

1. TMDL REQUIREMENTS

Summary of Sediment TMDL Results*

This section illustrates the portion of the 'Waste Load', that is ostensibly the 'Point Sources' (end of pipe) that the 'Clean Water Act' (CWA) allows the EPA to 'Allocate' to Permit Holders, including Municipalities and WWTP Authorities. The 'Load Allocation' is, ostensibly again, that portion, usually 'Non-point Sources', of pollutants that are not to be allocated to Permit Holders but managed under the "Clean Water Act" by different mechanisms.

TMDL.....	39,320,019 lbs./yr.
Wasteload Allocation (WLA) (for All MS4s).....	35,388,017 lbs./yr.
Load Allocation (LA).....	0 lb./yr.
MOS (Margin of Safety).....	3,932,002 lbs./yr.
Of the 35,388,017 lbs./yr. The Study allocated to Franconia Township.....	2,728,310 lbs./yr.
The Study found the current Franconia Township Sediment Load.....	<u>3,329,329 lbs./yr.</u>
Gross TMDL Sediment Load Reduction.....	<u>601,019 lbs./yr.</u> (18%)

2. TMDL REQUIREMENTS NET OF REDUCTIONS (PARSING)

The September 14, 2012 'Notice of Intent' (NOI) Application for NPDES Coverage as an Individual Permit, under the CWA, included a required 'Strategy' for reduction of Allocated Pollutants (WLA) to Franconia Township, required as part of the supporting application. This 'Strategy' includes a determination, as outlined in the EPA study, of what portion of the Gross TMDL Sediment Load Reduction the MS4, Franconia Township, is responsible for addressing, as opposed to that portion 'LA' that the CWA does not require thereof by the Municipality.

Computations Parsing Non-point from WLA to LA (Per DEP Instructions)

From the 2012 'Strategy'...“Non-point sources are diffuse, non-permitted sources that typically cannot be identified as entering a water body at a single location.” (*pg. 20)...“As explained in Section 3.3.3, once a municipality delineates its MS4 area, the sediment loads associated with nonpoint sources may be parsed out of the WLA and moved under the LA portion of the TMDL.” (*pg. 44).

Total Franconia Twp. Skippack Ck. Watershed Acreage.....	3,885 Acres	
Exempt Direct Agricultural Discharge.....	939 Acres	24.17 %
Agricultural Discharge to MS4 System*.....	203 Acres	5.23 %
PADOT Highway Intercepted Drainage Areas.....	433 Acres	11.15 %
Non-regulated areas, direct discharge and private.....	1,774 Acres	45.65 %
MS4 System Watershed (minus agriculture*).....	536 Acres	<u>13.80 %</u>
		100.00%

* The Amount of Watershed Area that is Agricultural that DEP requires the MS4 to assume as its responsibility, though exempt under the Clean Water Act, by virtue of being intercepted by the Township roadway or drainage system.

Franconia Township Skippack Creek Sediment Load Reduction (Parsing) Analysis:

Total Sediment Load Allocated to Franconia.....	601,019 lbs./yr.
Agriculture & PADOT Drainage Areas	0.3532 x 601,019 lbs./yr. = - 212,280
Non-Regulated Parsed	0.4565 x 601,019 lbs./yr. = - 274,365
Add Area G Ag & Non-reg. (324 Acres)	0.0834 x 601,019 lbs./yr. = <u>+ 50,125</u>
Net Required Franconia Sediment Reduction.....	164,499 lbs./yr.

Required Reduction for Point Source Dischargers in Skippack Watershed:

As explained in the DEP Instructions for TMDL Plans in attachment 'A', #14 states that a Municipal MS4 is not responsible for stormwater discharged by an industrial facility if this facility has NPDES permit coverage already and discharges directly to waters of the Commonwealth. Therefore, from the TMDL for Skippack Creek, Souderton Sewage Treatment Plant (STP) and Moyer Meat Packing (now known as JBS) are located within the MS4 System Watershed and is a NPDES permitted discharger to Skippack Creek. Table 10 in the TMDL outlines the flows to the receiving water body, Skippack Creek. Also, the Franconia Sewer Authority WWTP (FSA) was built after 2005 when the TMDL was established. Souderton STP, JBS and FSA facilities have NPDES permits and discharges directly to the Skippack Creek.

	Flow (MGD)	Allowable Total Suspended Solids (ppm)	Total Suspended Solids (lbs./yr.)
Souderton STP	2	15	91,334
JBS	0.75	15	34,250
FSA	0.15	10	4,567

Net Required Franconia Sediment Reduction.....	164,499 lbs./yr.
Net TSS Reduction.....	<u>130,151 lbs./yr.</u>

Total Net Required Franconia Sediment Reduction.....34,348 lbs./yr.

3. TMDL REQUIREMENTS (RECOMMENDED POLLUTION REDUCTION SCHEMES – BMPS)

MS4 TMDL Plan Control Measures selected by Franconia Township (Sept. 14, 2012 Strategy) as most appropriate for the existing and future land use, Township resources, and integration with other pertinent Township development and preservation objectives are:

Control Measures 1 – Establish and Protect Riparian Forest Buffers.

Control Measures 3 – Tree Plantings (for reforestation).

Control Measure 4 – Construction/Infiltration Facilities.

Control Measure 6 – Restore Stream Banks.

Control Measure 8 – Establish and implement additional provisions to address TMDLs will be incorporated within the Township Code.

Control Measure 9 – Trading or Offset Program is part of the strategy for future permit terms as the 'Stormwater Offset' Guidance may allow the Township to incorporate Control Measures on private property by conservation easement in conjunction with a farmer's agricultural best management practices or developers design when in excess of Chapter 102 requirements.

Those BMPs chosen for this updated 'Strategy' as listed below are focused for application in Study Areas where the Township owns substantial open space or has access by other means. Additionally, those that could be installed and maintained by the Public Works Staff, as a measure of cost effectiveness, were preferred. Many BMPs otherwise suitable in Urban Areas may not be cost effective in Franconia's semi-rural environment and were not considered.

In this updated 'Strategy', this report provides illustrations for one (1) Study Area, Franconia Sewer Authority Property & Easements, as the best location for initial, and possibly full, implementation of Pollution Reduction BMPs to accomplish NPDES MS4 Permit compliance consistent with EPA Skippack Creek Sediment TMDL of April 8, 2005.

Franconia Sewer Authority Properties & Easements (FSA)

The following listings are those proposed areas for application of the defined BMPs and illustrated on an accompanying map exhibit. Many others might be considered, but these are judged as most economical and suitable for the Township owned parcels in conjunction with uses by the residents.

SBS-1	Stream Bank Stabilization (495 L.F.)	<u>61,380 lbs.</u>
Total Proposed Sediment Reduction		61,380 lbs.

Or Alternate:

FPR-1	Stream & Floodplain Restoration	<u>45,126 lbs.</u>
Alternate Total Proposed Sediment Reduction.....		45,126 lbs

Recommended Implementation Schedule:

Permit Cycle March 2018 – March 2023

SBS-1	Stream Bank Stabilization (495 L.F.)	61,380 lbs.
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Note: If alternate is required in place of the stream bank stabilization then, implementation schedule will span two (2) permit cycles from March 2018 to March 2028.

Total Proposed Sediment Reduction 61,380 lbs.

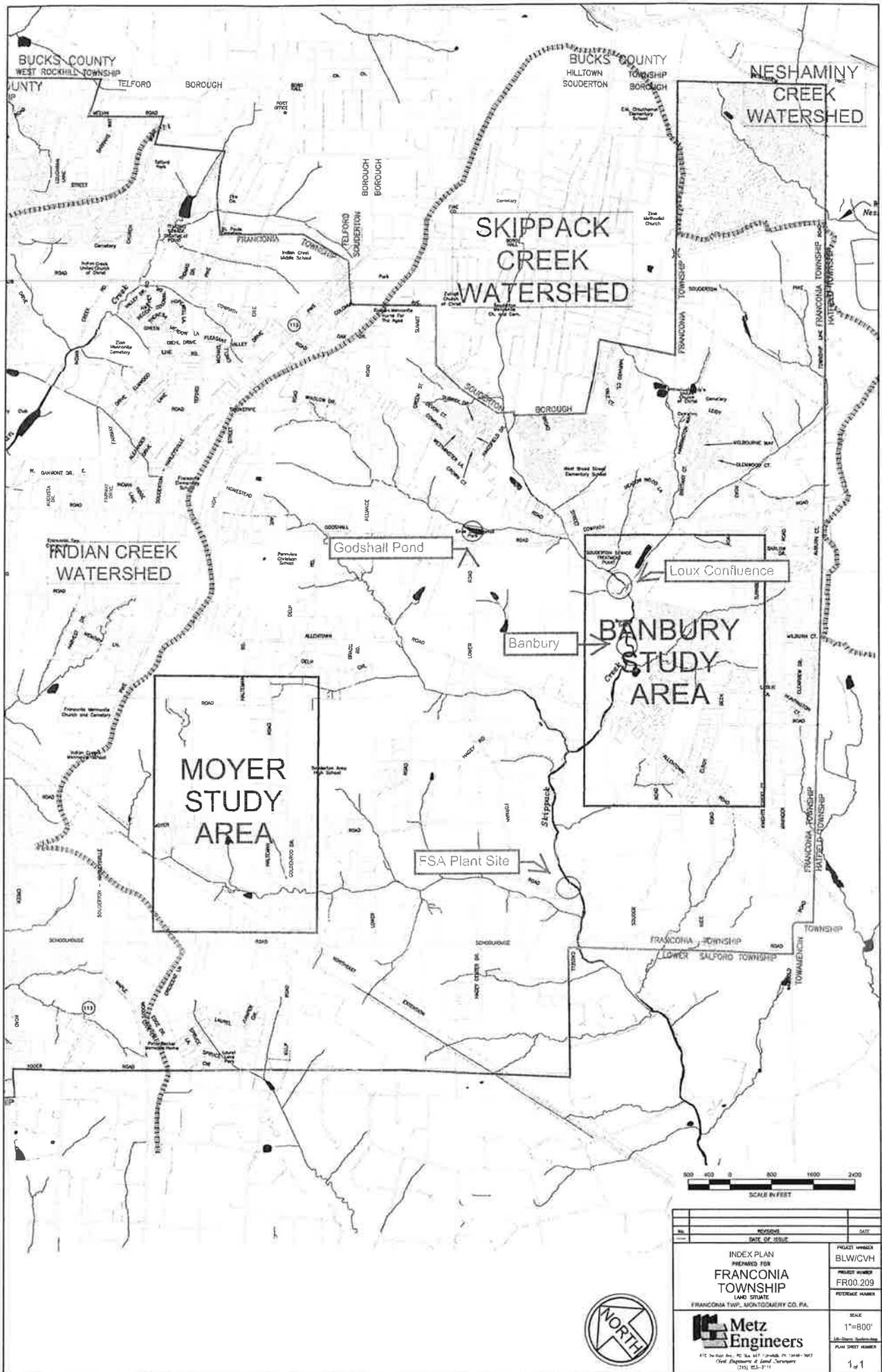
Skippack Creek Watershed TMDL

Planning Level Unit Cost Development for Stormwater Best Management Practices (BMPs)

FSA Foran Road WWTP Collection Line Stormwater BMPs

BMP I.D.	Stormwater BMP	BMP #	BMP Rate lbs/unit	BMP Quantity	Units	Reduction in Emissions Removed Sediment	Costs					
							Initial Estimates			Lifetime Costs		
							Unit Cost	Initial Cost	Unit Cost	Average Annual Maintenance Cost	Total (Over 20 Years)	Annual Costs (Over 20 years)
	Impervious Urban Surface Reduction											
	Landscape Restore - Forest from Agriculture											
	Landscape Restore - Forest from Turf											
	Forest Buffers											
	Grass Buffers											
	Urban Tree Planing											
	Wet Ponds and Wetlands (New)											
	Wet Ponds and Wetlands (Retrofit)											
	Dry Detention Ponds (New)											
	Hydrodynamic Structures (New)											
	Dry Extended Detention Ponds (New)											
	Dry Extended Detention Ponds (Retrofit)											
	Infiltration Practices w/o Sand,Veg. (New)											
	Infiltration Practices w/ Sand,Veg. (New)											
	Filtering Practices (Sand, above ground)											
	Filtering Practices (Sand, below ground)											
	Erosion and Sediemtn Control											
	Urban Nutrient System											
	Street Sweeping											
SBS-1	Stream Restoration		124	495	LF	61,380	\$80	\$39,600	\$0.65			
FPR-1	Stream & Floodplain Restoration	6.7.4	32700	1.38	Acre	45,126	\$75,000	\$103,500	\$2.29			
	Stream & Floodplain Restoration											
	Stream Bank Stabilization											
	Bioretention (New-Suburban)											
	Bioretention (Retrofit-Highly Urban)											
	Vegetated Open Channels											
	Bioswale (New)											
	Permeable Pavement w/o Base Drain (New)											
	Permeable Pavement w/ Base Drain (New)											

Overall reduction for all Stormwater BMPs	106,506	
GOAL	Total Lbs	



NO. _____	REVISION _____	DATE _____
DATE OF ISSUE _____		
INDEX PLAN PREPARED FOR FRANCONIA TOWNSHIP LAND SITUATE FRANCONIA TWP., MONTGOMERY CO., PA.		PROJECT NUMBER BLW/CVH PROJECT NUMBER FR00.209 REFERENCE NUMBER
 Metz Engineers 412 North Ave., P.O. Box 947, Conshohocken, PA 19380-0947 Civil, Geotechnical & Land Surveying (215) 953-7111		SCALE 1"=800' PLAN SHEET NUMBER 1 of 1



8-18-15