

Post Construction for Linear Transportation Projects



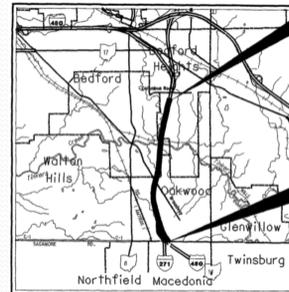
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Linear Transportation BMPs

- Linear Transportation Projects vs. Standard Land Development
 - Difficulty implementing BMPs listed in the Construction General Permit
 - R/W limitations (Eminent Domain)
 - Safety of the traveling public
 - Linear nature results in crossing multiple watersheds (centralized BMP impossible)



Dangers of Pounded Water



Multiple Watersheds Crossed

Linear Transportation BMPs

- ODOT and OEPA agreed that the following alternative BMPs can be used for linear transportation projects:
 - Manufactured System
 - Vegetated Biofilter
 - Exfiltration Trench



MEMORANDUM OF UNDERSTANDING
BETWEEN
OHIO DEPARTMENT OF TRANSPORTATION
AND
OHIO ENVIRONMENTAL PROTECTION AGENCY
FOR THE APPLICATION OF
OHIO EPA PERMIT NOS. OHC000002 AND OHC000003
"STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY"
AND
POST CONSTRUCTION STORM WATER MANAGEMENT REQUIREMENTS
WITHIN THESE PERMITS

Agreement Number: 15816

A. Purpose & Background:

- 1) This Memorandum of Understanding (MOU) is executed between the Ohio Department of Transportation (ODOT) and the Ohio Environmental Protection Agency (Ohio EPA) (the "Parties") concerning the application of Ohio EPA Permit Nos. OHC000002 and OHC000003 "Storm Water Discharges Associated with Construction Activity" (the "Permits") and post construction storm water management requirements within these permits.
- 2) This MOU is intended to structure a framework of cooperation in the exercise of each party's statutory authorities and the achievement of each party's regulatory responsibilities in order to ensure protection of the environment and the traveling public. The obligations of the Parties under this MOU are subject to section 126.07 and all other applicable provisions of the Ohio Revised Code.
- 3) This MOU is intended to meet the post construction storm water management requirements associated with ODOT projects with Notice of Intent (NOI) submissions dating from March 10, 2006 through July 31, 2009.

B. Parties:

- 1) It is recognized by Ohio EPA and ODOT that the respective enabling legislation and statutory authorities empower each party to act in accordance with such authorities on behalf of the environment.
- 2) Ohio EPA has authority to enter into this MOU pursuant to O.R.C. section 3745.01 (C). ODOT has authority to enter into this MOU pursuant to O.R.C. section 5501.03.

Linear Transportation BMPs

- Ohio EPA Construction General Permit for Storm Water Discharge (OHC000003)
 - Part III.G.2.e – Post-Construction Storm Water Management Requirements
 - Transportation Projects – ODOT L&D Volume 2
 - “The construction of new roads and roadway improvement projects by public entities (i.e., the state, counties, townships, cities, or villages) may implement post-construction BMPs in compliance with the current version (as of the effective date of this permit) of the Ohio Department of Transportation’s “Location and Design Manual, Volume Two Drainage Design” that has been accepted by Ohio EPA as an alternative to the conditions of this permit. “



<http://www.dot.state.oh.us/Divisions/ProdMgt/Production/bmp/Pages/PostConstructionBMP.aspx>



Design Requirements

- ODOT Location & Design, Volume 2
 - Project Thresholds
 - Earth Disturbed Area (EDA > 1 acre)
 - Routine Maintenance Projects are exempt
 - Projects that do not change original line, grade and hydraulic capacity of the facility (i.e. resurfacing)
 - EDA < 5 acres

Stream Protection vs WQ treatment

Large Site >5 acres EDA
 BMP's treat quality and quantity

- Storm Basins designed for WQv and release rates
- Bioretention Basin/Cell
- Infiltration Trench
- Constructed Wetlands
- Exfiltration Trench

Smaller Sites <5 acres EDA
 BMP's treat only quality

- Manufactured Systems
- Vegetated Biofilter

Design Requirements

- New Construction
 - New construction projects allow for a reduction of treatment based on the weighted average of existing vs. new impervious area in a drainage area or for a project (Treatment Percent)



A brand new alignment project would require 100% treatment

$$T = [(A_{ix} * 0.20) + (A_{in} * 1.00)] / (A_{ix} + A_{in})$$

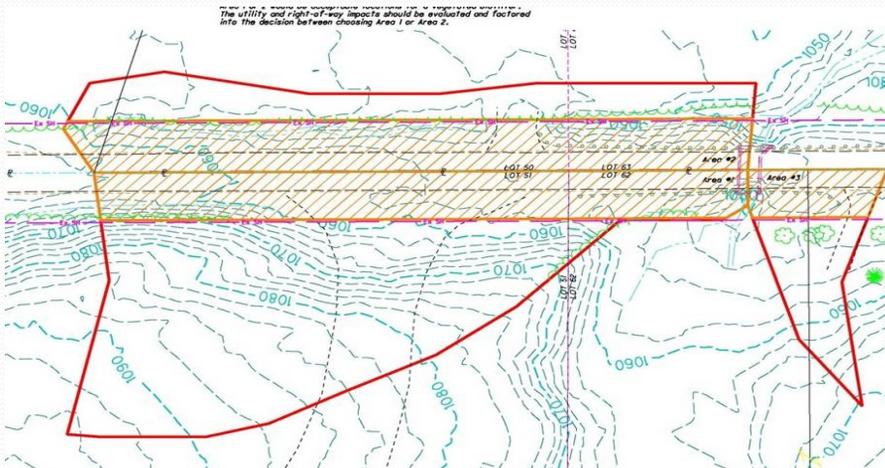
Weighted Average Calculation to determine percent treatment for Improvement Projects

T = Percent Treatment

A_{ix} = Existing impervious area (acres)

A_{in} = New Impervious area (acres)

Mitigation at 1.5*(treatment area required) is an additional option





Detention Basin



Exfiltration Trench



Manufactured System



Vegetated Biofilter

Water Quality Impoundments

treats quantity and quality



Dry Extended Detention Basin



Wet Pond - Solids Settling

Wetlands



Bioretention



Bio-filter (Vegetated Ditch Design)

EBW = Enhanced Bankfull Width

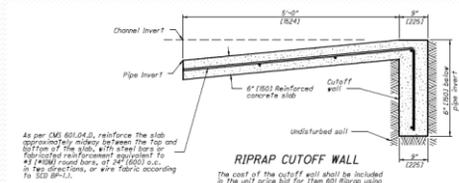
$$EBW = 5.4A^{0.356}$$

A=Total Contributing Drainage Acres to the ditch. Work from the out upstream



Design Requirements

- Water Quantity alternative options:
 - Stream Protection based on culvert/bridge design
 - Grade Controls for bridges and culverts
 - L&D Volume 2, Section 1115.2 provides additional information for culvert design options that provide water quantity credit (i.e. concrete aprons, bankfull design)

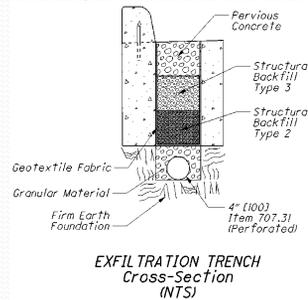


OEPA considers cutoff walls at culverts as a grade control

Linear Transportation BMPs

treats quantity and quality

- Exfiltration Trench – Item 835
 - Pervious concrete layer at top allowing water to enter a 12 inch layer of filter material
- Standard Construction Drawing: WQ-1.3

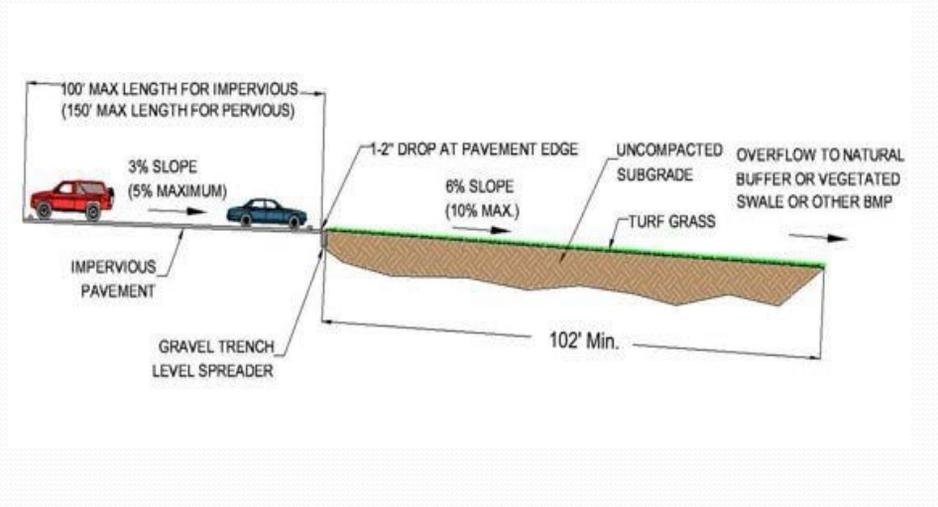


Hydrodynamic Separators (only treats quality)

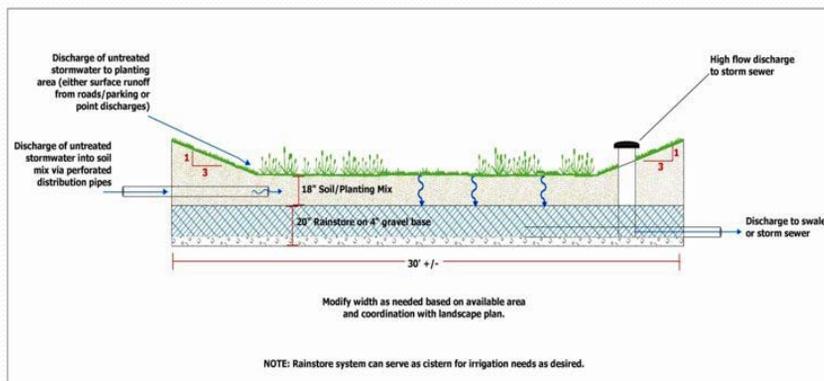


- Not preferred by EPA, but approved by ODOT (SS-995)
- Still an available option for small sites less than 5 acres
- Can be used on larger sites tributary to 4th Order streams or Ultra-Urban areas

Vegetative Slope Treatment



Enhanced Swales



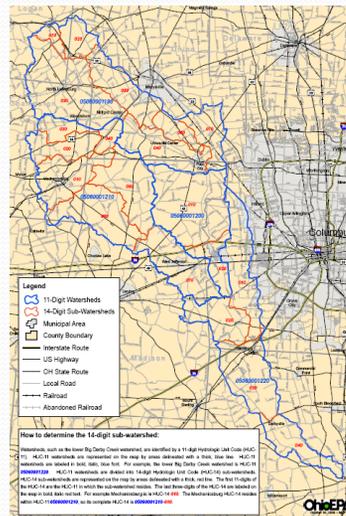
Maintenance Responsibilities

- Maintenance Issues
 - Where are the BMPs? ODOT is developing an inventory of post-construction BMPs on ODOT roadways
 - Training of ODOT staff (County Managers) on maintenance procedures
 - OEPA can audit MS4's.



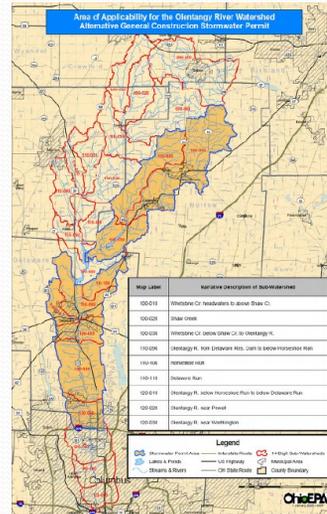
Watershed Specific Permits

- Big Darby
 - Counties affected: Logan, Champaign, Clark, Union, Madison, Franklin, Pickaway
 - Effective Date: October 27, 2006
 - Riparian Setback and Groundwater Mitigation
 - Sediment Pond size: 134 CY/Ac of drainage
 - Total Suspended Solids testing
 - 45 mg/l TSS performance required



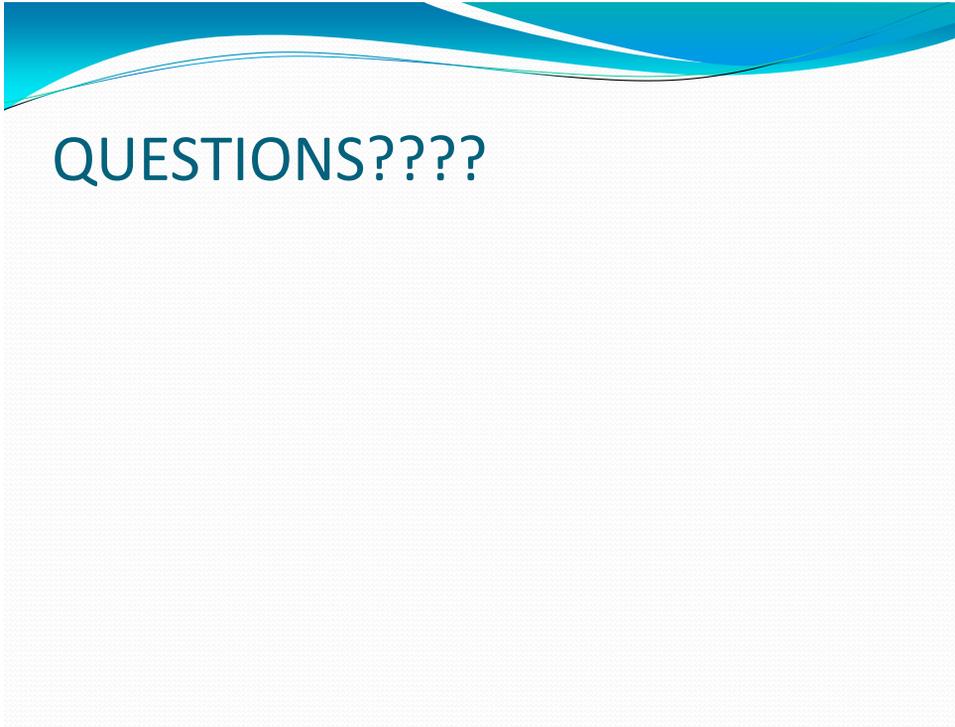
Watershed Specific Permits

- Olentangy
 - Counties affected: Morrow, Marion, Delaware, Franklin
 - Issued: January 23, 2009
 - Effective Date: April 8, 2009
 - Riparian Setback Mitigation
 - Sediment Pond size: Same as Standard CGP



Watershed Specific Permits

- Ohio EPA Requirements
 - Submittal of SWPPP with NOI application
 - ODOT submits temporary sediment basin locations, post-construction BMP locations, and mitigation calculations. Contractor completes remainder of SWPPP when project is awarded.
 - 45-day review period (standard CGP is 21 day review)



QUESTIONS????