Best Management Practices for Municipal Road Projects

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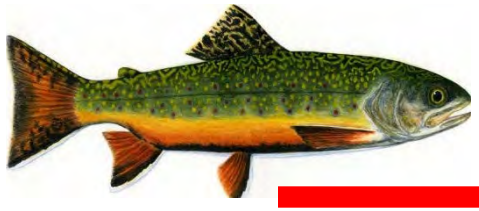
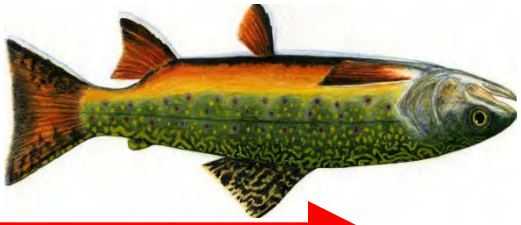
Best Management Practices = BMP's

Simple and cost-effective methods for protecting *water quality* in lakes, streams and wetlands **before**, **during** and **after** construction activities.

Why we use BMP's

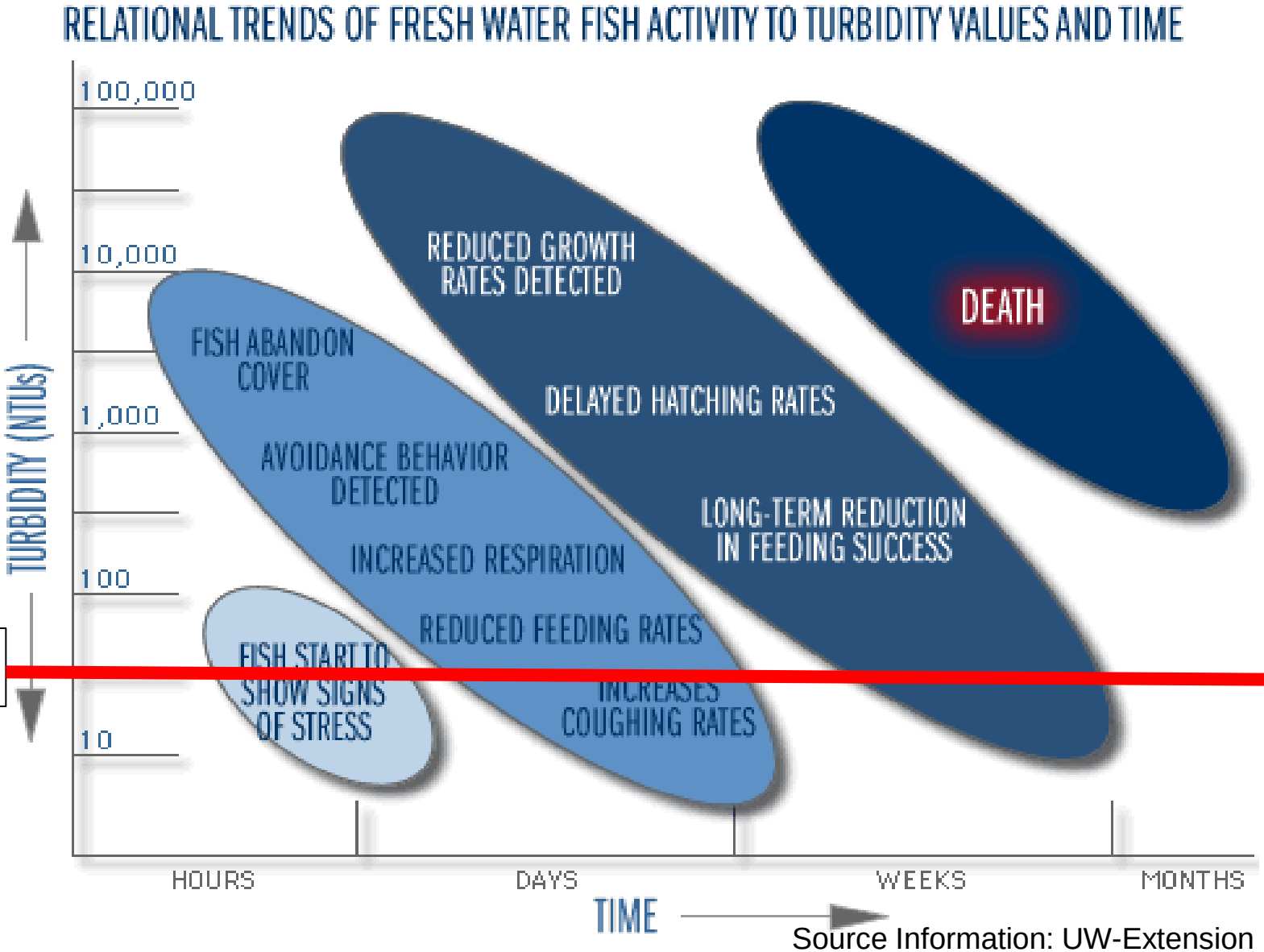
Turbidity of Suspended CLAY
in NTU's





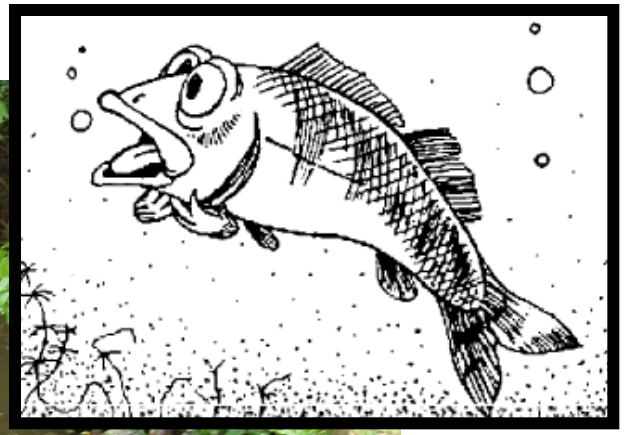
Why we use BMP's

50 NTU's



Source Information: UW-Extension

Why we use BMP's



Why we use BMP's

The Economic Impact of Recreational Trout Angling in the Driftless Area

- $1.1 Billion annual economic benefit to local economy
- $646,819,673 annual direct spending
- For every $1 spent on stream restoration an additional $24.50 is returned to regional economy each year

Trout Unlimited & NorthStar Economics, Inc. (2008)

Why we use BMP's

Canoeing and Angling in Southwestern Wisconsin (1999)

- $3.25 Million
- Supported 85 local jobs
- Management and Planning Considerations

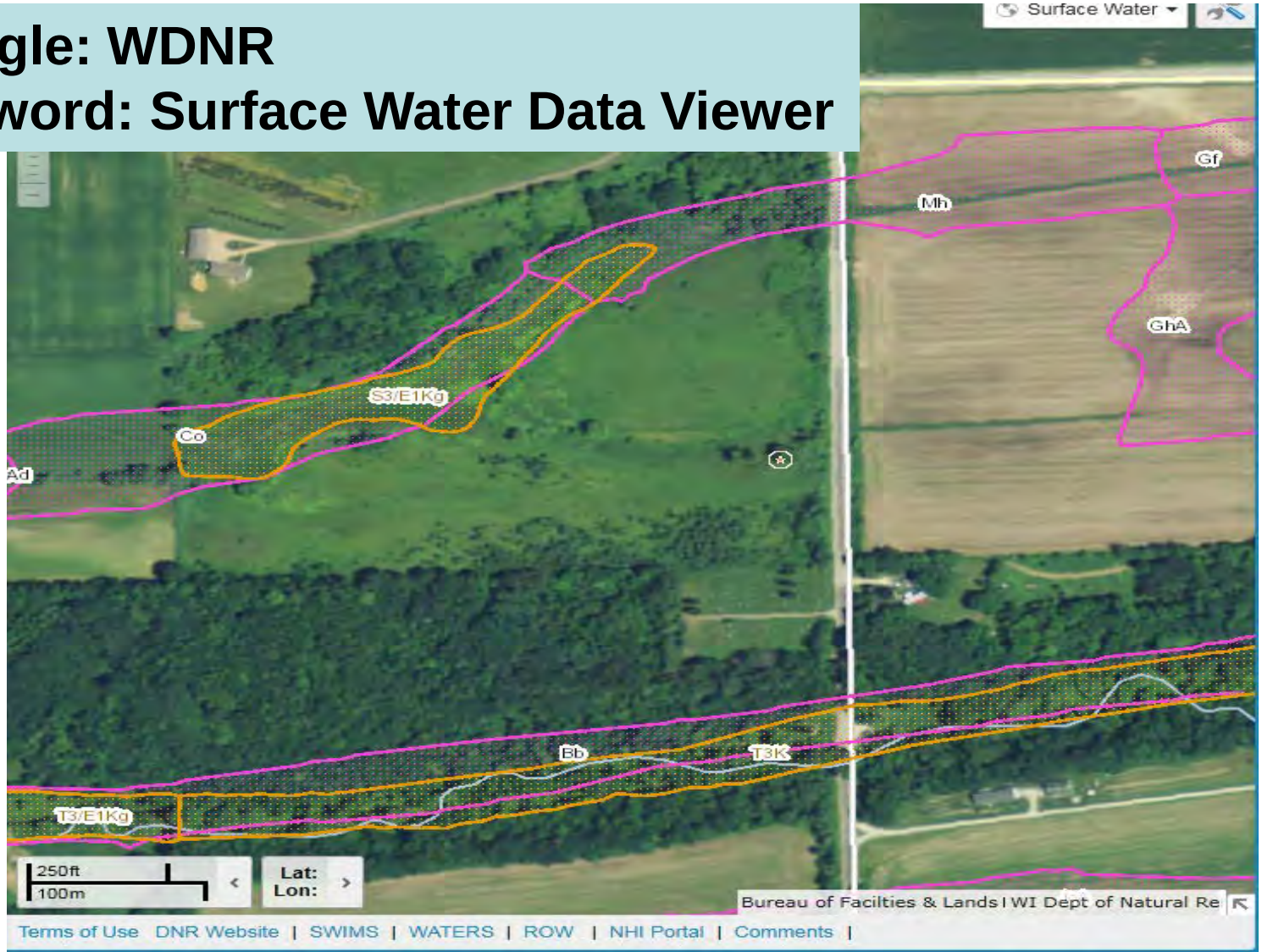
BMP's Before Construction

- Are there waterways? Wetlands? Check-in with DNR!
- Size road-stream crossings to fit waterway & road
- Follow in-stream restrictions protecting fish spawning and movement
- Prepare erosion control plan
- Initial erosion control installation prior to ground disturbance

BMP's Before Construction

Waterway or Wetland Present?

Google: WDNR
Keyword: Surface Water Data Viewer



BMP's Before Construction

Fitting Road-Stream Crossings

Longer Lifespan
Less Maintenance
More Resilient to Flooding

BMP's Before Construction

Fitting Road-Stream Crossings

After

Before

BMP's Before Construction

Fish Spawning & Movement

Northern Pike

Spawning Channel

March 1st through June 15th for all non-trout streams

BMP's Before Construction

Fish Spawning & Movement

Trout

September 15th through May 15th for all trout streams

BMP's Before Construction

Prepare an Erosion Control Plan

- Plan for BMP's that will protect the wetlands and waterway not impacted by the project
- Helps establish a budget
- Communicates expectations with the contractor
- Consider consulting with county or state road-building authorities

BMP's for Culverts

***See Handout

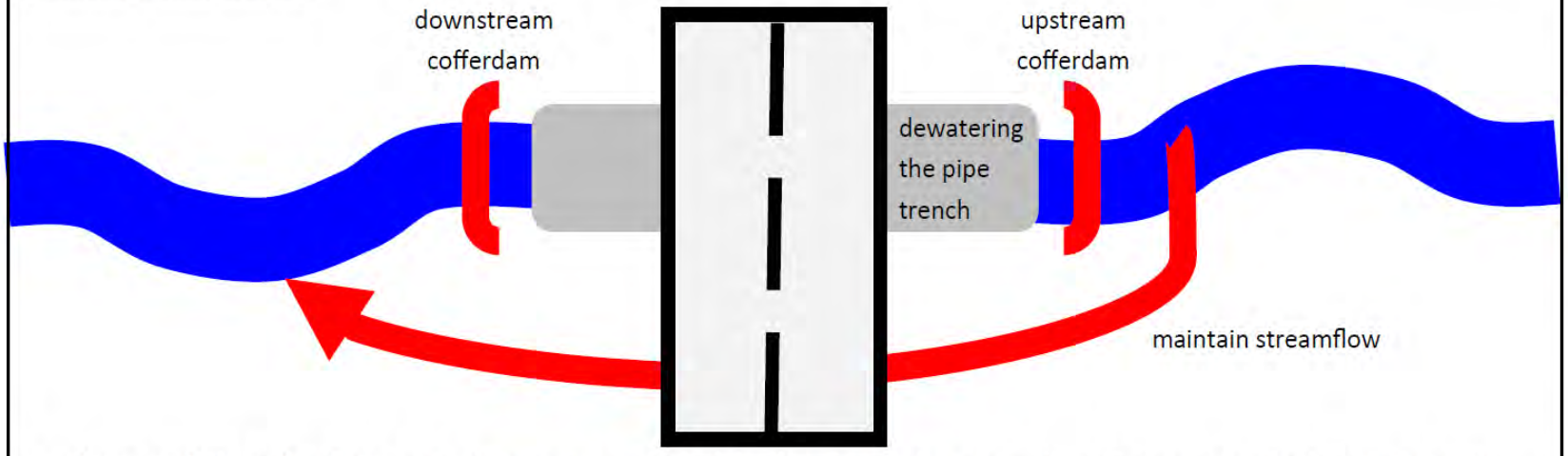
STREAM CULVERTS (NAVIGABLE WATERWAYS)—BEST MANAGEMENT PRACTICES (Sept. 2015)

The following example describes typical best management practices that are needed to protect water quality at culvert replacement projects.

WISCONSIN DEPT. OF NATURAL RESOURCES

BEFORE Construction: Devise an erosion control plan for the project site. Be sure the plans include stockpile protection. Further, be sure all stockpiles and borrow/waste sites are setback from waterways, wetlands, and floodplains. Begin to install erosion control items before any ground is disturbed. *Common methods include: construction site diversion, silt fence, ditch checks, vegetative buffers, inlet protection, sediment traps, and tracking pads.*

DURING Construction:



- **Non-erodible coffer dams** up and downstream to isolate the pipe during excavation. *Common methods include sand bags wrapped in plastic sheeting, other reinforced plastic sheeting, steel sheeting, and water bladder barrier*

BMP's Before Construction

Initial Erosion Control Installation

Construction Site Diversion

Silt Fence

Ditch Checks

Vegetative Buffers

Inlet Protection

Sediment Traps

Tracking Pads

For Detailed Technical Standards Visit:
http://dnr.wi.gov/topic/Stormwater/standards/const_standards.html

BMP's Before Construction

Initial Erosion Control For Bridges and Culverts

Silt Fence

BMP's Before Construction

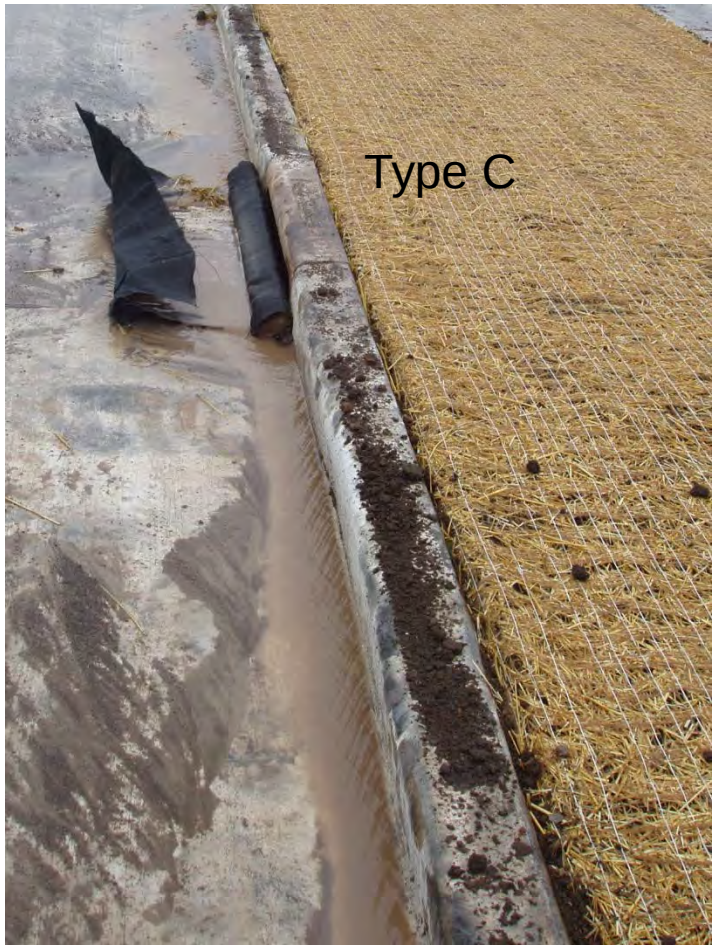
Initial Erosion Control For Bridges and Culverts

Ditch Checks

BMP's Before Construction

Initial Erosion Control For Bridges and Culverts

Inlet Protection

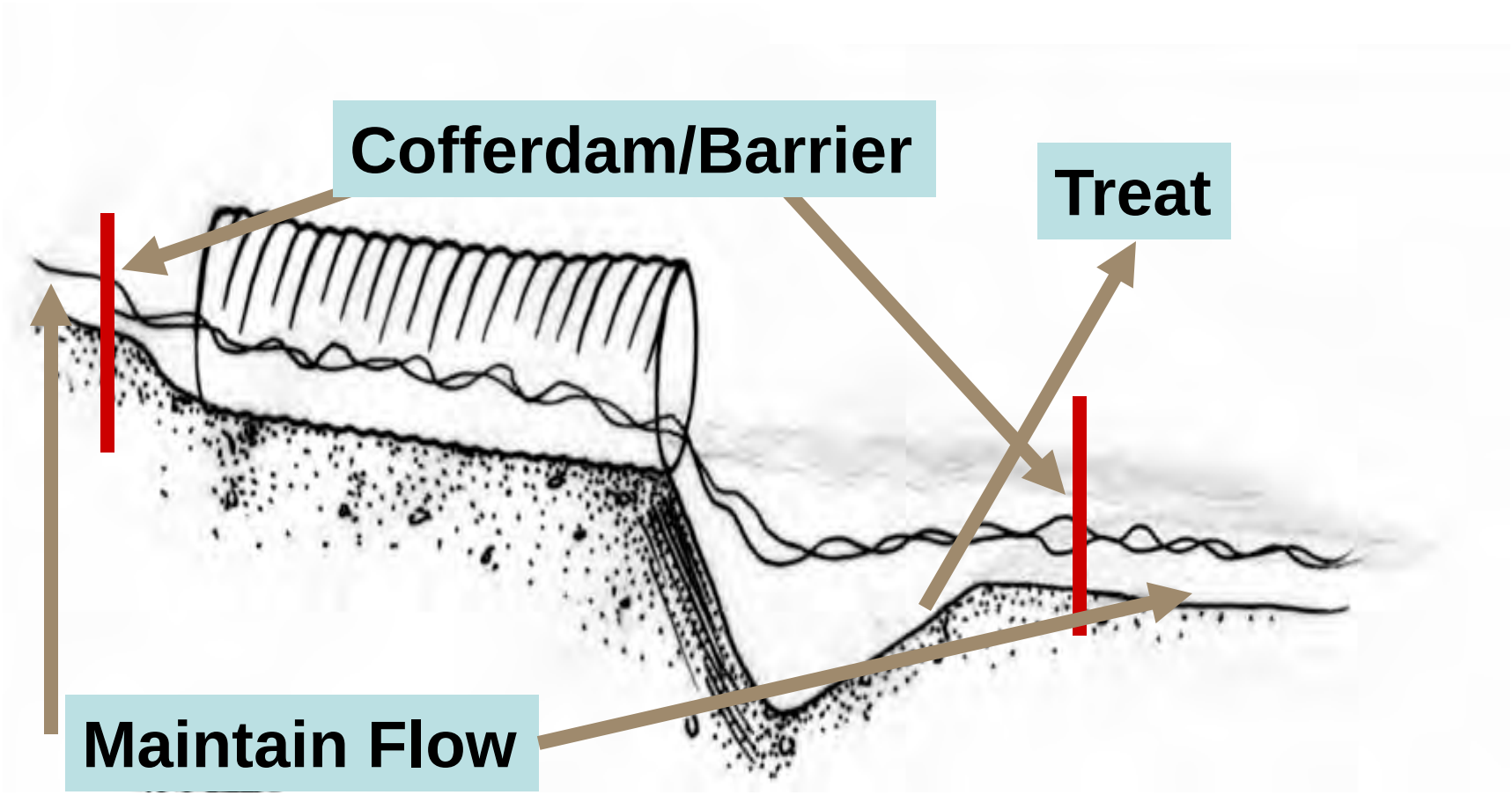


BMP's During Construction

- Non-erodible cofferdams/barriers to isolate work area
- Treat water from within the work area
- Maintain streamflow downstream

For Detailed Technical Standards Visit:
http://dnr.wi.gov/topic/Stormwater/standards/const_standards.html

BMP's During Construction



BMP's During Construction

Non-erodible Barriers

Isolating the Work Area

BMP's During Construction

Non-erodible Barriers

Isolating the Work Area

Turbidity Barrier

Coffer Dam

BMP's During Construction

Dewatering & Water Applied Polymers

Filtration Basins & Polymer

****See Dewatering Matrix & Approved Water Applied Polymer list*

BMP's During Construction

Dewatering & Water Applied Polymers

Filter Bag & Polymer

BMP's During Construction

Dewatering & Applied Polymers

BMP's During Construction

Maintaining Streamflow

Bypass Pumping & Channels

Intake Pump

Discharge

BMP's During Construction

Maintaining Streamflow

Bypass Pumping & Channels

BMP's After Construction

- Riprap
- Topsoil, Seed, Mat/Mulch
- Silt fence, fiber logs, etc.

For Detailed Technical Standards Visit:
http://dnr.wi.gov/topic/Stormwater/standards/const_standards.html

BMP's After Construction

Transitioning to Grading

BMP's After Construction

Riprap

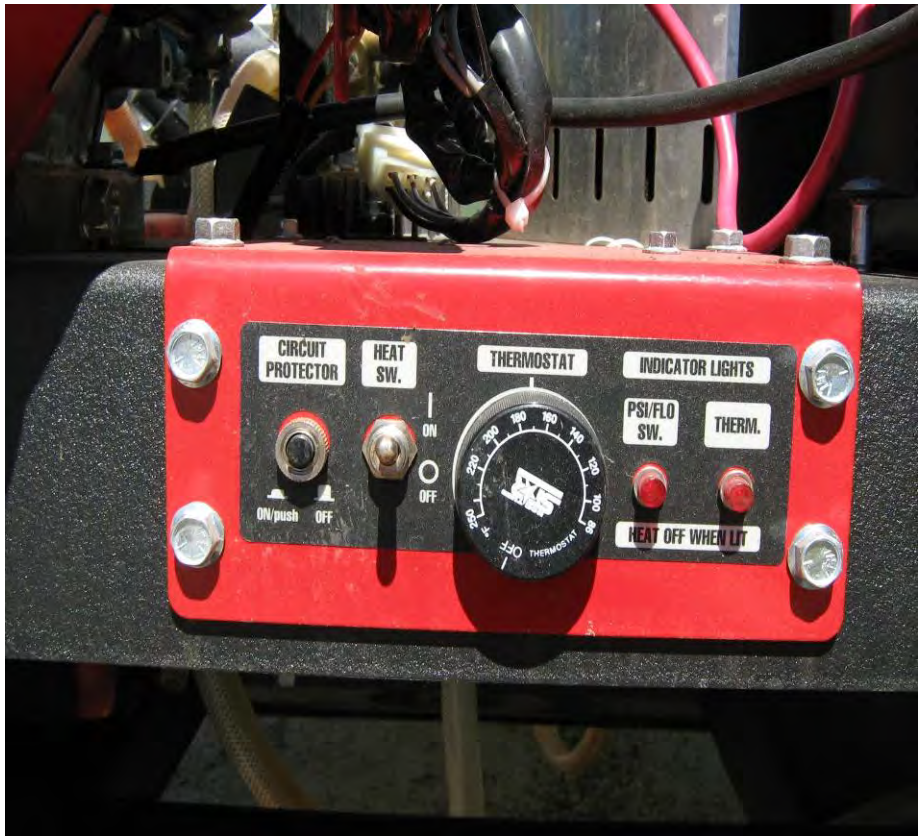
BMP's After Construction

Topsoil, Seed, and Mulch or Mat, & Silt Fence

****See Slope & Channel EC Control Matrices*

Other Considerations

Cleaning Equipment for Invasive Species



Other Considerations

Endangered Resources

Summary & Questions