Land Disturbance, Erosion Control and Stormwater Management Checklist

Walworth County Land Conservation Department

The following checklist is designed to assist the applicant in complying with the Walworth County Land Disturbance, Erosion Control and Stormwater Management Ordinance.

This list can be used for construction sites that are:

1) Greater than 25,000 square feet **or**

2) On slopes greater than 12% **or**

3) Proposing a major infrastructure improvement or change. Example – roads, storm sewers, sediment or retention basins.

4) Within 75' of any stream, river, lake, wetland or environmental corridor.

5) Required to be reviewed for stormwater management according to county ordinance.

The attached list has the following sections:

I. Narrative
   A.) Land Disturbance, Erosion Control
   B.) Stormwater Management

II. Site Plan Map
   A.) Land Disturbance, Erosion Control
   B.) Stormwater Management

III. Calculations
   A.) Land Disturbance, Erosion Control
   B.) Stormwater Management

IV. Details

I. Narrative Requirements

A. Walworth County Land Disturbance Erosion Control

_____ **Project Description** – Briefly describe the nature and purpose of the land disturbing activity, the amount of grading involved, any major infrastructural improvements to be installed including utilities.

_____ **Existing Site Conditions** – Provide a description of the existing topography, vegetation and drainage.

_____ **Affected Adjacent Areas** – Describe neighboring areas such as streams, lakes, residential areas, roads, etc. that will be affected by the land disturbance and development.

_____ **Soils** – A brief description must be provided concerning soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and structure.

_____ **Critical Areas** – Indicate areas on site which have serious erosion potentials.

_____ **Land Disturbing Activities** – Discuss the measures that shall be taken on site to strip top soil, rough grade and install storm sewers. Describe measures to be taken to preserve existing vegetation on site. (Including phasing descriptions and incorporation of temporary sediment control including perimeter protection and inlet and outlet protection measures.)

_____ **Fill brought in from off site** – Briefly describe any material that shall be brought in from off site and used as fill.

B. Walworth County Stormwater Management

_____ **Erosion and Sediment Control Measures** – Provide a description of the methods which will be used to control erosion and sedimentation on site.

_____ **Permanent Stabilization** – Prepare a description including specifications on how the site will be stabilized after construction is complete. Include sodding areas, seedbed preparation, fertilization dates, seed mixture, tree planting plans, timetables.

_____ **Construction Sequen**cing – A description of the construction schedule must be provided including phasing and dates for the installation of erosion control measures, utilities, final revegetation and temporary erosion control removal. Installation of the primary sedimentation control must occur in the first phase of the project sequencing.

_____ **Maintenance of Control Measures** – Indicate that all erosion control measures shall be inspected and maintained after each .5 inches of rainfall and or once a week and all impervious road surfaces shall be cleaned prior to the end of each working day. Provide a contact person or party to be contacted concerning maintenance of control measures both during and after construction.

_____ **Preconstruction Meeting** – Provide a set date to meet on site with owner, contractor, sub-contractors, engineers and inspection review staff to discuss plans, tighten sequencing schedule and discuss any needed changes. All plan changes must be submitted prior to permit issuance.

_____ **Stormwater Management Considerations** – Discuss the potential for increased peak rates of runoff. Describe flooding or channel degradation potentials on and off site. Consideration must be given to stormwater control structures on site to prevent increased peak flows according to county criteria. Indicate methods of collecting, transporting and dispersing stormwater flow during and after construction.

_____ **Provide Notice of Intent** to Wisconsin Department of Natural Resources (DNR) for the state stormwater permit requirements.

II. SITE PLAN MAP

A. Land Disturbance, Erosion Control Plan Requirements

_____ Name of project and plan prepared by

_____ Site location map

_____ North arrow in relation to the site

_____ Scale

_____ Topographic survey – provide two foot contours for both existing and proposed grades on site. Contours must be legible and professionally displayed.

_____ Proposed building locations if known

_____ Exterior boundary of site (acreage)

_____ Boundary of individual lots or units (acreage)

_____ Drainage way delineation's (acreage) – permanent sediment basins are required for each disturbed drainage area greater than five acres. Sediment traps are required for all disturbed drainage areas from 2 to 5 acres. Include all contributing areas on and off site.

_____ 100 year flood plan boundaries

_____ Shoreland Zoning boundaries

_____ Wetland boundaries

_____ Undisturbed areas or preserved existing vegetation boundaries

_____ Limits of clearing and grading, fill and cuts

_____ Roads – provide cross sections and profiles

_____ Ditches – provide cross sections and profiles, velocities and methods of stabilization

_____ Stormwater improvements – concrete structures, culverts (provide velocities), sediment traps, channels, waterways, swales, riprap and velocity checks and sediment protection at all inlets.

_____ Anti-tracking – must be identified at all entrances and exits to the site. Must be 2" stone, 6" deep and 50' long.

_____ Sanitary sewer locations

_____ Utility or utility easements

_____ Ponds – provide 2' contours and spoils locations. Wetland pond must be a benefit to the wetland.

_____ Stockpile locations – provide methods of stabilization

_____ Sediment basin locations – provide surface area calculations on plan, bottom elevation and outlet elevations.

B. Stormwater Management Requirement on Plan

_____ Show location and size of the nearest storm sewers, swales and ditches which may be extended to serve the project.

_____ Location, size and elevation of existing and proposed culverts. Sanitary or storm sewers, drains, manholes and catchbasins.

_____ Show all drainage easements.

_____ Approximate high and low water elevation of adjacent lakes, streams.

_____ Show all proposed detention basins.

III. CALCULATIONS

A. Land Disturbance, Erosion Control

_____ Sediment basin design criteria – use Wisconsin Construction Site Best Management Practice Handbook to provide calculations and designs for:

1. Runoff storage volume shape 2:1 to 5:1 length to average width ratio of all sediment basins.
2. Dimensions of embankment top width and side slope.
3. One year sediment storage volume.
4. Minimum settling depth of two feet – no perforations in stand pipe in the settling zone.
5. 10 micron particle size design, .00024 foot/second settling velocity in basins.
6. Dewatering outlet discharge capacity.
7. Dewatering duration of runoff storage volume (3 days minimum)
8. Dewatering outlet configuration.
9. 10 year, 24 hour design storm for principal spillway and emergency spillway combined (SCS Standard 378).

_____ Velocity calculations at culvert outlets. All velocities about 5 cfs require channel lining (riprap)

_____ Pipe sizing calculations

_____ Sediment trap efficiencies calculations

_____ Size and strength of filter fabric

B. Stormwater

_____ Method of analysis used

1. SCS TR55
2. Rational (SEWRPC – technical report, volume 2, No. 4)
3. Erickson (USDI – Geological Survey)
4. Log-Pearson Type III (U.S. Water Resources Council)

_____ Drainage area sizes
_____ Design storm frequency
_____ Run off curve numbers
_____ Peak flows in C.F. S. – indicate increases in peak flows
_____ Detention requirement calculation

IV. DETAILS

_____ Drawings showing specific designs.

1. Basin example, both sediment, stormwater or combined.
2. Silt fence installation
3. Riprap cross section
4. Ditch cross section
5. Road grades
6. Channel lining strategies
7. Sediment traps
8. Diversion cross sections
9. Any structural practices used that are not referred to in the Wisconsin Construction Site Best Management Practice Handbook.

Walworth County Stormwater Management Criteria

1. The Walworth County Land Disturbance Erosion Control and Stormwater Management Ordinance, Section 59.974.07(2), must be referenced to determine if stormwater review shall be required.

2. Calculations shall be made available to demonstrate that adequate detention shall be provided for the entire development. Post development release rates of the two year, ten year and 100 year, 24 hour storm events must be no greater than the pre-development natural state discharge from the site.

3. All design stormwater detention calculations shall be based on runoff hydrographics. Walworth County will not except the use of the modified rational formula for development of the required two year, ten year and 100 year, 24 hour runoff hydrographs.

4. Design rainfalls to be used in stormwater calculations must be from the point rainfall intensity-duration-frequency relationships for Milwaukee, Wisconsin according to the Southeastern Wisconsin Regional Plan Commission report.

5. Soil conditions for design computations must either provide continuous accounting of antecedent soil moisture conditions or assume wet conditions.

6. All naturally occurring contributing runoff entering the project site must be included in the design of the drainage system.

7. Contributing runoff entering the project from off site may be excluded from detention calculations if the water is routed around on site disturbed areas by use of stable water course.

8. Swales and ditches, combined with underground sewer systems shall provide adequate outfall and safe conveyance for runoff from the 100 year frequency, 25 hour rainfall event.

9. Drainage systems may not result in transfer of drainage from one delineated natural drainage area to another if reasonable alternatives exist which would preserve natural drainage patterns.

10. All stormwater basins shall be permanent, aesthetically pleasing, if practical and safe. Subsurface bottoms of wet basins must provide a six foot wide safety ledge at a depth no greater than two feet six inches below the normal water level. Basins are considered “wet” if they are greater than three feet deep.

11. Single pipe outlets for detention basins shall have a minimum inside diameter of 12 inches.

12. Perforations in the riser for dual purpose sediment/detention basins shall not be allowed in the two foot settling zone as identified by the Wisconsin Construction Site Best Management Practice Handbook for sediment basins, unless settling velocities provide for adequate soil particle size capture within the proposed basin.

13. All calculations must be provided to the county to demonstrate that all stormwater criteria have been met.

14. Land disturbance, erosion control and stormwater review and approval must be granted prior to any excavation conducted as part of projects requiring land disturbance, erosion control and stormwater review according to the Walworth County Land Disturbance Erosion Control and Stormwater Management Ordinance.

Date 3/8/94