NPDES PHASE II & ILLINOIS EPA / SWCD INSPECTION PROGRAM

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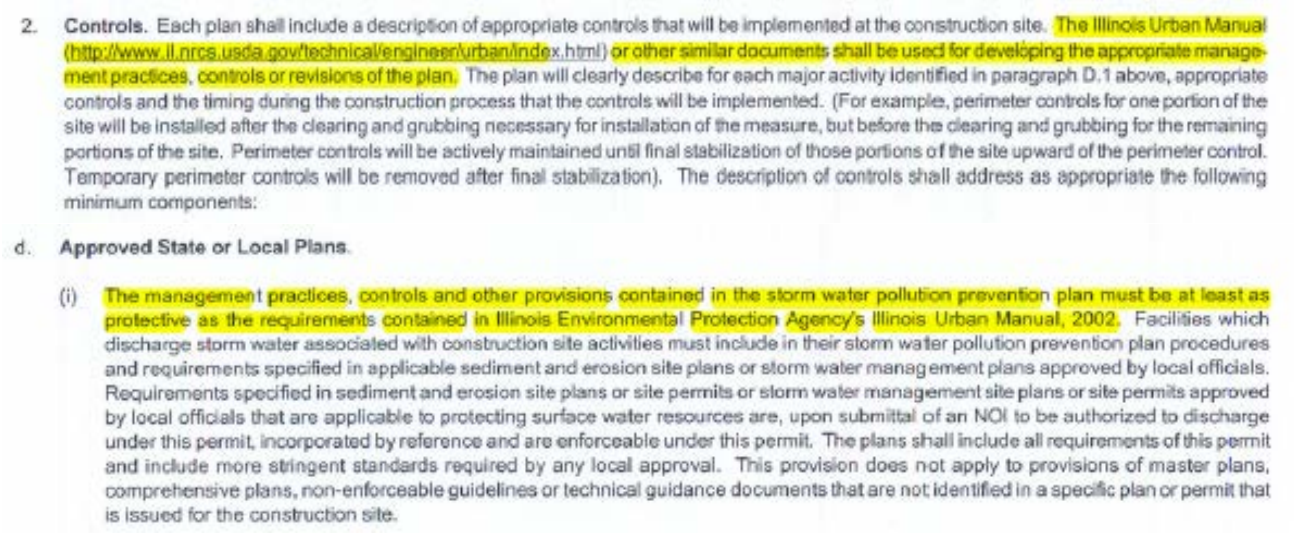
NPDES Phase II

- General NPDES Permit No. ILR10
  - http://www.epa.state.il.us/water/permits/storm-water/general-construction-permit.pdf
    - Part IV. Stormwater Pollution Prevention Plan



2. **Controls.** Each plan shall include a description of appropriate controls that will be implemented at the construction site. The Illinois Urban Manual (http://www.il.nrcs.usda.gov/technical/engineer/urban/index.html) or other similar documents shall be used for developing the appropriate management practices, controls or revisions of the plan. The plan will clearly describe for each major activity identified in paragraph D.1 above, appropriate controls and the timing during the construction process that the controls will be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization). The description of controls shall address as appropriate the following minimum components:

d. **Approved State or Local Plans.**

(i) The management practices, controls and other provisions contained in the storm water pollution prevention plan must be at least as protective as the requirements contained in Illinois Environmental Protection Agency's Illinois Urban Manual, 2002. Facilities which discharge storm water associated with construction site activities must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under this permit, incorporated by reference and are enforceable under this permit. The plans shall include all requirements of this permit and include more stringent standards required by any local approval. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

IEPA & SWCD NPDES Inspection Program

- Began as Pilot Project :
  - Illinois EPA had shortage of inspectors & interested in educating local developers and municipalities on Phase II regulations.
  - Funding provided through Section 319 Grant.
  - 5 SWCDs Participating: McHenry, Winnebago, Macon, St. Clair & Madison Counties. Each employee had over 10 year experience and was a Certified Professional in Erosion & Sediment Control (CPESC).
  - Provide Educational Inspections to help contractors and developers understand and meet the requirements of the law.
  - Enter into Intergovernmental Contract for Services.

IEPA & SWCD NPDES Inspection Program

- After successful pilot, NPDES Construction Site Inspection Program established.
- Additional counties were added; 20 SWCDs participating currently.
- On 3rd grant cycle to fund program.
- Overview of Program:
  - Conduct on-site inspections (active construction, complaints, IONs, NOT verification) and follow up with report.
  - Educational Program component
  - Reimbursement for services: $275.00 for initial and follow up visits; $65.00/hour for follow up inspections & meetings

IEPA & SWCD NPDES Inspection Program

- Construction Site Inspections & the IUM
  - IUM serves as a guide for proper selection, installation and maintenance of Soil Erosion & Sediment Control Best Management Practices (bmps).
  - During an inspection, use IUM Standard to assess practice functionality & performance in the field.
    - Is practice being used properly?
    - Is practice installed according to specifications?
    - Is practice being maintained appropriately?

IUM & Construction Site Inspections

ILLINOIS URBAN MANUAL
PRACTICE STANDARD

SILT FENCE

(feet)
CODE 920

(Source: USDA Natural Resources Conservation Service - Illinois)

DEFINITION

A temporary barrier of entrenched geotextile fabric (filter fabric) stretched across and attached to supporting posts used to intercept sediment laden runoff from small drainage areas of disturbed soil.

PURPOSE

The purpose of this practice is to cause deposition of transported sediment load from sheet flows leaving disturbed areas.

CONDITIONS WHERE PRACTICE APPLIES

1. Where runoff occurs causing sheet erosion.
2. Downslope areas for perimeter protection from sheet flow.
3. Where adjacent areas are to be protected from silt laden runoff.
4. Where effectiveness is required for one construction season or 6 months, whichever is less.

CRITERIA

The maximum drainage area for overland flow to a silt fence shall not exceed 1/2 acre per 100 feet of fence.

All silt fence shall be placed as close to the contour as possible, with the ends extending upslope.

Silt fence shall not be placed across areas of concentrated flow.

Silt fence should not be placed in areas of concentrated flows, such as streams or ditches.

The maximum allowable slope distances contributing runoff to a silt fence are listed in the following table:

Slope (%)	Maximum Spacing along Slope (ft.)
25	50
20	75
15	125
10	175
Flatter than 10	200

When one row of fence is used, or it is the last in a series, the area below the fence must be undisturbed or stabilized.

Silt fence fabric shall be selected using material specification 592 **GEOTEXTILE**.

Fence posts shall be a minimum of 48 inches long. Wood posts shall be of sound quality wood with a nominal cross sectional area of 1.5 x 1.5 inches. Steel posts shall be standard T and U sections weighing not less than 1.33 pounds per linear foot or other steel posts having equivalent strength and bending resistance. The maximum spacing shall be 5 feet. When wire or other forms of approved backing are used, the maximum spacing may be increased to 10 feet. The posts shall be driven a minimum of 18 inches into the ground or as approved by the engineer. Spacing may need to be adjusted so the posts are located in low areas where water may pond. Additional posts may be required at low areas.

Wire fence shall be a minimum 14-gauge wire with a maximum 6-inch mesh opening. The filter fabric shall be furnished in a continuous roll cut to the length of the wire fence needed to avoid splices.

When splices are necessary, the fabric shall be spliced at a support post and posts twisted together per drawing IUM-620BW so silt-laden water cannot escape around or beneath the fence.

The height of a silt fence shall be a minimum of 24 inches above the original ground surface. The silt fence shall be entrenched to a minimum depth of 6 inches, with an additional 6 inches extending along the bottom of the trench in the upslope direction. The six inch extension of fabric along the bottom may need to be cut where two fences are spliced per the method mentioned above.

The posts shall be installed, trench backfilled, and the soil compacted over the fabric to 95%. The wire mesh does not get buried and compacted in the anchor trench; it stops at ground level.

The silt fence may also be entrenched by static slicing. Static slicing consists of the insertion of a narrow custom-shaped blade approximately 8 inches into the ground, while simultaneously pulling the silt fence fabric into the opening created as the blade is pulled through the ground. The blade imparts no vibration or oscillatory motion. The tip of the blade is designed to slightly disrupt the soil upward, preventing horizontal compaction of the soil and creating optimum soil conditions for mechanical compaction. Compact (2 passes typically) using a tire on the tractor. Post-setting and driving, followed with tying or stapling the fabric to the post, finalizes the installation.

The filter fabric and wire support, if used, must be securely fastened to the upslope side of the posts using heavy duty wire staples at least one inch long or in accordance with manufacturer's recommendations. The fabric shall be attached to the wire support to prevent sagging of the fabric.

If the silt fence must cross contours, with the exception of the ends of the fence, gravel check dams placed perpendicular to the back of the fence shall be used to minimize concentrated flow and erosion along the back of the fence. The gravel check dams shall be approximately 1 foot high at the back of the fence and be continued perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface behind the fence. The gravel check dams shall consist of appropriately sized and specified rock for the fence line grade and contributing drainage area. The gravel check dams shall be located every 10 feet along the fence where the fence must cross contours. J-hooks shall be used at the ends of runs longer than 200 feet and at intervals as deemed necessary by the designer and according to site conditions.

Silt fence shall be used prior to the establishment of erosion controls and installed prior to the clearing of existing vegetation and grading work. When deemed necessary additional rows of silt fence shall be spaced according to site conditions and in keeping with maximum acreage requirements discussed in the table above.

CONSIDERATIONS

Silt fence should be considered for trapping sediment where sheet erosion may be expected to occur in small drainage areas.

Silt fence may be sold with additional support systems including wire backing or polymeric mesh. Post spacing can be lengthened to 10 feet if wire or poly mesh backed silt fence is used. When traditional silt fence is used appropriately and as part of a suite of practices, wire or poly mesh fences are often not necessary. This practice should be used as a last defense and not as a one-stop solution to erosion and sediment problems.

Where space allows, silt fence at the end of a slope should be placed an adequate distance from the toe for sediment storage.

Silt fence may be used for protection of culvert inlets. Refer to practice standard **CULVERT INLET PROTECTION 808**.

PLANS AND SPECIFICATIONS

Plans and specifications for installing silt fence shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include the following:

1. Location(s) where the silt fence is to be installed.
2. The type, size, spacing, and insertion depth of fence posts.
3. Location and interval distance of J-hooks, if used.
4. The type and size of wire or other approved support mesh backing, if used.
5. The type of filter fabric used.
6. The method of anchoring the filter fabric.
7. The method of fastening the filter fabric to the fence posts.
8. The rock size and location of gravel check dams, if used.

All plans shall include the installation, inspection, and maintenance schedules with the responsible party identified.

Standard Drawing **IL-620 SILT FENCE PLAN** or **IL-620W SILT FENCE WITH WIRE SUPPORT PLAN** can be used as the plan sheets.

OPERATION AND MAINTENANCE

Silt fence shall be removed once upslope areas have been permanently stabilized.

Silt fence shall be inspected no less frequently than every week during construction. Should the fabric decompose or become ineffective prior to the end of the expected usable life and the fence still is necessary, the fabric or the entire system shall be replaced promptly.

Sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the silt fence.

Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, a seedbed prepared and the site vegetated.

REFERENCES

North Carolina Sedimentation Control Commission. 1988. Erosion and Sediment Control Planning and Design Manual. NC

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During an inspection you encounter…

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TABLE 2.1 PRACTICE SELECTION GUIDE

NAME	CODE	BRIEF DEFINITION	Sheet & Rill Erosion	Rill & Gully Erosion	Streambank Erosion	Stream Channel Erosion
Bioretention	800	Constructed wetland to improve stormwater quality				3
Cofferdam	803	Temporary structure designed to provide a dry work area				
Construction Road Stabilization	806	Stabilize temporary roads to reduce erosion		3		
Culvert Inlet Protection	808	Temporary sediment filter at culvert inlets				
Dewatering	813	Removal of water from construction sites				
Diversion	815	Channel and ridge constructed to collect and divert runoff	2	2	1	
Diversion Dike	820	Perimeter dike to manage and divert runoff	2	2	1	
Dust Control	825	Controlling dust on construction sites and roads	1			
Erosion Control Blanket	830	Preformed degradable erosion blanket	2		1	1
Erosion Control Blanket - TRM	831	Preformed nondegradable erosion mat	2		2	3
Filter Strip	835	Vegetated filter zone to remove pollutants			2	
Grass-Lined Channels	840	Natural or constructed channel vegetated to convey water		2		2
Infiltration Trench	847	Pits or trenches designed to hold water to increase infiltration	1	1		
Inlet Protection-Excavated Drain	855	Excavated area to trap sediment at storm drain inlet				
Inlet Protection-Fabric Drop	860	Temporary practice to control sediment at storm drain inlet				
Inlet Protection - Paved Areas	861	Temporary sediment control barrier at storm drain inlet				
Inlet Protection-Sod Filter	862	Sediment filter using sod around a storm drain drop inlet				
Inlet Protection - Unpaved Areas	863	Temporary practice to control sediment at storm drain inlet				
Land Grading	865	Smoothing surface to planned grade to improve site	2	2		
Level Spreader	870	Structure to spread water flow uniformly	1	1	1	
Lined Channel or Outlet	872	A constructed channel or outlet having an erosion-resistant lining		3		
Mulching	875	Placing materials to protect soil surface	2	2	1	
Open Channel	878	Construction of or improvement to a channel in which water flows				
Permanent Vegetation	880	Establishing permanent vegetative cover	3	3	2	
Permeable Pavement	890	Pavement having interspersed sod, gravel, or sand areas	1	1		
Polyacrylamide (PAM) for Temporary Soil Stabilization	893	Agent to bind soil and prevent erosion.	3	1		
Polyacrylamide (PAM) for Turbidity Reduction and Sediment Control	894	Agent to flocculate fine silts and clay in stormwater.				
Portable Sediment Tank	895	Container for trapping sediment from runoff water				
Right-of-way Diversion	900	Structure to control roadway erosion		1		
Rock Check Dam	905	Structure to control erosion in ditch or grass swale		3		
Rock Outlet Protection	910	Rocked area at outlets to reduce flow erosion		2		2
Silt Curtain	917	Temporary sediment barrier of geosynthetic fabric in a water body			2	
Silt Fence	920	Temporary sediment barrier of filter fabric	3	2		
Sodding	925	Laying blanket of established turf to protect area	3	3	2	
Stabilized Construction Entrance	930	Rock pad at entrance or exit to control tracking of mud to streets				
Structural Streambank Stabilization	940	Structure to control streambank erosion			3	
Subsurface Drain	945	An underground water collection and transport tube	1	1	2	
Sump Pit	950	Temporary pit to trap and filter water				
Surface Roughening	953	Grooving, stair stepping, or tracking across a slope	1	1		
Temporary Concrete Washout Fac.	954	Management of solid and liquid wastes from concrete				
Temporary Diversion	955	Temporary diversion for runoff control	2	2	1	
Temporary Sediment Trap	960	Temporary ponding basin to trap sediment		1		
Temporary Seeding	965	Planting vegetation to protect areas from erosion	3	2	2	
Temporary Slope Drain	970	Short term water conveyance down a sloping area		2		
Temporary Stream Crossing	975	Short term stream crossing for equipment			1	1
Temporary Stream Diversion	976	Short term stream diversion to allow construction in the dry.				1
Temporary Swale	980	Temporary excavated drainageway to control runoff		1		1
Topsoiling	981	Adding or replacing quality soil to the surface	2	1		
Tree/Forest Ecosystem Preservation	984	Protecting contiguous stands of trees from construction damage	2	2	2	
Tree and Shrub Planting	985	Planting trees and shrubs	3	3	3	
Tree Protection	990	Protecting individual trees from construction damage	1	1	1	
Tree Protection-Augering	991	Protecting individual trees from underground construction damage	1	1	1	
Vegetative Streambank Stabilization	995	Vegetation to control streambank erosion			3	
Well Decommissioning	996	Permanent sealing of a water well, boring, or monitoring well				

TABLE 2.1 Practice Selection Guide

1 = Slight Impact

2 = Moderate Impact

3 = Significant Impact

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Getting better…

and better…

and even better…

Questions?