

PROJECT NAME:	OPG-213 Pipe Repair and Stabilization	DATE:	12/14/07
ADDRESS/BLOCK & LOT	Union Township Block 15, Lot 55, ROW – 23 Baptist Church Road		
FACILITY TYPE:	Existing Stormwater Discharge	PRIORITY:	>6

1. ISSUES AND CONCERNS:

This stormwater outfall serves a portion of Baptist Church Road in Union Township. It appears that stormwater from the outfall has caused significant erosion and sediment deposition at the outfall. There are no water quality or quantity controls for the stormwater discharge. However, stormwater is conveyed to the stream through a series of channels and low-lying swamp areas. In this regard, pollutants are removed and stormwater is treated before reaching the Mulhockaway Creek. The erosion at the outfall is nevertheless contributing sediment and pollutant loads into the watershed and should be stabilized.

2. EXISTING CONDITION BASED ON FIELD EVALUATION:

The existing discharge drains a portion of Baptist Church Road located near the headwaters of the watershed. In the area, steep slopes are prone to severe erosion from concentrated flows of water. With the original stormwater management approach, runoff is collected in the roadway and discharged through a single pipe outlet. Severe erosion and sediment deposition was observed at the pipe outfall. The last section of pipe has fallen due to undercutting of the soil and is has become partially blocked with sediment. The existing outfall is located approximately 850 feet from Mulhockaway Creek. The outfall is unstable, in poor condition, and contributes to erosion and suspended sediment loads to the Mulhockaway Creek Watershed.

3. PROPOSED SOLUTIONS:

There is little area on the lot to construct a stormwater BMP that would treat the runoff from Baptist Church Road. However, the existing outfall should be repaired to provide a stable outlet that conveys runoff without causing erosion. Based on the site conditions, the most effective approach to the repair and stabilization would be with the installation of a drop manhole structure to dissipate energy and decrease runoff velocities. The existing broken pipe would be replaced by a drop manhole structure that discharges to a scour hole. The scour hole creates a stable outlet for high runoff velocities and traps sediment before being discharged.

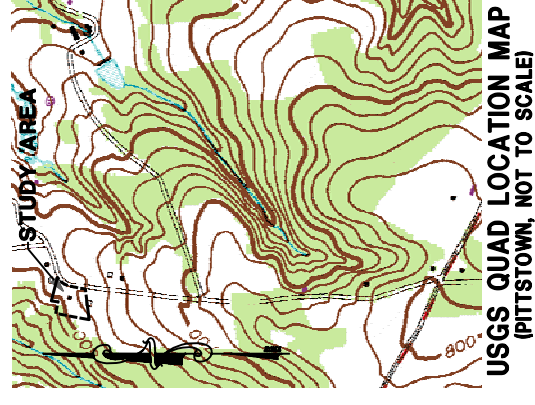
4. ANTICIPATED BENEFITS:

The drop manhole structure and scour hole system provides a simple cost-effective repair approach at this location. Erosion caused by high runoff flows and velocities was evident at the outfall. The drop manhole structure would dissipate the energy and decrease runoff velocities. The scour hole would further slow runoff velocities, trap sediment, and protect the surrounding soils. The trapped sediment would then be removed from the scour during routine maintenance activities. Additionally, with the Creek located over 800 feet from the discharge, the reduced velocity of overland flow will provide additional pollutant removal. The installation of these facilities would reduce sediment loads from both roadway runoff and eroded soil.

5. MAJOR IMPLEMENTATION ISSUES:

The owner of Lot 54 in Block 15 will need to endorse the project and allow Union Township to maintain the stormwater BMP by routinely removing sediment accumulated in the scour hole. One of the most important components of implementing stormwater retrofits is to ensure that routine maintenance is provided and the systems function as they are designed.

TASK	DESCRIPTION	ESTIMATED COSTS
1	Prepare concept plan and present to Property Owner	\$2,000.00
2	Conduct review with Hunterdon SCD. Prepare final design and planting plans.	\$5,000.00
3	Prepare construction documents and solicit quotes from contractors.	\$2,000.00
4	Install stormwater BMP retrofits	
	QUANTITY UNITS UNIT PRICE	
	Mobilization/Erosion Control 1 LS \$ 5,000.00	\$5,000.00
	Outlet and Piping Repair 1 SF \$ 7,500.00	\$15,000.00
	Closeout/Contingency (20%) 1 Percent \$ 4,000.00	\$4,000.00
	Total Construction Cost	\$24,000.00
		TOTAL COST: \$33,000.00
		ANNUAL O&M COST: \$500.00



LEGEND

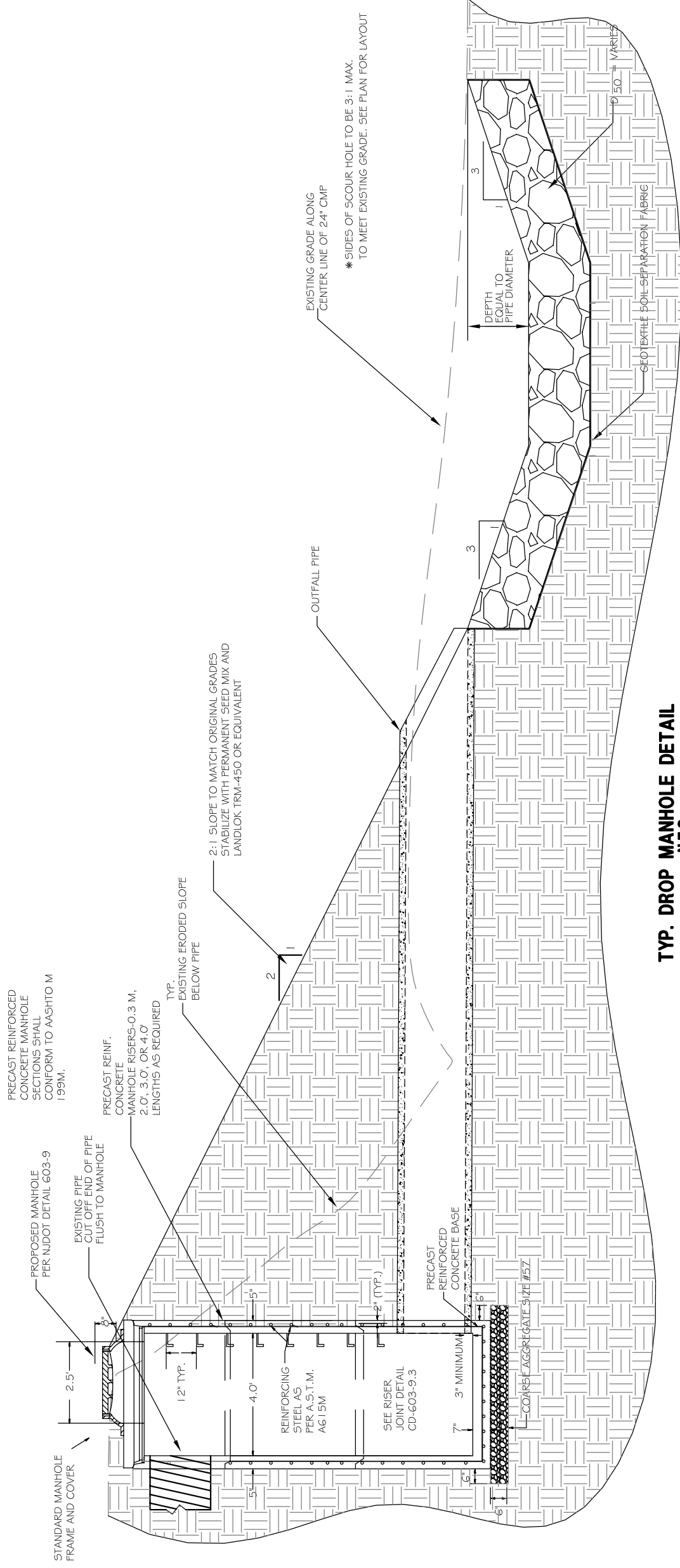
-  STREAM
-  SOILS

SOILS:

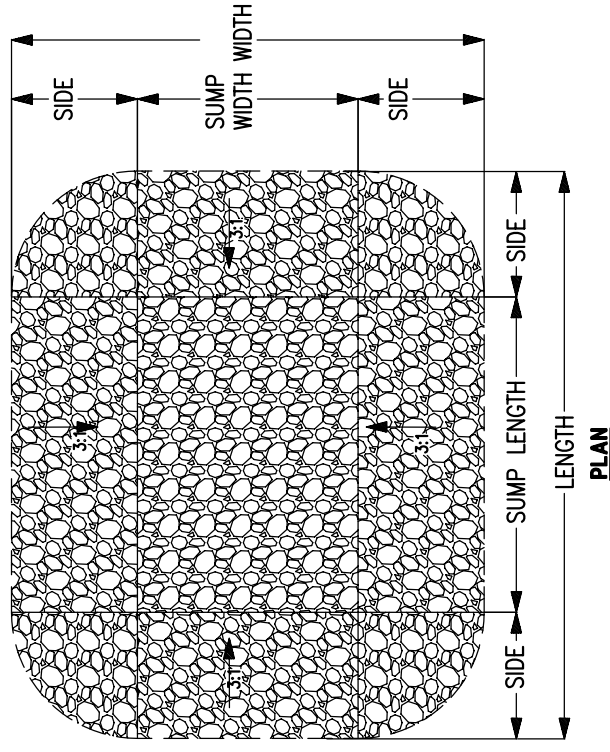
- PdtB - Pattenburg Gravelly Loam, 2-6% Slopes
- PdtC2 - Pattenburg Gravelly Loam, 6-12% Slopes, eroded
- PdtD - Pattenburg Gravelly Loam, 12-18% Slopes



SITE PLAN	
OPG-213	
PIPE REPAIR AND STABILIZATION	
DATE: DECEMBER 14, 2007	RIGHT OF WAY, BLOCK 15, LOT 55 UNION TOWNSHIP HUNTERDON COUNTY, NEW JERSEY
SCALE: 1" = 100'	OMNI ENVIRONMENTAL
SHT. NO. 1 of 1	321 WALL STREET PRINCETON, NJ 08540 PH: (609) 924-9821 FAX: (609) 924-9851



TYP. DROP MANHOLE DETAIL
N.T.S.



TYP. SCOUR HOLE DETAILS
N.T.S.

NOTE: BMP DETAILS ARE GENERIC AND ARE NOT MEANT FOR DETAILED BMP DESIGN.

DROP MANHOLE DETAILS	
MULHOCKAWAY CREEK	
STORMWATER BMP RETROFITS	
DATE: DECEMBER 14, 2007	
SCALE: NTS	OMNI ENVIRONMENTAL
SHT. NO. 1 of 1	321 WALL STREET PRINCETON, NJ 08540 PH: (609) 924-8821 FAX: (609) 924-8851