

# Introduction to NR 528: Management of Sediment from Storm Water Management Structures

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# Drivers

- Phased-in stormwater mgt. requirements & corresponding DNR rules mean an **increasing number** of stormwater mgt. structures,
- All need **maintenance** – the removal & management of accumulated sediment.

# Accumulated sediment - jurisdiction

- Sediment removed during maintenance of stormwater mgt. structures **requires sound management,**
- Considered a **solid waste** & regulated by the WDNR's Bureau of Waste & Materials Management.

# Technical Advisory Committee

## **Stakeholders represented during rule-making:**

- Builders - WI Builders Association
- Consulting Industry
- Environmental Org. - River Alliance
- Government units and agencies

Wisconsin Towns Association

Municipal Environmental Group

City & County Engineering Depts.

Dept. of Administration

Dept. of Commerce

# NR 528 - an innovative regulatory approach designed to:

- Address a large number of sediment management projects in a manner that is:
  - Efficient,
  - **Safe-guards** public health & environment,
  - **Clear regulatory** requirements,
  - **Consistent** in its implementation.

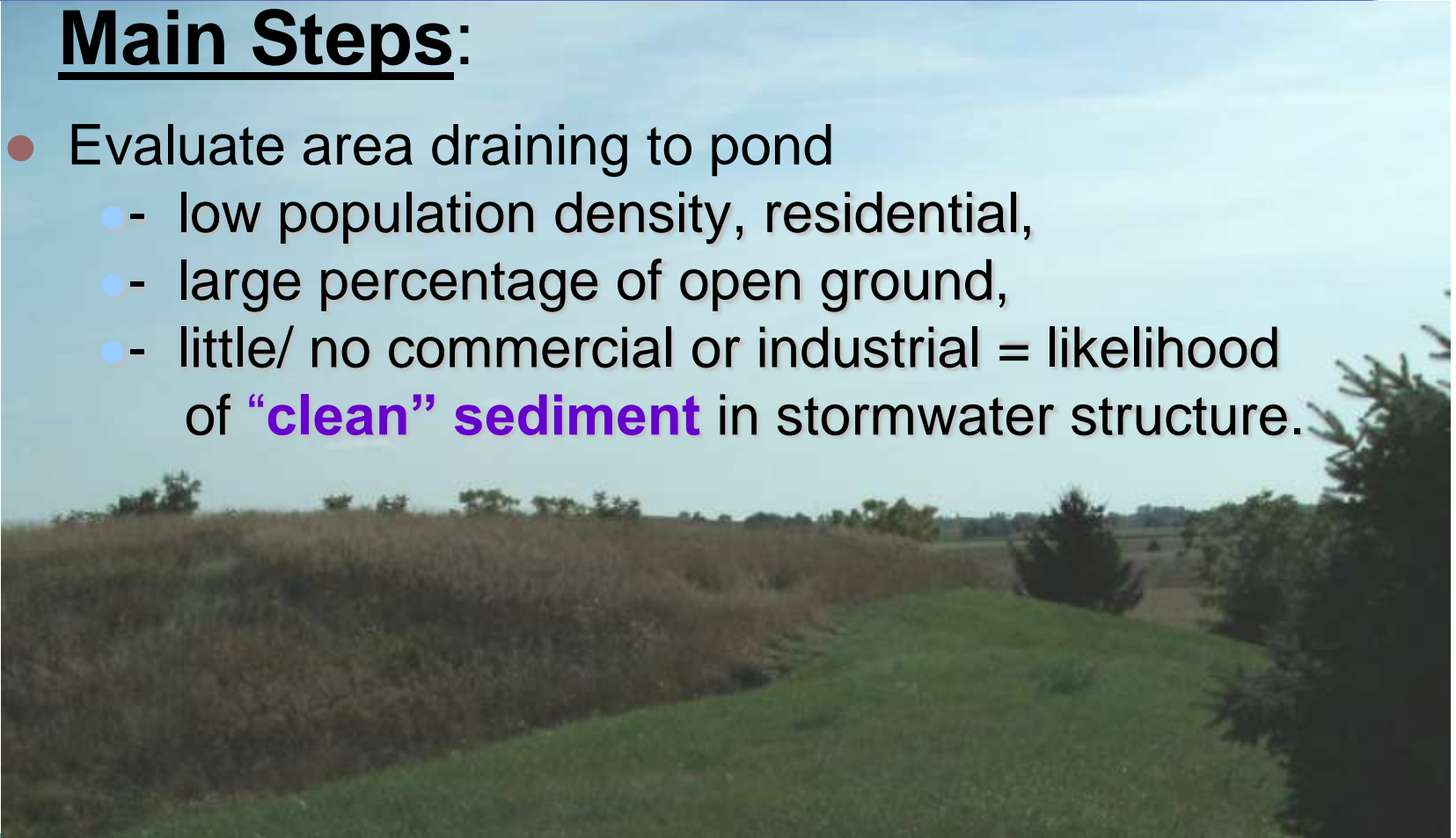
# NR 528 – a regulatory approach that

- **Streamlines** regulatory requirements,
- **Balances** between **risk** and **flexibility** yet is **protective** of the environment,
- Allows **discretion & innovation**,
- Uses a **performance-based** rather than prescriptive approach,
- Features **accountability** - clear & known responsibility for sediment managers & **enforceable** compliance.

# NR 528: How the rule works

## Main Steps:

- Evaluate area draining to pond
  - low population density, residential,
  - large percentage of open ground,
  - little/ no commercial or industrial = likelihood of **“clean” sediment** in stormwater structure.



# NR 528: How the rule works

## Main Steps (cont.):

- If required, evaluate sediment sampling results.
- Assess risk while developing project.
- Insure **sediment management** protects public health and environment.
- Maintain records.

# NR 528: How the rule works

## Compliance through Certification Form

- **Guides** sediment manager through process of evaluating risk through form completion,
- Relies on the sediment manager to accurately complete form & **attest to (certify)** compliance,
- Documents **all elements of self-implementation** process.

# Sediment - What is it made up of ?

- **soil, sand, road abrasives & deicers- (salts)**
- **leaves & trash & misc. stuff,**
- **leaks of gas and lubricants from vehicles,**
- **pieces flaking off cars,**
- **other solids carried in run-off.**



# Quality of Sediment Affects Its Potential Use

- nutrients – *soil amendment*,
- heavy metals – *limits use*,
- PAHs – *limits or prohibits use*,
- pesticides – *caution needed*,
- trash – *management required (screening)*,
- decomposing organic material – *management required*.

# Quality of Sediment Affects its Potential Use

**caution  
needed**

- pathogens - includes bacteria, viruses, protozoa etc. – *may require management such as incorporation into soil.*
- physical properties - % solids, % sand, % fines, % organic matter, pH, electrical conductivity – *may disqualify for use under NR 528.*

# NR 528: How the rule works

- **Category I - “Clean” sediment** by rule:
  - no sampling,
  - no environmental professional,
  - compliance with setbacks & performance stds.
- **Category II - “Clean” sediment criteria not met:**
  - sampling required,
  - environmental professional samples sediment & evaluates data,
  - ceiling levels not exceeded,
  - sediment use per NR 528.07.
- **Category III – Exceedance of ceiling level(s):**
  - dispose in **landfill**.
  - NR 528 **not applicable**.

# Sediment manager or environmental professional?

- **Sediment manager** (may be a “*lay*” person) but only if sediment is “**clean**” by rule - no sampling.
- **Sediment manager** must be an **environmental professional** if “clean” sediment criteria not met - sampling and data evaluation necessary.
- If sampling then the **certification form** must be **signed** by an environmental professional.

# Sediment sampling & evaluation

- **Indicator parameters** are as follows in lieu of a “laundry list”:
  - pH, organic fraction,
  - Nutrients – nitrogen, phosphorus... ,
  - Metals – arsenic, cadmium, lead ... ,
  - Fecal coliform.
- Historical land use and/or contamination may expand basic list.

# Data Interpretation

## Ceiling “drop dead” parameters

Environmental professional evaluates indicator parameter data to determine if:

- 1) any ceiling level exceeded:
  - If so, project may NOT proceed under NR 528.

&

- 2) one or more indicator parameters are present at “elevated levels”.
  - If so, additional sampling probably needed.

Total Arsenic

Total Cadmium

Total Chromium

Total Lead

pH

Electrical  
conductivity

# Use options for accumulated sediment

- **Landfill** – daily or final cover,
- **Small quantity,**
- **General fill,**
- **Confined fill,**
- **Landspreading,**
- **Dedicated sites,**
- **Other control authority** (WDOT, NR 135).

# Use options (disposal – not NR 528)

- Landfill disposal or use as **daily or final cover** – check w/ landfill for any specific requirements.



For all other use options NR 528 requires compliance with:

- Setbacks depending on proposed use,
- Performance standards:
  - A significant adverse impact on wetlands,
  - A taking of endangered or threatened species,
  - A detrimental effect on any surface water,
  - A detrimental effect on groundwater quality.

## Use options for accumulated sediment

**Small quantity**, coarse grained use - promotes regular, (< 100 cubic yds.) maintenance of forebays and inlets to structures.

# Use options

## General fill

Sediment deposited to improve a site by enhancing contours & drainage, filling depressions, stabilizing exposed borrow areas or similar disturbed sites.



# Use options

## Noise or visual impact reduction berms

Fill to construct berms to mitigate visual or noise impacts; also for aesthetic purposes.



# Use options for accumulated sediment

## **Confined fill** (minimal exposure to environment)

- geotechnical (sub-base under paved lots, or subgrade for building construction,
- bridge abutment,
- utility trench backfill,
- covered by an impervious surface such as concrete, asphalt, a building, etc.

# Use options for accumulated sediment

## Landspreading



- Site selection criteria – soil texture,
- Maximum application rates:
  - at any one time,
  - for life of site,
- Other site management issues (such as incorporation)
- Recordkeeping.

# Use options for accumulated sediment

- **Dedicated sites**

...**like landspreading** but more **flexible** because **control of site access, year-round availability & possible higher annual rates & cumulative application totals.**

# Sediment use options: Other permit or contract

- End use under other permit or WDOT contract that assures equivalent protectiveness:

Use in **transportation project** under WDOT control,



or **Mine reclamation.**



# Mine Reclamation

Use in accordance with a **reclamation permit**

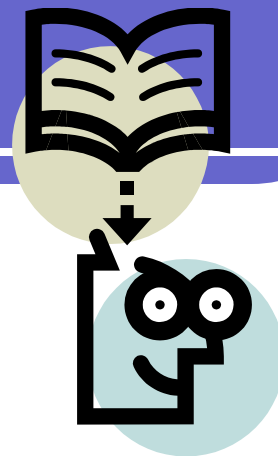
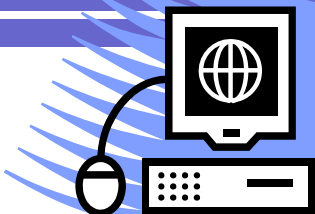


**Soil substitute material.**

A variety of materials, including compost, organic waste, sediment, etc. could be components of soil substitute material.

**Fill Material**

# On-line Tools



**On-line tools** for sediment managers & environmental professionals:

- NR 528 rule,
- Cert. form &
- Tech. Support Guide PUB-WA 1375



@ DNR SW site:

<http://dnr.wi.gov/org/aw/wm/solid/nr528/index.htm>

# Questions & Discussion:



**Any other ? ...contact us at:**

<http://dnr.wi.gov/org/aw/wm/solid/nr528/index.htm>