Educational Packet for Municipalities





Mountaintop Better Site Design Roundtable

December 2012

Town of Ashland
Town of Windham

Town of Jewett Village of Hunter

Town of Lexington
Village of Tannersville



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Regulations for Stormwater Management and Site Assessment Resources

1. New York State

New York State Construction Stormwater Permit

The New York State Department of Environmental Conservation (DEC) regulates stormwater runoff from construction sites of <u>one acre or more of soil disturbance</u> through the SPDES General Permit for Stormwater Runoff from Construction Sites, GP-0-10-001. In 2010, GP-0-10-001 was revised to require low impact development techniques and better site planning.

For more information:

New York State Stormwater Management Design Manual and New York Standards and Specifications for Erosion and Sediment Control http://www.dec.ny.gov/chemical/8694.html

GP-0-10-001, NOI form, NOT form: http://www.dec.ny.gov/chemical/43133.html

Freshwater Wetlands Act: http://www.dec.ny.gov/lands/4937.html
Uniform Procedures Act: http://www.dec.ny.gov/permits/6081.html

2. New York City Department of Environmental Protection

The NYC Watershed Rules and Regulations govern construction of new impervious surfaces and development near water resources within the water supply watershed.

For more information:

New York City Watershed Regulations:

http://www.nyc.gov/html/dep/html/watershed_protection/regulatory.shtml

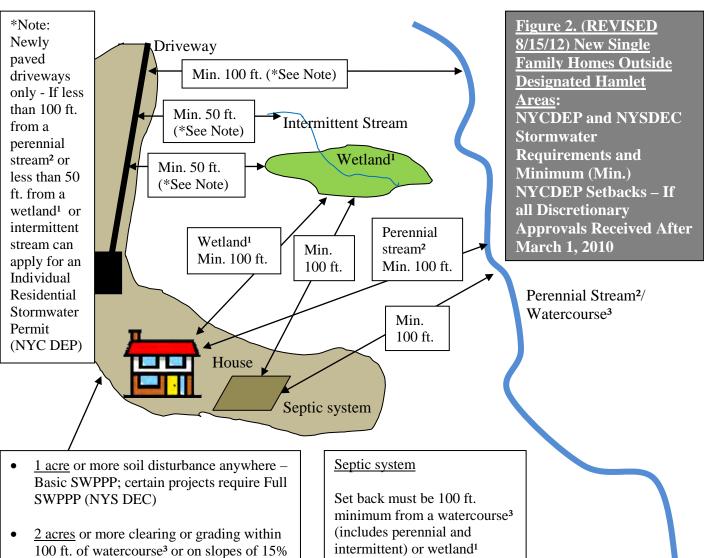
"Building in the NYC Watershed," Greene County Soil & Water Conservation District, at http://www.gcswcd.com/swp/wap/building-nyc-watershed.html

3. Greene County and New York State Resources for Site Assessment

The Mountaintop Regional Watershed Mapping Project - Interactive data CD

Greene County GIS Web Map at: http://gis.greenegovernment.com/giswebmap/

DEC Environmental Resource Mapper at: http://www.dec.ny.gov/animals/38801.html as well as through a link on the GCSWCD internet website at: http://www.gcswcd.com/



- Full SWPPP (NYCDEP)
- Common plans for development or sale of land that will result in 5 acres or more disturbance of total land area
 - Full SWPPP (NYCDEP and NYSDEC)

intermittent) or wetland¹

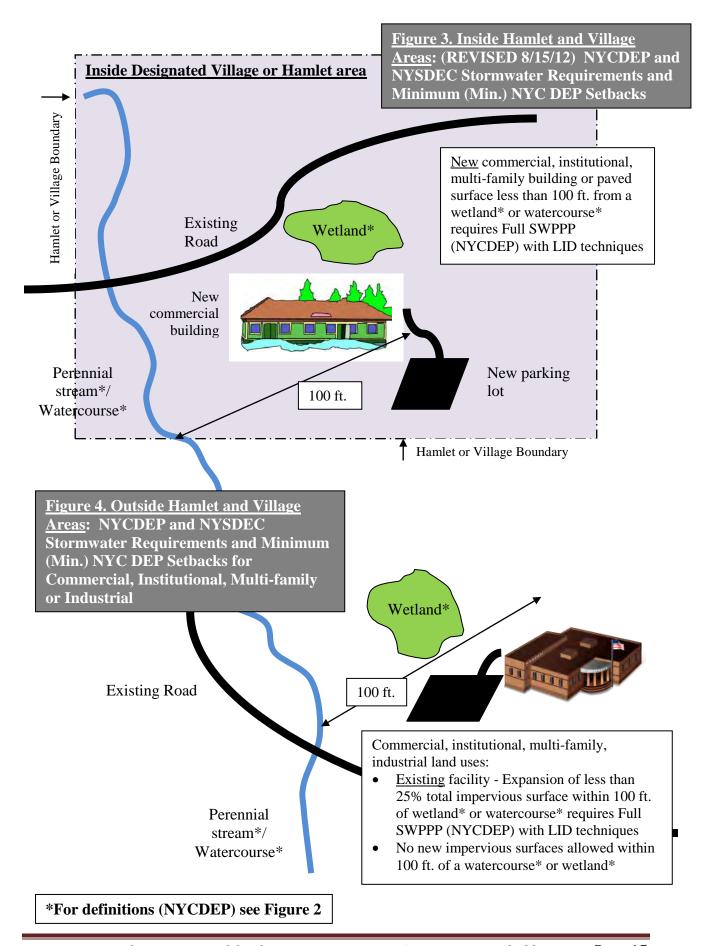
Contact NYCDEP at (845) 340-7234 to schedule a preapplication meeting to begin the Individual Residential Stormwater Permit (IRSP) process

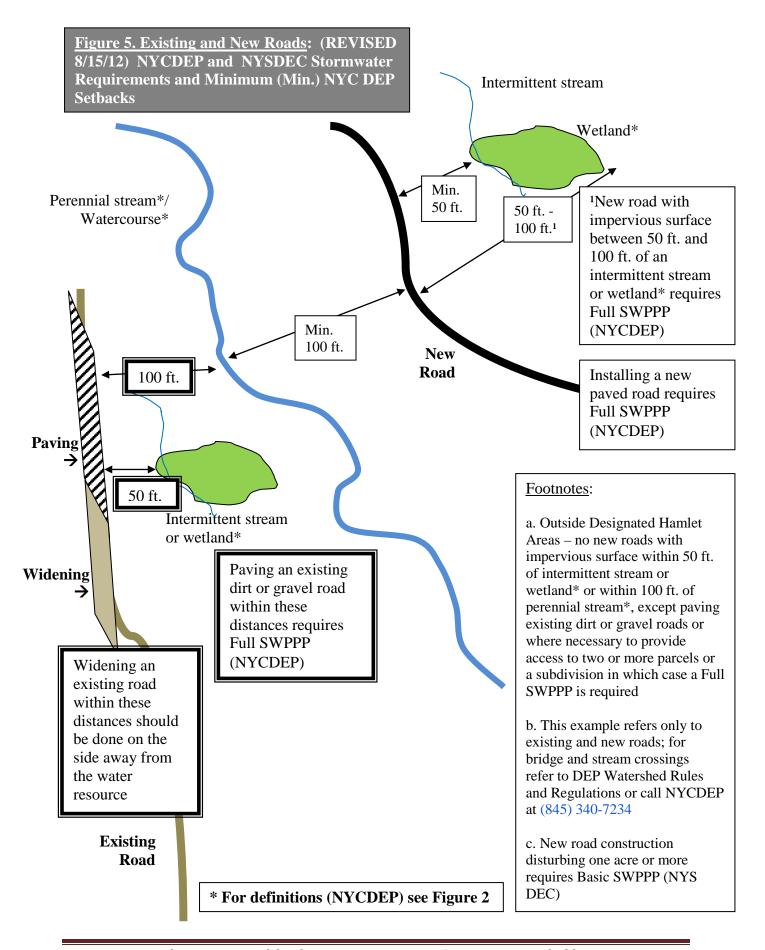
Definitions (NYCDEP)

¹Wetland - means any area mapped as a wetland by the New York State Department of Environmental Conservation pursuant to the Environmental Conservation Law

²Perennial stream - a watercourse that flows throughout the year from source to mouth

³Watercourse - a visible path through which surface water travels on a regular basis, including an intermittent stream, which is tributary to the water supply





Sample LID Practices to Meet Stormwater Regulations¹

Practice	Description	
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain. ²	
Preservation of Buffers	Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands. ³	
Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities. ⁴	
Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact. ⁵	
Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources. 6	Table Street Carlot and and the Transit that Transit the Transit
Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce runoff and enhance the runoff reduction performance of post construction practices.	

¹ For more information on LID practices see NYS SWDM Chapter 5at http://www.dec.ny.gov/chemical/29072.html
² Photo: Schoharie Creek, Lexington
³ Photo: Vegetated stream buffer along Batavia Kill
⁴ Photo: Mountainside home, Hunter

⁵ Photo: Greene County, Michelle Yost

⁶ Graphic: Low Impact Development Design – Greenway Connections, Dutchess County, NY, 2000

Planning Practices for Re	eduction of Impervious Cover	
Practice	Description	
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area ⁷	
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area ⁸	
Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area ⁹	
Cul-de-sac Reduction	Minimize the number of cul-desacs and incorporate landscaped areas to reduce their impervious cover.	
Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio. 10	
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate. 11	

⁷ Photo: Brush Hill Rd., Town of Unionvale, Dutchess County ⁸ Photo: Sidewalk with porous pavers, Hunter Foundation, Tannersville

Photo: Shared driveway in subdivision
 Photo: Apartments above store, Main St., Hunter
 Photo: Bioretention doubles as parking lot landscaping, Roelliff Jansen Community Library, Columbia County

Practice	Description	
Conservation of Natural Areas	Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas, stream and wetland buffers by restoring and/or permanently conserving these areas on a site. 12	
Sheet flow to Riparian Buffers or Filter Strips	Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project. ¹³	
Vegetated Swale	The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase time of concentration, reduce the peak discharge, and provide infiltration. 14	
Tree Planting / Tree Pit	Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control. ¹⁵	
Disconnect Rooftop Runoff	Direct runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates. ¹⁶	

Photo: West Kill, Greene County

Photo: Sheet flow to floodplain, River Valley Subdivision, Town of Dover, Dutchess County

Photo: Vegetated swale, Horseley Witten

Photo: Stream planting project in Greene County

Rain garden, Maplecrest Post Office, part of Sugar Maples project

Stream Daylighting	Stream Daylight previously- culverted/piped streams to restore natural habitats, better attenuate runoff by increasing the storage size, promoting infiltration, and help reduce pollutant loads. ¹⁷	
Rain Gardens	Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression. ¹⁸	
Green Roofs	Capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. Rooftop vegetation allows evaporation and evapotranspiration processes to reduce volume and discharge rate of runoff entering conveyance system. 19	
Stormwater Planters	Small landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality. ²⁰	
Rain Barrels and Cisterns	Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities. ²¹	
Porous Pavement	Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils. ²²	

Photo: Stream daylighting, Taconic Headquarters, NYS OPRHP

Photo: Rain garden, Greene County

Photo: Green Roof – Omega Institute, Dutchess County (photo by Aurora Landscaping)

Photo: Stormwater Planter

²¹ Photo: Rain barrel, Ulster Savings Bank, Windham

²² Photo: Porous asphalt, Mountaintop Library

LID Practices	Single Family Residential Lot	Small Non- Residential/ Multifamily Lot	Existing Development
Underdrain Soil Filters			
Bioretention System	0	•	•
Rain Garden		0	•
Swale	•		•
Vegetated Buffer		•	
Infiltration Practices ¹			
Dry well	•		•
Infiltration Trench	•	•	
Pervious Pavement	•	•	•
Rain Barrel/ Cistern	•	•	•
Green Roof	0	•	•
Stormwater Planter	0	•	•
Micro-bio Inlet	0	0	•

Key: ● = suitable, ● = sometimes suitable with careful design, O = rarely suitable

Table 7. Selecting Appropriate Practices for Different Land Use Types (Selection Matrix 1 from the LID Guidance Manual for Maine Communities, Horsley Witten Group, 2007)

LID Practices	Rooftop	Non-Rooftop Impervious Areas	Disturbed Pervious Areas (Lawn)
Underdrain Soil Filters			
Bioretention System	•	•	•
Rain Garden	•	•	•
Swale			•
Vegetated Buffer			
Infiltration Practices			
Dry well	•	0	0
Infiltration Trench	•	•	0
Pervious Pavement	0		0
Rain Barrel/ Cistern	•	0	0
Green Roof		0	0
Stormwater Planter	•	0	0
Micro-bio Inlet	0		•

Infiltration practices are not appropriate in wellhead protection zones, and must have pretreatment to remove sediments that can clog the system unless the practice collects rooftop runoff only.

Key: ● = suitable, O = unsuitable

Table 8. Selecting Appropriate Practices for Different Runoff Source Areas (Selection Matrix 2 from the LID Guidance Manual for Maine Communities, Horsley Witten Group, 2007)

Infiltration practices are not appropriate in wellhead protection zones, and must have pretreatment to remove sediments that can clog the system unless the practice collects rooftop runoff only.