

**Stormwater Roundtable #3**  
**Saturday, October 23, 2010**  
**Greenburgh Public Library**

**Low Impact Development/Better Site Design Checklist**

In May 2009 and January 2010, two intermunicipal stormwater roundtable/workshops were organized by Groundwork Hudson Valley/Saw Mill River Coalition and the Greenburgh Nature Center. The target audience was members of local agencies, boards and staff responsible for the review and approval of site plans, subdivisions, and related zoning and land use matters. One of the purposes of these workshops was to encourage the incorporation of nonstructural stormwater management strategies and low impact development/better site design (LID/BSD) measures as part of the development process.

The subject of these workshops ended up being very timely. In August 2010 an updated New York State Stormwater Design Manual was released by the NYS DEC. It included a new chapter on the planning and design of green infrastructure/LID/BSD. This manual is a key component of the Phase II State Pollution Discharge Elimination System (SPDES) general permit for stormwater runoff from construction activities from all sizes of disturbance. The manual can be found on line at <http://www.dec.ny.gov/chemical/29072.html>.

Workshop participants were interested in obtaining an LID/BSD worksheet to assist them in their review of development proposals and accompanying stormwater management plans.

The worksheet could also be used to help an applicant explain to staff and reviewing agencies the engineering, environmental, and/or safety reasons why a specific nonstructural strategy might not be appropriate or feasible for the development site.

In addition, the worksheet could also be used during pre-design meetings and site visits between an applicant and review personnel to discuss LID/BSD techniques in order to optimize the development's nonstructural stormwater management design.

An excerpt from the 2004 Connecticut Stormwater Quality Work Sheet is attached and will be distributed at Roundtable #3. The document can be viewed on line at [www.ct.gov/dep/cwp/view.asp?a=2721&q=325704](http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704).

Another LID/BSD checklist can be found in the State of New Jersey's Best Management Practices Manual, Appendix A ( [http://www.state.nj.us/dep/stormwater/bmp\\_manual2.htm](http://www.state.nj.us/dep/stormwater/bmp_manual2.htm) ).

Both of these checklists as well as copies of keynote presentations and handouts from the first two workshops can be found on Saw Mill River Coalition's newly launched stormwater website at [www.stormwatertools.org](http://www.stormwatertools.org).



# Stormwater Quality Worksheet

This worksheet is to be used in conjunction with the Connecticut Stormwater Quality Manual for any new land development. It is designed to help the regulated community and regulatory agencies work through the recommendations provided in the 2004 Connecticut Stormwater Quality Manual. It is not currently required to be submitted with any permit applications submitted to the Connecticut Department of Environmental Protection (DEP).

## Part I: General Information

1. List applicant information.			
Name:			
Address:			
City/Town:	State:	Zip Code:	
Phone:	ext.	Fax:	
E-mail:			
Contact Person:	Title:		
2. List site information.			
Site Name:			
Address:			
City/Town:	State:	Zip Code:	
3. Proposed Stormwater Management Practices (STP) (check all that apply):			
<input type="checkbox"/> Site Planning and Design	<input type="checkbox"/> Stormwater Treatment Practices		
4. Critical Resources (check all that apply):			
<b>On-site</b>		<b>Off-site</b>	
<input type="checkbox"/> Wells, aquifers	<input type="checkbox"/> Neighboring land uses		
<input type="checkbox"/> Wetlands, streams, ponds	<input type="checkbox"/> Wells, aquifers		
<input type="checkbox"/> Public drinking water supplies	<input type="checkbox"/> Wetlands, streams, ponds		
<input type="checkbox"/> Other: (please describe)	<input type="checkbox"/> Public drinking water supplies		
	<input type="checkbox"/> Other: (please describe)		

**Part I: General Information (continued)**

5. List any plans and/or reports that may be referenced in this worksheet. In addition to the name of each plan or report, label each consecutively starting with the number 1 (e.g., Report 1: <i>name of report</i> , etc.) Use the plan or report identifier number where necessary in this worksheet.				
<b>6a. Provide the location of the following information. Use the identifier numbers provided in Part I: item 5 of this worksheet for consistency.</b>	<b>Plan #</b>	<b>Plan sheet #</b>	<b>Report #</b>	<b>Report page #</b>
<b>Site Description</b>				
i. Natural and manmade features at the site				
ii. Site topography, drainage patterns, flow paths, and ground cover				
iii. Impervious area and runoff coefficient				
iv. Site soils as defined by USDA				
v. Stormwater discharge from site and known sources of pollutants and sediment loading				
vi. Critical areas, buffers, and setbacks established by authorities				
vii. Water quality classification of on-site and adjacent water bodies				
viii. Identity of any on-site or adjacent waterbodies included on <i>CT 303(d)</i> list of impaired waters				
<b>6b. Potential Stormwater Impacts</b>				
i. Potential pollutant sources				
ii. Type of anticipated stormwater pollutants and relative/calculated load of each pollutant				
iii. Summary of calculated pre- and post-development peak flows				
iv. Summary of calculated pre- and post-development groundwater recharge				

**Part II: Site Planning and Design**

See Chapter 4 of the Stormwater Quality Manual for complete descriptions of concepts listed in this Part.

<b>A. Site Planning and Design Concepts</b>	
<i>Indicate Yes or No for each item listed below and provide a brief explanation in the space provided.</i>	
1. Has the development been designed to fit the terrain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Has the development been designed to limit land disturbance?	<input type="checkbox"/> Yes <input type="checkbox"/> No



### Part III: Stormwater Treatment Practices

Complete Sections A through E for all developments. Complete and include appropriate sheets from Part IV for each practice checked in this Part.

A. Practices Used	
<i>Check all practices used in development.</i>	
Primary Treatment Practices	Secondary Treatment Practices
<input type="checkbox"/> Stormwater Pond (P1)	<i>Conventional</i>
<input type="checkbox"/> micropool extended detention pond	<input type="checkbox"/> Dry detention pond (S1)
<input type="checkbox"/> wet pond	<input type="checkbox"/> Underground detention facilities (S2)
<input type="checkbox"/> wet extended detention pond	<input type="checkbox"/> Deep sump catch basins (S3)
<input type="checkbox"/> multiple pond system	<input type="checkbox"/> Oil/particle separators (S4)
<input type="checkbox"/> pocket pond	<input type="checkbox"/> Dry wells (S5)
<input type="checkbox"/> Stormwater Wetlands (P2)	<input type="checkbox"/> Permeable pavement (S6)
<input type="checkbox"/> shallow wetland	<input type="checkbox"/> Vegetated filter strips (S7)
<input type="checkbox"/> extended detention wetland	<input type="checkbox"/> Grass drainage channels (S8)
<input type="checkbox"/> pond/wetland system	<i>Innovative/ Emerging Technologies</i>
<input type="checkbox"/> Infiltration Practices (P3)	<input type="checkbox"/> Catch basin inserts (S9)
<input type="checkbox"/> infiltration Trench	<input type="checkbox"/> Hydrodynamic separators (S10)
<input type="checkbox"/> infiltration Basin	<input type="checkbox"/> Media filters (S11)
<input type="checkbox"/> Filtering Practices (P4)	<input type="checkbox"/> Underground infiltration systems (S12)
<input type="checkbox"/> surface sand filter	<input type="checkbox"/> Alum injections (S13)
<input type="checkbox"/> underground sand filter	
<input type="checkbox"/> perimeter sand filter	
<input type="checkbox"/> organic filter	
<input type="checkbox"/> bioretention	
<input type="checkbox"/> Water Quality Swales (P5)	
<input type="checkbox"/> dry swales	
<input type="checkbox"/> wet swales	
1. If there is no primary treatment practice used, explain why.	
2. Are other innovative emerging technologies proposed that are not listed? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please describe technologies.	
3. Provide a diagram of the treatment train showing the practices used, their locations, and how they are connected. <i>Attach and label a separate sheet to this sheet.</i>	

**Part III: Stormwater Treatment Practices (continued)**

<b>B. Stormwater Quality Management Objectives</b>	
<i>Check all that apply</i>	
<input type="checkbox"/> Groundwater Recharge	Pollutants expected from development
<input type="checkbox"/> Runoff Volume Reduction	<input type="checkbox"/> Sediment
<input type="checkbox"/> Stream Channel Protection	<input type="checkbox"/> Phosphorus
<input type="checkbox"/> Peak Flow Control	<input type="checkbox"/> Nitrogen
	<input type="checkbox"/> Metals
	<input type="checkbox"/> Hydro-Carbons
	<input type="checkbox"/> Bacteria

<b>C. Downstream Resources:</b> <i>List each stormwater treatment practice (STP) which may affect a downstream resource. Check each downstream resource affected for each STP listed. In the space below each listed practice describe how the STP is designed to reduce impacts to the affected downstream resources.</i>					
<i>See Section 8.4 of the Stormwater Quality Manual for additional guidance</i>					
<b>Stormwater Treatment Practice</b>	<b>Sensitive Watercourses</b>	<b>Water Supply Aquifers</b>	<b>Lakes and Ponds</b>	<b>Surface Water Drinking Supplies</b>	<b>Estuary/ Coastal</b>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description:					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description:					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description:					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description:					

**Part III: Stormwater Treatment Practices (continued)**

D. Has the STP been designed to minimize the potential for nuisance insects and vectors?

*See Section 8.7 of the Stormwater Quality Manual for guidance*

Yes       No

Provide brief explanation:

E. Has the STP been designed to reduce the impact on natural wetlands and vernal pools?

*See Section 8.8 of the Stormwater Quality Manual for guidance*

Yes       No

Provide brief explanation: