solids removal shall be achieved to the maximum extent practical through implementation of approved BMPs.

B. Peak Discharge

1. By design, BMPs shall be employed to maintain or reduce the post development peak runoff discharge rates, to the maximum extent practicable, as compared to pre-development conditions for the 2-, 10-, 25-, and 100-year design storm applicable to the development site.
2. Predevelopment conditions shall assume “good hydrologic conditions” for appropriate land covers as identified in TR-55 or an equivalent methodology. The meaning of “hydrologic soil group” and “runoff curve number” are as determined in TR-55. However, when predevelopment land cover is cropland, rather than using TR-55 values for cropland, the runoff curve numbers in Table 2.02-1 shall be used.

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|-----------------------|----|----|----|----|
| Hydrologic Soil Group | A | B | C | D |
| Runoff Curve Number | 56 | 70 | 79 | 83 |

Table 2.02-1 Maximum Predevelopment Runoff Curve Numbers for Cropland Areas

C. Infiltration and Runoff Volume (Ref: NR 151.12(5)(c))

At locations where site conditions permit and where technically feasible, infiltration of stormwater to reduce the volume of runoff may be required. Where applicable, evaluation of the need for, appropriateness of, and required volume of infiltration shall be based on the most current WDNR rules and technical standards. Infiltration shall not be permitted at locations specifically excluded in the WDNR rules. BMPs shall be designed, installed, and maintained to infiltrate runoff to the maximum extent practicable in accordance with the following, except at locations where infiltration is excluded or exempted.

1. Residential Development

Infiltration shall be provided for residential development in accordance with one of the following criteria:

- a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90 percent of the predevelopment infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 1 percent of the project site is required as an effective infiltration area. Guidance for estimating the required infiltration volume is included in Appendix D.

- b. Infiltrate 25 percent of the postdevelopment runoff from the 2-year, 24-hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 1 percent of the project site is required as an effective infiltration area.
2. Nonresidential Development, including commercial, industrial and institutional development.

Infiltration shall be provided for nonresidential development in accordance with one of the following criteria:

- a. Infiltrate sufficient runoff volume so that the postdevelopment infiltration volume shall be at least 60 percent of the predevelopment infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 2 percent of the project site is required as an effective infiltration area. Guidance for estimating the required infiltration volume is included in Appendix D.
- b. Infiltrate 10 percent of the runoff from the 2-year, 24-hour design storm with an NRCS Type II Rainfall Distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes, and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 2 percent of the project site is required as an effective infiltration area.
3. Predevelopment conditions shall assume “good hydrologic conditions” for appropriate land covers as identified in TR-55 or an equivalent methodology. The meaning of “hydrologic soil group” and “runoff curve number” are as determined in TR-55. However, when predevelopment land cover is cropland, rather than using TR-55 values for cropland, the runoff curve numbers in Table 2.02-1 shall be used.
4. Pretreatment of stormwater runoff from parking lots and new roads in commercial, industrial and institutional areas that will enter an infiltration system is required. The pretreatment shall be designed to protect the infiltration system from clogging prior to scheduled maintenance and to protect groundwater quality in accordance with Section 2.02 (c) (8). Pretreatment options may include, but are not limited to, oil/grease separation, sedimentation, biofiltration, filtration, swales, or filter strips.

5. Exclusions

Stormwater runoff from the following areas is prohibited from meeting the requirements of this paragraph due to the potential for groundwater contamination:

- a. Areas associated with tier 1 industrial facilities identified in s. NR 216.21(2)(a), Wis. Adm. Code, including storage, loading, rooftop and parking.
- b. Storage and loading areas of tier 2 industrial facilities identified in s. NR 216.21(2)(b), Wis. Adm. Code.

Note: Runoff from tier 2 parking and rooftop areas may be infiltrated but may require pretreatment.

- c. Fueling and vehicle maintenance areas.
- d. Areas within 1,000 feet upgradient or within 100 feet downgradient of karst features.
- e. Areas with less than 3 feet of separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock. This requirement does not prohibit infiltration of roof runoff.
- f. Areas with runoff from industrial, commercial and institutional parking lots and roads and residential arterial roads with less than 5 feet of separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.
- g. Areas within 400 feet of a community water system well as specified in s. NR 811.16(4), Wis. Adm. Code, or within 100 feet of a private well as specified in s. NR 812.08(4), Wis. Adm. Code, for runoff infiltrated from commercial, industrial and institutional land uses or regional devices for residential development.
- h. Areas where contaminants of concern, as defined in s. NR 720.03(2), Wis. Adm. Code are present in the soil through which infiltration will occur.
- i. Any area where the soil does not exhibit one of the following soil characteristics between the bottom of the infiltration system and the seasonal high groundwater and top of bedrock: at least a 3-foot soil layer with 20 percent fines or greater; or at least a 5-foot soil layer

with 10 percent fines or greater. This does not apply where the soil medium within the infiltration system provides an equivalent level of protection. This requirement does not prohibit infiltration of roof runoff.

6. Exemptions

The following are not required to meet the requirements of this paragraph:

- a. Areas where the infiltration rate of the soil is less than 0.6 inches/hour measured at the site.
 - b. Parking areas and access roads less than 5,000 square feet for commercial and industrial development.
 - c. Redevelopment postconstruction sites.
 - d. In-fill development areas less than 5 acres.
 - e. Infiltration areas during periods when the soil on the site is frozen.
 - f. Roads in commercial, industrial and institutional land uses, and arterial residential roads.
7. Where alternate uses of runoff are employed, such as for toilet flushing, laundry or irrigation, such alternate use shall be given equal credit toward the infiltration volume required by this paragraph.
8. Infiltration systems shall, to the extent technically and economically feasible, minimize the level of pollutants infiltrating to groundwater and shall maintain compliance with the preventive action limit at a point of standards application in accordance with ch. NR 140, Wis. Adm. Code. However, if site specific information indicates that compliance with a preventive action limit is not achievable, the infiltration BMP may not be installed or shall be modified to prevent infiltration to the maximum extent practicable. Notwithstanding, the discharge from BMPs shall remain below the enforcement standard at the point of standards application.

D. Oil and Grease

Fueling and vehicle maintenance areas shall have BMPs designed, installed, and maintained to reduce petroleum within runoff so that the runoff that leaves the site contains no visible petroleum sheen.

| Type of Resource | Protective Area |
|--|---|
| Outstanding and Exceptional Resource Waters and Wetlands in Areas of Special Natural Resource Interest as Specified in s. NR 103.04. (3) | 75 feet |
| Perennial/Intermittent Streams per USGS Map or County Soil Survey map, whichever is more current | 50 feet |
| Lakes | 50 feet |
| Highly Susceptible Wetlands (1) (3) | 50 feet |
| Less Susceptible Wetlands (2) (3) | 10 percent of the average wetland width, but no less than 10 feet nor more than 30 feet |
| Other Waterways with Drainage Areas > 130 ac | 10 feet |

Table 2.02-2 Types of Resources and Protective Areas

(1) Highly susceptible wetlands include the following types: fens, sedge meadows, bogs, low prairies, conifer swamps, shrub swamps, other forested wetlands, fresh wet meadows, shallow marshes, deep marshes and seasonally flooded basins. Wetland boundary delineations shall be made in accordance with s. NR 103.08(1m). This paragraph does not apply to wetlands that have been completely filled in accordance with all applicable state and federal regulations. The protective area for wetlands that have been partially filled in accordance with all applicable state and federal regulations shall be measured from the wetland boundary delineation after fill has been placed.

(2) Less susceptible wetlands include degraded wetlands dominated by invasive species such as reed canary grass.

(3) Determinations of the extent of the protective area adjacent to wetlands shall be made on the basis of the sensitivity and runoff susceptibility of the wetland in accordance with the standards and criteria in s. NR 103.03.

E. Protective Areas (Ref: NR 151.12 (5) (d))

1. A “Protective area” is an area of land that commences at the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands, and that is the greatest of the widths specified in Table 2.02, as measured horizontally from the top of the channel or delineated wetland boundary to the closest impervious surface. A protective area does not include any area of land adjacent to any stream enclosed within a pipe or culvert, such that runoff cannot enter the enclosure at this location.

2. Impervious surfaces shall be kept out of the protective area unless impractical, with consideration of the planned use. The stormwater management plan shall contain a written site-specific explanation for any parts of the protective area that are disturbed during construction.
3. Where land-disturbing construction activity occurs within a protective area, and where no impervious surface is present, adequate sod or self-sustaining vegetative cover of 70 percent or greater shall be established and maintained. The adequate sod or self-sustaining vegetative cover shall be sufficient to provide for bank stability, maintenance of fish habitat, and filtering of pollutants from upslope overland flow areas under sheet flow conditions. Nonvegetative materials, such as rock riprap, may be employed on the bank as necessary to prevent erosion, such as on steep slopes or where high velocity flows occur.

In selecting the vegetative cover for the protective area, existing natural vegetative cover shall be left undisturbed, to the maximum extent practical. Where existing vegetative cover must be disturbed, consider revegetating the protective area with native plantings, where feasible.

4. BMPs such as filter strips, swales, or wet detention basins that are designed to control pollutants from nonpoint sources may be located in the protective area.
5. The protective area requirement does not apply to:
 - a. Redevelopment sites.
 - b. In-fill development areas less than 5 acres.
 - c. Structures that cross or access surface waters such as boat landings, bridges, and culverts.
 - d. Structures constructed in accordance with s. 59.692(1v), Wis. Stats.
 - e. Postconstruction sites from which runoff does not enter the surface water, except to the extent that vegetative ground cover is necessary to maintain bank stability.

F. Stormwater Conveyance Systems

1. Storm sewers shall be designed to convey the peak discharge for a 10-year frequency storm event.
2. Cross culverts shall be designed to convey the peak discharge for a 25-year frequency storm event without flows entering the traveled way.
3. Roadside ditches shall be designed to convey the peak discharge for a 25-year frequency storm event without flows entering the traveled way or private property. Drainage easements on private property are required if 25-year flows can't be contained within the road R/W.
4. All conveyance systems shall be designed to safely pass the 100-year storm flow without damage to adjacent structures. Unless waived by the City of Onalaska, all new structures shall be constructed at least 2 feet higher than the estimated 100-year overflow elevation.