

# Illinois Urban Manual

## Fall 2020 Update for NLRS USWG

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# Presentation Overview

- ▶ **Illinois Urban Manual**
  - ▶ User Overview
    - ▶ What?
    - ▶ Where?
    - ▶ How?
  - ▶ What's New?
  - ▶ Green Infrastructure
  - ▶ What's to Come



# IUM User Overview: What?

- A manual intended for use as a technical reference.
- To be used by:
  - developers, planners, engineers, government officials and others involved in land use planning, building site development and natural resource conservation in both rural and urban communities as well as developing areas.
- Contains Standards & Specifications (materials, construction, drawings) that describe BMPs (best management practices).
  - IUM BMPs - control non-point source pollution in communities and developing areas
    - BMPs included:
      - Soil Erosion & Sediment Control
      - Stormwater Management
      - Special Area Protection



# IUM User Overview: What?

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- Section 1: Introduction
- Section 2: NPS Pollution Control Processes & Planning Principles
- Section 3: Planning Procedures
- **Section 4: Practice Standards**
- **Section 5: Construction Specifications**
- **Section 6: Material Specifications**
- **Section 7: Standard Drawings**
- Section 8: Evaluation: Physical Effects
- Section 9: References
- Section 10: Glossary



# IUM User Overview: What?

- Funding in large part provided by the Illinois Environmental Protection Agency (IEPA) through Section 319 and 604b of the Clean Water Act.
- The initiative to update the IUM is a cooperative, multi-agency effort.
- Originated from Natural Resource Conservation Service as main contributor
- The IUM Steering Committee (SC) and Technical Review Committee (TRC) are actively tasked with the revision of the manual.
- The SC is comprised of public agencies representing the entire State of Illinois
- The TRC is comprised of the above mentioned public agencies in addition to public and private professionals



# Usage in ILR10 and ILR40 Permits



## ILR10

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2. **Controls.** Each plan shall include a description of appropriate controls that will be implemented at the construction site and any off-site stockpile or storage area unless already authorized by a separate NPDES permit. The plan shall include details or drawings that show proper installation of controls and BMPs. The Illinois Urban Manual <http://www.aiswcd.org/illinois-urban-manual/> 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 and/or repaired 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:
  - a. **Erosion and Sediment Controls.** The permittee shall design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:

## ILR40

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### PART IV. STORM WATER MANAGEMENT PROGRAMS

#### A. Requirements

The permittee must develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from their MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter 1) and the Clean Water Act. The permittee's storm water management program must include the minimum control measures described in section B of this Part. For new permittees, the permittee must develop and implement specific program requirements by the date specified in the Agency's coverage letter. The U.S. Environmental Protection Agency's National Menu of Storm Water Best Management Practices (<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>) and the most recent version of the Illinois Urban Manual should be consulted regarding the selection of appropriate BMPs.





# IUM User Overview: Where?

Website: [www.illinoisurbanmanual.org](https://www.illinoisurbanmanual.org)

**Illinois Urban Manual**

Funding source for the IUM update initiative is provided by the Illinois Environmental Protection Agency (IEPA) Clean Water Act, Section 604b grant funds.

**LATEST ANNOUNCEMENTS**

- October 11, 2019  
**Request For Proposal (RFP) Illinois Urban Manual Update\_Drawings**  
The Illinois Urban Manual Partnership is requesting proposals for professional engineering and consulting services (Consultant Services), which includes, but are not limited to, research, design...  
[Continue Reading Announcement](#)
- October 11, 2019  
**Request For Proposal (RFP) Illinois Urban Manual Update\_Standards**  
The Illinois Urban Manual Partnership is requesting proposals for professional engineering and consulting services (Consultant Services), which includes, but are not limited to, research, design...  
[Continue Reading Announcement](#)
- June 7, 2019  
**Attention Designers!**  
Please review the following IDOT Memo regarding Cofferdams (Type 1) within jurisdictional wetlands and Waters of the U.S. New Special Provision for Cofferdam (Type 1)  
[Continue Reading Announcement](#)

[View All Announcements](#)

**Upcoming Educational Opportunities**

03/09/2020 8AM	KDSWCD Soil Erosion and Sediment Control Workshop
03/23/2020 - 03/26/2020 8AM	WaterCON 2020
04/17/2020 8AM	2020 Lake County Environmental Summit 2020
07/17/2020 8AM-5PPM	Chicago Green Infrastructure Symposium

[Educational Opportunities Page](#)

## What is Available?

- Illinois Urban Manual:
  - Practice Standards
  - Construction Specifications
  - Materials Specifications
  - Standard Drawings
  - IUM Field Manual
- Announcements
  - Public Review
- Upcoming Educational Opportunities
- Resources
- Sign up to Receive Updates



# IUM User Overview – How?

## Practice Standards, Construction Specifications, Material Specifications & Standard Drawings

ILLINOIS URBAN MANUAL  
PRACTICE STANDARD

### DITCH CHECK (MANUFACTURED) (no.)



(Source: Winnebago Soil and Water Conservation District)

#### DEFINITION

A pre-fabricated temporary dam or flow thru device installed across a swale or road ditch to reduce the velocity of water.

#### PURPOSE

The purposes of these practices are to reduce the velocity of concentrated storm water flows thereby reducing erosion of the swale or road ditch, trap sediment, promote setting of suspended solids behind the check, reduce scour and channel erosion, and promote infiltration when suitable soils are present.

#### CONDITIONS WHERE PRACTICE APPLIES

The use of manufactured ditch checks applies where grading activity occurs in areas of concentrated flows with slopes less than 8% and flow velocities less than 8 cfs and a temporary measure is needed to control erosion of the channel

until permanent stabilization practices can be implemented.

Manufactured ditch checks should be applied to ditches that cannot receive a permanent non-erodible lining, either synthetic or vegetated, due to ongoing construction activity.

Other applications include use of manufactured ditch checks to slow water velocity in a ditch while permanent vegetation is being established.

#### CRITERIA

The minimum height of manufactured ditch checks shall be 10 inches for synthetic porous runoff control structures and permeable ditch checks and shall not exceed a maximum height of 15 inches for other manufactured products.

814 - 1

### Construction Specification 95—Geotextile

#### 1. Scope

This work consists of furnishing all material, equipment, and labor necessary for the installation of geotextiles.

#### 2. Quality

Geotextiles shall conform to the requirements of Material Specification 592 and this specification.

#### 3. Storage

Before use, the geotextile shall be stored in a clean, dry location out of direct sunlight, not subject to extremes of either hot or cold temperatures, and with the manufacturer's protective cover undisturbed. Receiving, storage, and handling at the job site shall be in accordance with the requirements listed in ASTM D 4873.

#### 4. Surface preparation

The surface on which the geotextile is to be placed shall be graded to the neat lines and grades as shown on the drawings. It shall be reasonably smooth and free of loose rock and clods, holes, depressions, projections, muddy conditions, and standing or flowing water (unless otherwise specified in section 7 of this specification).

#### 5. Placement

Before the geotextile is placed, the soil surface will be reviewed for quality assurance of the design and construction. The geotextile shall be placed on the approved prepared surface at the locations and in accordance with the details shown on the drawings and specified in section 7 of this specification. It shall be unrolled along the placement area and loosely laid, without stretching, in such a manner that it conforms to the surface irregularities when material or gabions are placed on or against it. The geotextile may be folded and overlapped to permit proper placement in designated area(s).

**Method 1**—The geotextile shall be joined by machine sewing using thread material meeting the chemical requirements for the geotextile fibers or yarn. The sewn overlap shall be 6 inches, and the sewing shall consist of two parallel stitched rows at a spacing of about 1 inch and shall not cross (except for any required re-stitching). The stitching shall be a lock-type stitch. Each row of stitching shall be located a minimum of 2 inches from the geotextile edge. The seam type and sewing machine to be used shall produce a seam strength, in the specified geotextile, that provides a minimum of 90 percent of the tensile strength in the weakest principal direction of the geotextile being used, when tested in accordance with ASTM D 4884. The seams may be factory or field sewn.

The geotextile shall be temporarily secured during placement of overlying material to prevent slippage, folding, wrinkling, or other displacement of the geotextile. Unless otherwise specified, methods of securing shall not cause punctures, tears, or other openings to be formed in the geotextile.

**Method 2**—The geotextile shall be joined by overlapping a minimum of 18 inches (unless otherwise specified) and secured against the underlying foundation material. Securing pins, approved and provided by the geotextile manufacturer, shall be placed along the edge of the panel or roll material to adequately hold it in place during installation. Pins shall be steel or fiberglass formed as a U, L, or T shape or contain "ears" to prevent total penetration through the geotextile. Steel washers shall be provided on all but the U-shaped pins. The upstream or upslope geotextile shall overlap the abutting downslope geotextile. At vertical laps, securing pins shall be inserted through the bottom layers along a line through approximately the mid-point of the overlap. At horizontal laps and across slope lags, securing shall be inserted

(210 V1 NE31, May 2001)

95-1

### MATERIAL SPECIFICATION

#### 592. GEOTEXTILE

#### 1. SCOPE

This specification covers the performance requirements and quality of geotextiles.

#### 2. GENERAL REQUIREMENTS

Fibers (threads and yarns) used in the manufacture of geotextile shall consist of synthetic polymers composed of a minimum of 95 percent by weight polypropylenes, polyesters, polyethylene, or polyvinylidene-chlorides. They shall be formed into a stable network of filaments or yarns retaining dimensional stability relative to each other. The filaments shall be resistant to delamination. The geotextile shall be uniform in texture, thickness, and appearance, and be free of defects, flaws or tears. The geotextile shall conform to the physical requirements contained in Tables 1 and 2. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet light.

Thread used for factory or field sewing shall be of contrasting color to the fabric and made of high strength polypropylene, polyester, or polyamide thread. Thread shall be as resistant to ultraviolet light as the geotextile being sewn.

#### 3. CLASSIFICATION

Geotextiles shall be classified based on the method used to place the threads or yarns forming the fabric. The geotextiles will be grouped into the types described below.

a. **Woven.** Fabrics formed by the uniform and regular interweaving of the threads or yarns in two directions.

Woven fabrics shall be manufactured from slit-tape or monofilament yarn formed into a uniform pattern with distinct and measurable openings, retaining their position relative to each other.

The edges of fabric shall be selvaged or otherwise finished to prevent the outer yarn from unraveling.

b. **Nonwoven.** Fabrics formed by a random placement of threads in a mat and bonded by heat-bonding, resin-bonding, needle punching, or a combination thereof.

Nonwoven fabrics shall be manufactured from individual fibers formed into a random pattern with distinct but variable small openings, retaining their position relative to each other when bonded by needle punching, heat, or resin bonding. The use of nonwovens, other than the needle punched geotextiles, is somewhat restricted (see Note 3 on Table 2).

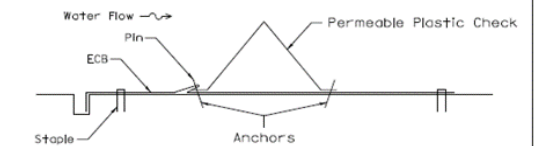
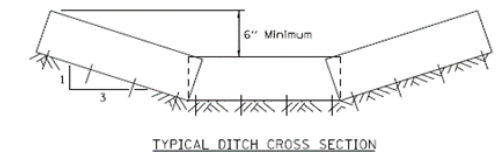
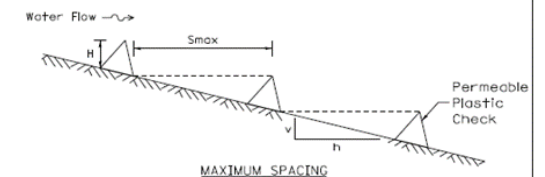
#### 4. CERTIFICATION, SAMPLING AND TESTING

Along with each shipment of geotextile, a Certificate of Compliance shall be furnished by the supplier, along with a document stating the manufacturer's minimum average roll values (MARV) for the geotextile. The geotextile shall meet the specified requirements (Table 1 or 2) for the product style shown on the label.

592 - 1

9/2012

### PLASTIC PERMEABLE CHECKS



### PLASTIC PERMEABLE CHECK CROSS SECTION

REVISIONS  
Project \_\_\_\_\_  
Designed \_\_\_\_\_ Date \_\_\_\_\_  
Checked \_\_\_\_\_ Date \_\_\_\_\_  
Approved \_\_\_\_\_ Date \_\_\_\_\_



STANDARD DWG. NO.  
IUM-514  
SHEET 1 OF 1  
DATE 8-19-11





# IUM User Overview: How?

- How do I use the IUM to address erosion and sediment control on a construction site?
  - IUM (standards & specifications):
    - Serves as a guide for proper selection, installation and maintenance of soil erosion & sediment control best management practices (bmps)
      - **Selection** – when developing the site plan (Storm Water Pollution Prevention Plan (SWPPP) or equivalent)
      - **Installation** – when implementing a practice onsite
      - **Maintenance** – is the practice adequate to address site conditions? Is the practice functioning properly? Is maintenance needed?
  - During an **inspection**, use IUM Standard to assess practice performance onsite:
    - Is the practice being used properly?
    - Is the practice installed according to specifications?
    - Is the practice being maintained appropriately?

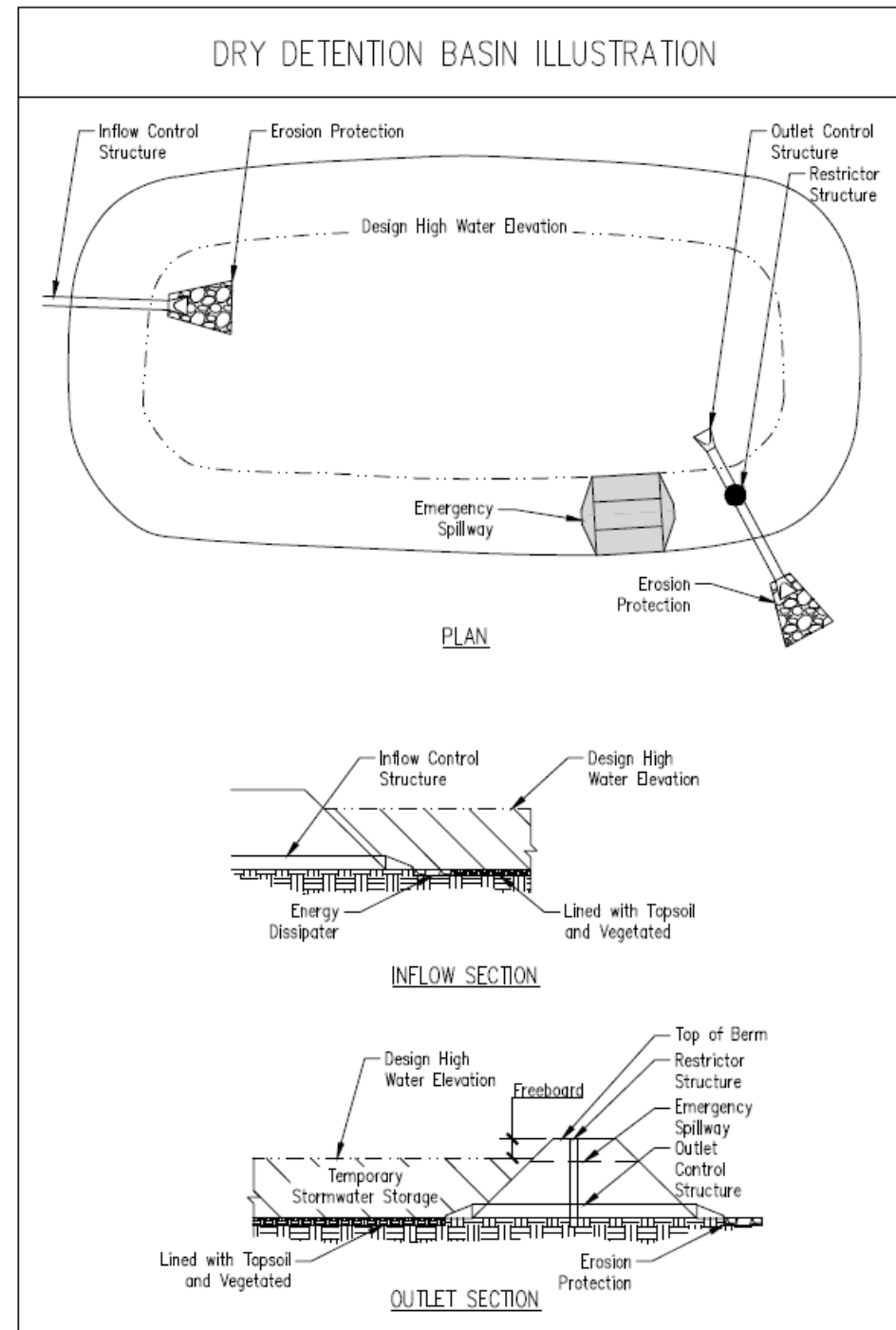
# IUM Updates: **What's New?**

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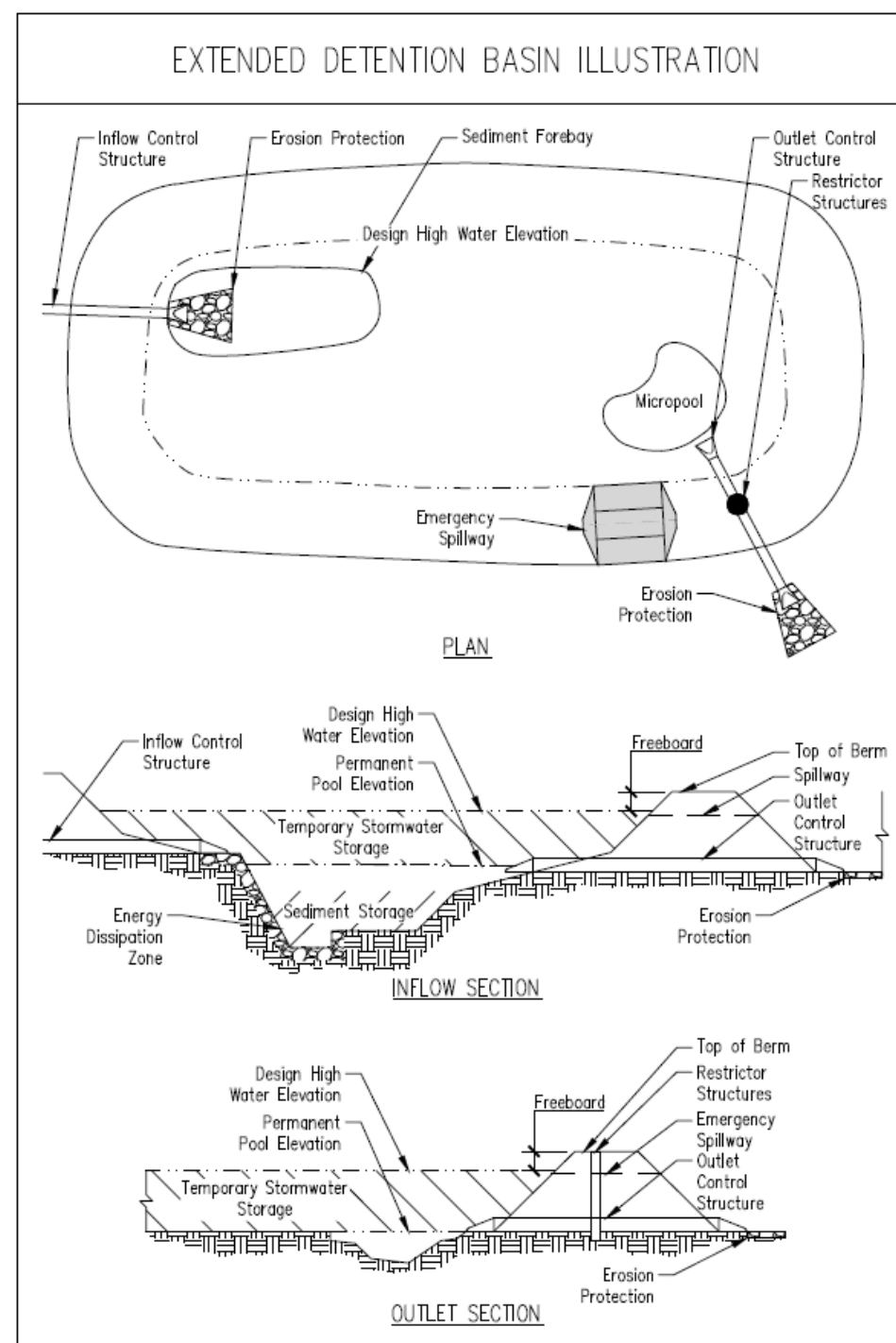
- ✓ **Dewatering Standard – Updated 2019**
- ✓ **Basin Standards: Schematics**
  - ✓ **Wet Bottom Basin**
  - ✓ **Dry Bottom Basin**
  - ✓ **Extended Basin**
  - ✓ **Temporary Sediment Basin**
  - ✓ **Sediment Forebay**
- ✓ **Sump Pit Standard Drawing**
- ✓ **Temporary Causeway (New)**
  - ✓ **Standard, Specifications, Standard Drawing & Schematics**
- ✓ **Culvert Inlet Protection (Update)**
  - ✓ **Standard, Specifications, Standard Drawing & Schematics**



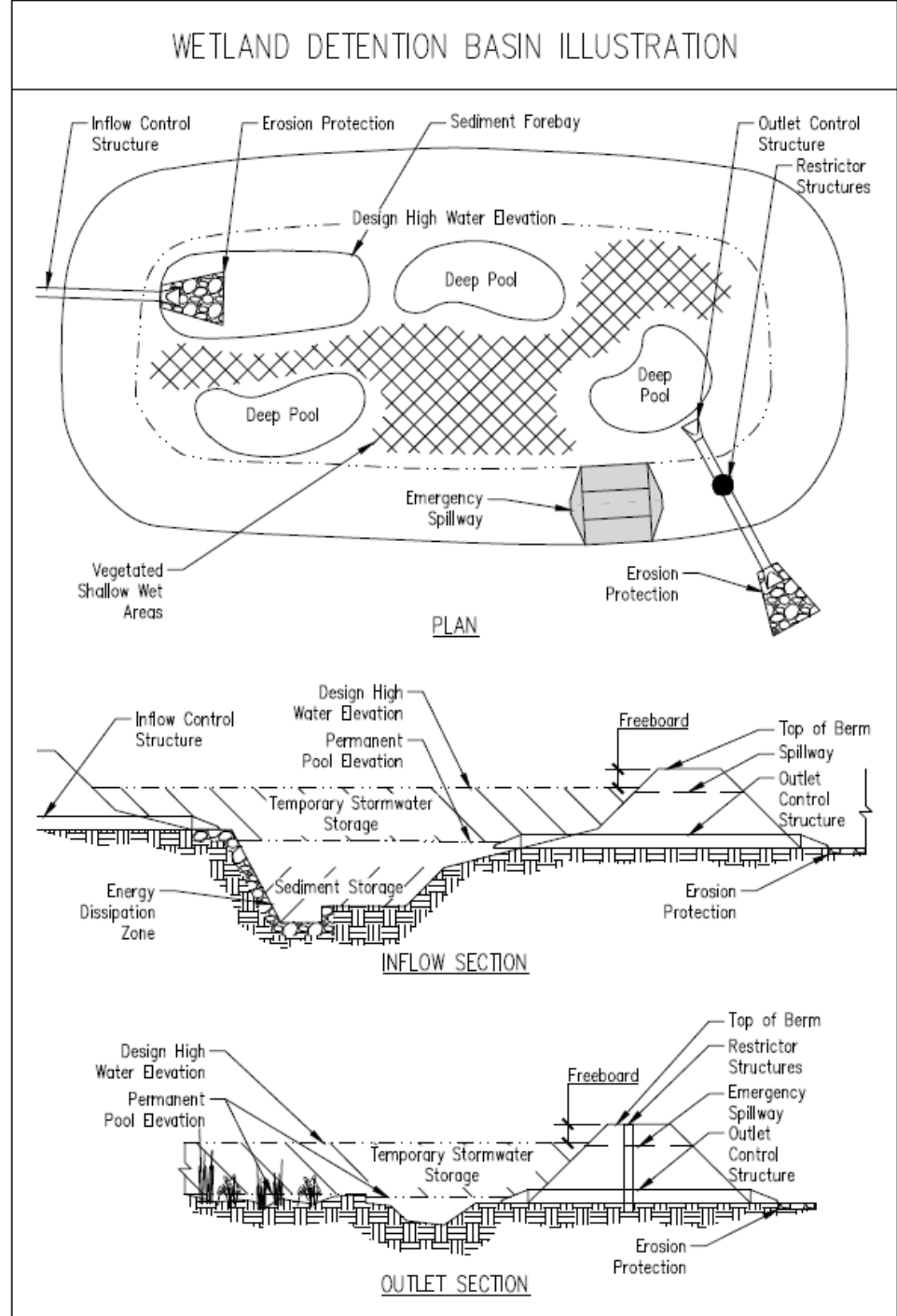
# Update: Dry Detention Basin 809 (Illustration)



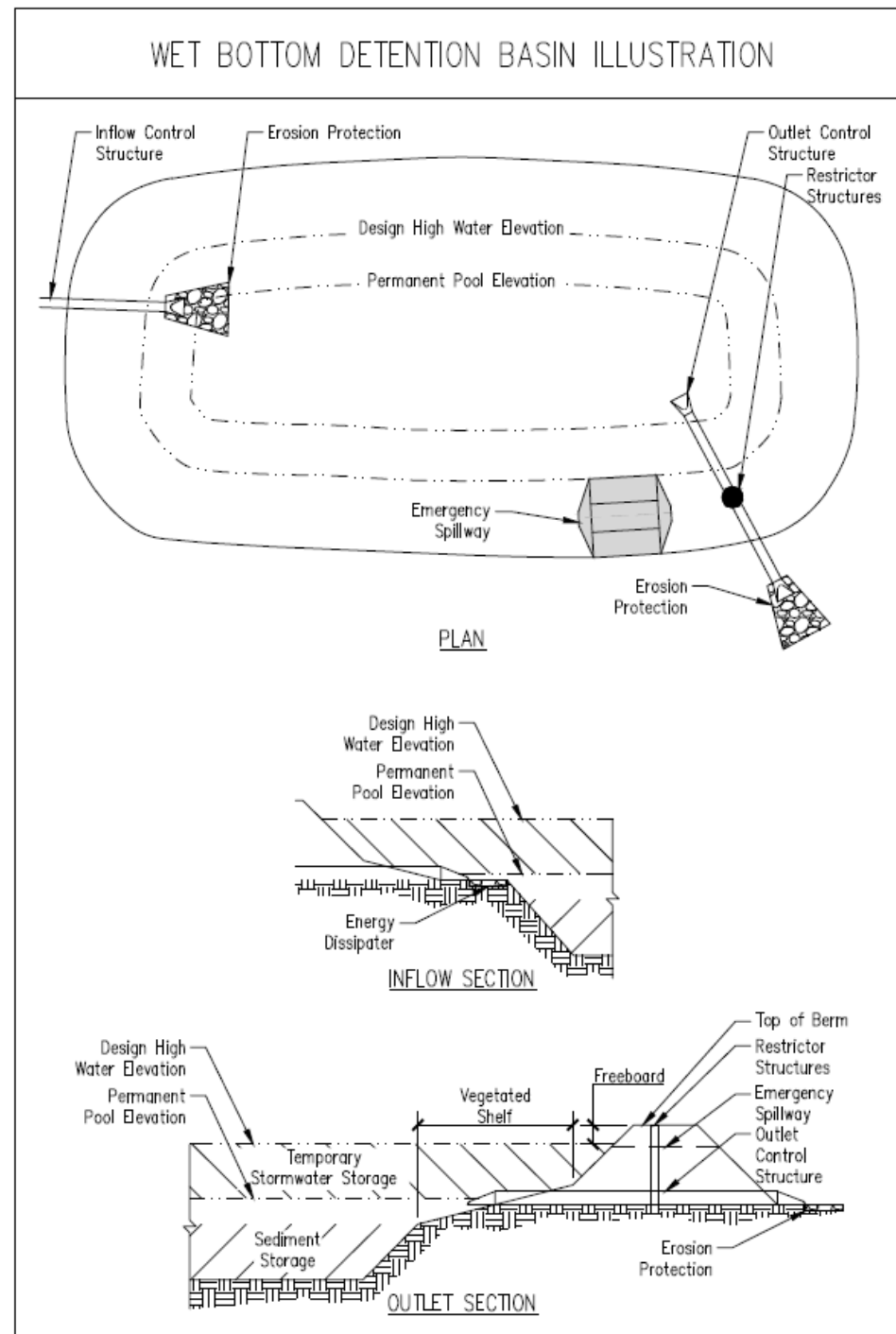
Update:  
Extended Detention  
Basin 810  
(Illustration)



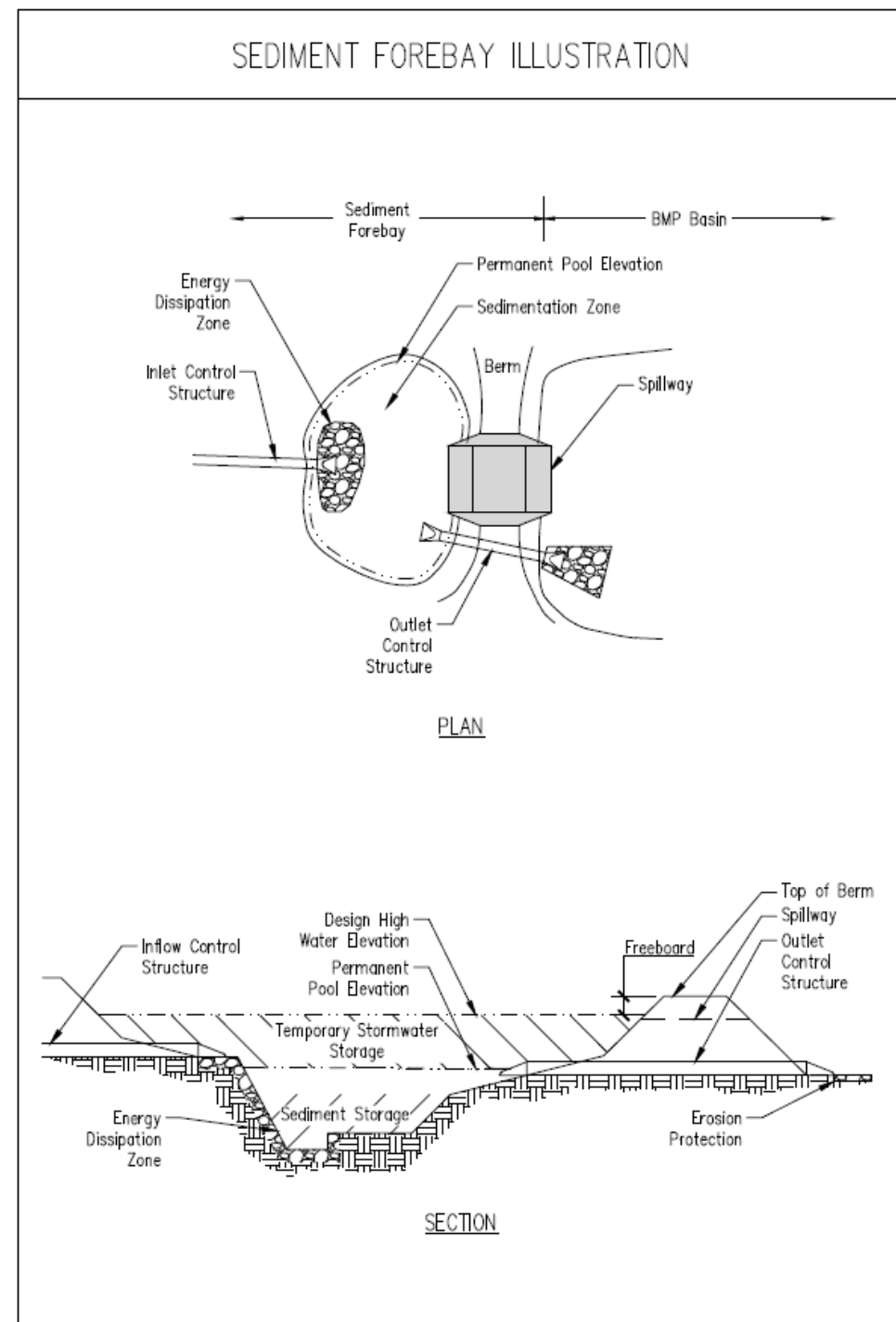
# Update: Wetland Detention Basin 812 (Illustration)



# Update: Wet Bottom Detention Basin 881 (Illustration)



# Update: Sediment Forebay 714 (Illustration)



# Examples of Existing Green Infrastructure Standards

ILLINOIS URBAN MANUAL  
PRACTICE STANDARD

## BIORETENTION FACILITY

(feet)  
CODE 800



Source: Jessica Cocroft, Winnebago Soil and Water Conservation District

### DEFINITION

Facility that utilizes a soil media, mulch, and vegetation to treat stormwater runoff through filtration in clay soils areas and through infiltration in areas with porous soils.

A bioretention facility is also sometimes referred to as a rain garden. However, the term rain garden is typically used to describe a small, planted depression on an individual homeowner's property. A bioretention facility serves the same purpose but typically describes larger projects in community common areas as well as non-residential applications. Bioretention facilities may take on greater impervious areas due to their applications in commercial developments.

bioretention basin may be applied individually or as part of a system of stormwater management practices.

### CONDITIONS WHERE PRACTICE APPLIES

This practice applies where the following or similar conditions exist:

- Drainage area is small, less than four acres (preferably less than one acre) with an impervious area of less than one acre;
- Impervious areas with shallow grade allow for sheet flow over level entrance areas;
- Stormwater runoff from impervious surfaces is diverted or conveyed by a curb or gutter to

ILLINOIS URBAN MANUAL  
PRACTICE STANDARD

## RAIN GARDEN

(feet)  
CODE 897



Source: Kendall County Soil and Water Conservation District

### DEFINITION

Rain gardens are small, shallow, flat bottomed depressions constructed to temporarily hold and infiltrate stormwater allowing stormwater to soak into the ground onsite rather than leaving a property as runoff.

Designed to be periodically inundated with water for short periods of time, rain gardens are planted with vegetation tolerant of being periodically wet and dry.

### PURPOSE

- Create a unique landscape feature and provide habitat for wildlife such as birds and insects including pollinators.

### CONDITIONS WHERE PRACTICE APPLIES

In developed areas, impervious and compacted surfaces increase stormwater runoff significantly. Rain gardens capture runoff from rooftops, driveways, sidewalks, lawns and other impervious and compacted surfaces.

This practice applies to small drainage locations and locations with soils that

ILLINOIS URBAN MANUAL  
PRACTICE STANDARD

## PERVIOUS and POROUS PAVEMENT

(sq. ft.)  
Code 890



Source: IUM Technical Review Committee

### DEFINITION

Alternate pavement systems are designed to allow water to pass through the surface into the subsurface for storage and infiltration and to also reduce peak runoff rates and volumes, as well as reduce pollution loads.

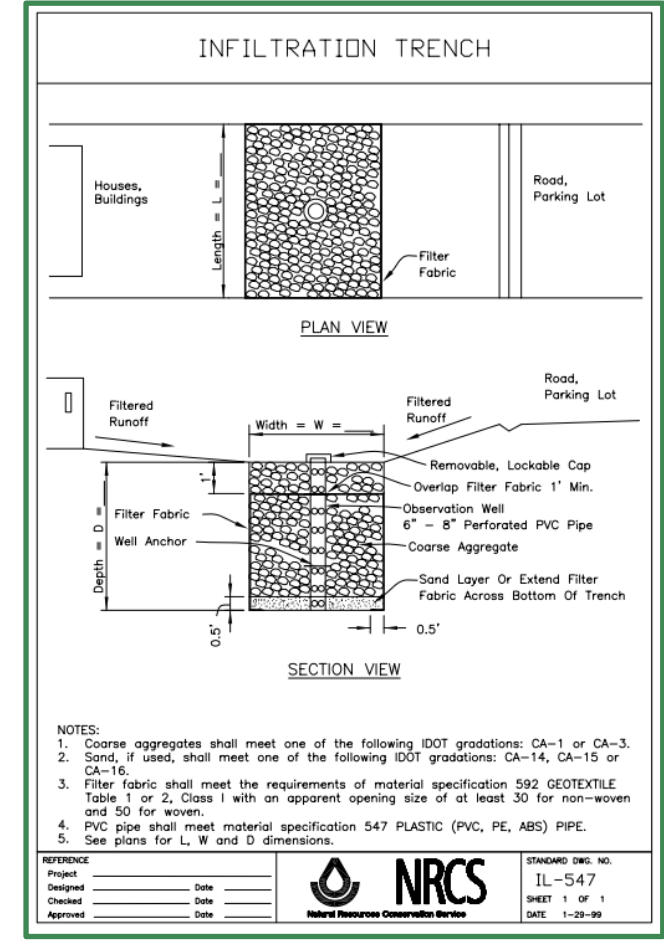
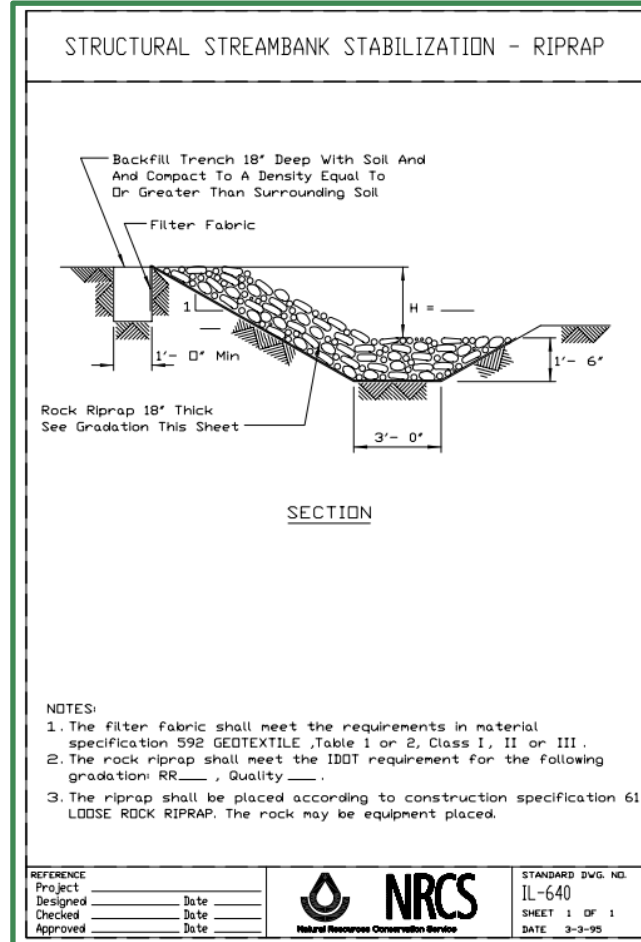
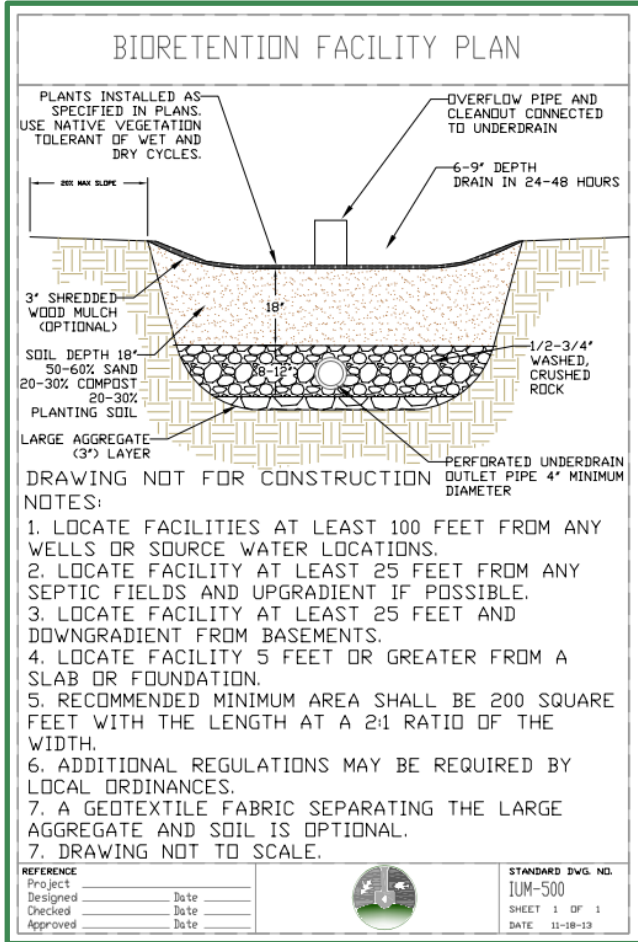
### PURPOSE

The purpose of this practice is to promote volume reduction, peak flow reduction and to reduce pollution into down stream water bodies.

2. Driveways for residential and light commercial use
3. Alleys
4. Low traffic roadways
5. Boat ramps
6. Paths and sidewalks
7. Fire lanes
8. Community spaces
9. As an alternative to conventional paving



# Examples of Existing Green Infrastructure Drawings



# IUM Updates: **2020 Coming Soon\***

- ✓ Rolled Perimeter Control – New
- ✓ **Bioswale – New**
- ✓ Backcut Curb - Update
- ✓ **Streambank Stabilization (Update & New)**
  - ✓ Structural - Update
  - ✓ Vegetative - Update
  - ✓ Soil Bioengineering - New
- ✓ Sump Pit – Update
- ✓ Concrete Washout – Update (add mortar washout)
- ✓ Slurry Control (microsurfacing) - New
- ✓ **Permanent Vegetation – Update**
- ✓ Temporary Vegetation – Update



SPECIAL THANKS TO IUM CONTRIBUTORS: THE  
IEPA, TRC/SC MEMBERS, DNR, PRIVATE  
CONSULTANTS, SWCDS AND ESPECIALLY:  
MEGAN ANDREWS & RICK MCANDLESS

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Questions?

We're always looking for contributors, feedback and ideas. Please feel free to contact me.



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