



**Environmental  
Protection Agency**

Ted Strickland, Governor  
Lee Fisher, Lt. Governor  
Chris Korieski, Director

October 22, 2010

RE: Wayne County  
Upper Muskingum River Watershed  
Baughman Township  
BAU-TR-299-1.39 (Huprick Rd.)

Mr. Roger K. Terrill  
Wayne County Engineer  
3151 West Old Lincoln Way  
Wooster, OH 44691

Baughman Township Trustees  
c/o Carolyn S. Baer, Clerk  
Baughman Twp.  
6669 Coal Bank Rd.  
Marshallville, OH 44645

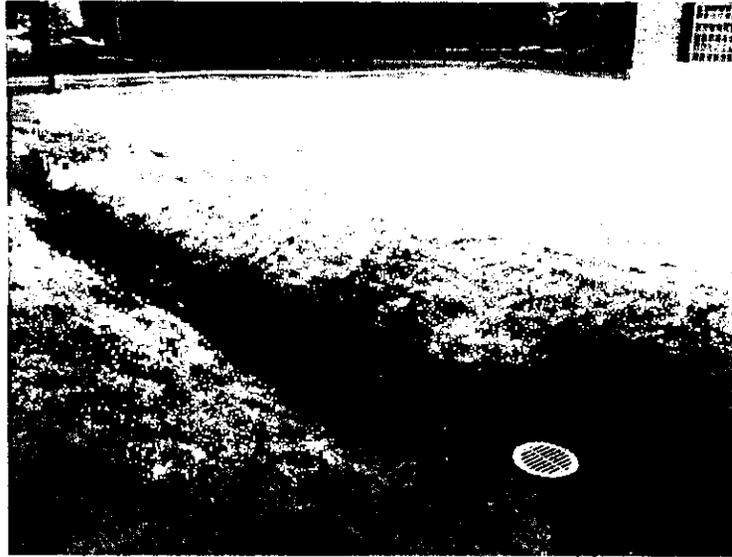
Mr. David Robinson  
Terra Valley Excavating  
P.O. Box 325  
Bellville, OH 44813

Dear Mr. Terrill, Ms. Baer and Mr. Robinson:

Ohio EPA is in receipt of your response letter dated October 1, 2010, to our site inspection conducted on September 2, 2010. We appreciate your timely response to the sediment and erosion control concerns noted during our inspection. Your response to these matters appears to be adequate. However, please be aware that your response regarding post-construction storm water best management practices **does not comply** with the requirements of the Ohio EPA General Storm Water National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities #3GC04796\*AG.

Your response indicates that grassed swales and rock rip-rap are the post-construction BMPs for this project. Please be aware that these are not water quality post-construction BMPs as intended by Part III.G.2.e of the NPDES permit. Post-construction BMPs are permanent storm water practices that infiltrate, filter or settle pollutants from runoff and control its discharge rate so as to prevent chemical, biological and hydrologic impacts to the receiving stream. Ohio EPA accepts enhanced water quality swales and vegetated biofilters as post-construction BMPs, but the ordinary grassed swales constructed for this project are inadequate to meet the post-construction requirements of the NPDES permit.

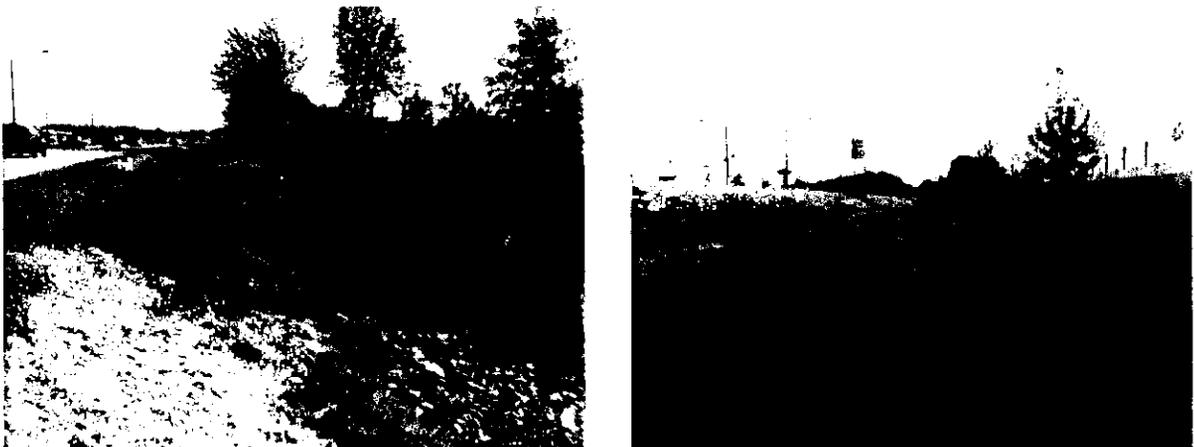
Enhanced water quality swales can be either dry or wet, depending on site and soil conditions. Dry enhanced water quality swales are 2 to 8 feet wide, constructed using an engineered (bioretention) soil mix that promotes infiltration and are designed so that the Water Quality Volume (WQv) must pass through the engineered soil mix before it can enter the storm water drainage system. The surface area of engineered soils is calculated based on the WQv and a 24 hour drain time. These can be thought about as grassed linear bioretention cells.



**Fig 1.** Dry Enhanced Swale, Third Federal Savings Bank, North Olmsted, OH

Wet enhanced swales are typically used where groundwater tables are high and would intersect the bottom of the swale. These swales are designed to have a permanent wet pool no deeper than 12 inches and contain a weir or outlet structure that drains the WQv over a 24-hour time period. These can be thought about as linear constructed wetlands. These are less common than dry swales due to negative perceptions regarding wetlands, however, the Cuyahoga County Engineer has recently elected to use this BMP along Fitch Road in Olmsted Township in a residential area. This project will start construction soon. I have enclosed guidance on the both wet and dry enhanced swales developed by the Lake County Storm Water Management Department.

Vegetated Biofilters are swales designed to provide shallow flow depths for the Water Quality Flow (WQ<sub>f</sub>). This BMP works in conjunction with a vegetated side slope. Ohio EPA has conditionally approved this BMP for use on public roadway projects pending research being conducted by Ohio University. Design specifications for these swales can be found in the Ohio Department of Transportation ***Location and Design Manual Volume 2.***



**Fig 2.** Vegetated Biofilters, SR 57, Elyria, OH

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Another BMP you may wish to consider is the bioretention cell. A bioretention cell is similar to the dry enhanced swale except that they add biological uptake of pollutants by plant material. As shown in the photograph below, they can be built around catch basins in roadway applications or used in conjunction with dry enhanced swales. Specifications for their design can be found in *Rainwater and Land Development* (Ohio Department of Natural Resources, 2006).



**Fig 3.** Bioretention cell and dry enhanced swale on Sterncrest Road, Orange Village, OH.

Please amend the post-construction BMP plan for this project so that it complies with the NPDES permit and install the selected post-construction practices on the BAU-TR 299-1.39 (Huprick Rd.) site. The amended SWP3 must be submitted to me **no later than November 8, 2010**. Your response must also indicate the date by when you expect to install these practices at the site.

If you have any questions, please contact me at (330) 963-1145.

Sincerely,

Dan Bogoevski  
District Engineer  
Division of Surface Water

DB/mt

cc: Rob Kastner, Wayne SWCD  
Keith Amstutz, Project Engineer, Shaffer Johnston Lichtenwalter & Associates Inc.