

New York City Stormwater Manual

Appendix A
**STORMWATER
MANAGEMENT
PRACTICE
HIERARCHY
CHECKLIST**



Environmental
Protection

SMP HIERARCHY CHECKLIST - CSS AREAS

Percent of SMP volume applied^a

Site constraints that limit SMP feasibility^b

Tier ^c	Function Type ^d	Practice Type ^e	Percent of SMP volume applied ^a			Site constraints that limit SMP feasibility ^b				
			WQv	RRv	Vv	Soil	Subsurface	Hotspot	Surfaces	Space
Tier 1	Infiltration (Vegetated)	Bioretention	100	100	50	X	X	X	X	X
		Rain garden	100	100	50	X	X	X	X	X
		Stormwater planter	100	100	50	X	X	X	X	X
		Tree planting / preservation	SC	SC	0					
		Dry basin	100	100	50	X	X	X	X	X
		Grass filter strip	SC	SC	0	X	X	X	X	X
		Vegetated swale	SC	SC	0	X	X	X	X	X
	Evapotranspiration ^f	Rain garden	100	100	0		X		X	X
		Stormwater planter	100	100	0				X	
		Tree planting / preservation	SC	SC	0					
Green roof		100	100	0						
Tier 2	Infiltration (Non-vegetated)	Dry well	100	100	50	X	X	X		X
		Stormwater gallery	100	100	50	X	X	X		X
		Stone trench	100	100	50	X	X	X	X	X
		Porous pavement	100	100	50	X	X	X		X
		Synthetic turf field	100	100	50	X	X	X	X	X
Anytime / Optional	Reuse	Rain tank	100	100	SC					
		Cistern	100	100	SC					
Tier 3	Detention ^{g,h,i}	Dry basin	100	0	100		X		X	X
		Constructed wetland	100	0	100		X		X	X
		Wet basin / pond	100	0	100		X		X	X
		Stormwater gallery	100	0	100		X			X
		Blue roof	100	0	100					
		Detention tank	100	0	100					

^aValues marked "SC" are special cases for criteria-based practices, see Section 4.11 for details on criteria and application.

^bAn "X" marker indicates the site constraints that would prevent each practice from being used, contingent on the appropriate documentation for that constraint.

^cAll practices of higher tiers must be used to the maximum extent possible or eliminated due to site constraints, before moving to lower tier practices

^dDetails on the design criteria and applied volumes for dual function systems are available in Section 4.9 on Innovative Systems.

^eOther practice types not shown here may be proposed, subject to DEP approval, see Section 4.9 on Innovative Systems.

^fWhere permeability rates of the site are 0.5 in/hr or greater, rain gardens, stormwater planters, and tree planting/preservation must be designed as infiltration practices

^gHigh groundwater (subsurface constraint) limits the use of most practices, except those enclosed in concrete with adequate anchoring, as determined by an engineer

^hDetention practices may be used to manage WQv in CSS areas when the release rate complies with the sewer operations requirement (i.e., 0.1 cfs/acre)

ⁱDetention practices in series (e.g., blue roof to detention tank) require special calculations to account for changes in required detention volumes

SMP HIERARCHY CHECKLIST - MS4 AREAS

Percent of SMP volume applied^a

Site constraints that limit SMP feasibility^b

Tier ^c	Function Type ^d	Practice Type ^e	WQv	RRv	Vv	Soil	Subsurface	Hotspot	Surfaces	Space
Tier 1	Infiltration (Vegetated)	Bioretention	100	100	50	X	X	X	X	X
		Rain garden	100	100	50	X	X	X	X	X
		Stormwater planter	100	100	50	X	X	X	X	X
		Tree planting / preservation	SC	SC	0					
		Dry basin	100	100	50	X	X	X	X	X
		Grass filter strip	SC	SC	0	X	X	X	X	X
		Vegetated swale	SC	SC	0	X	X	X	X	X
	Evapotranspiration ^f	Rain garden	100	100	0		X		X	X
		Stormwater planter	100	100	0				X	
		Tree planting / preservation	SC	SC	0					
Green roof		100	100	0						
Tier 2	Infiltration (Non-vegetated)	Dry well	100	100	50	X	X	X		X
		Stormwater gallery	100	100	50	X	X	X		X
		Stone trench	100	100	50	X	X	X	X	X
		Porous pavement	100	100	50	X	X	X		X
		Synthetic turf field	100	100	50	X	X	X	X	X
Anytime / Optional	Reuse	Rain tank	100	100	SC					
		Cistern	100	100	SC					
Tier 3	Filtration ^g	Bioretention	100	40	0		X		X	X
		Stormwater planter	100	40	0		X		X	X
		Porous pavement	100	0	0		X			X
		Synthetic turf field	100	0	0		X		X	X
		Sand filter	100	0	0		X		X	
		Organic filter	100	0	0		X		X	
	Detention ^{g,h}	Constructed wetland	100	0	100		X		X	X
		Wet basin / pond	100	0	100		X		X	X
Other	Detention ^{g,i,j}	Dry basin	0	0	100		X		X	X
		Stormwater gallery	0	0	100		X			X
		Blue roof	0	0	100					
		Detention tank	0	0	100					

^aValues marked "SC" are special cases for criteria-based practices, see Section 4.11 for details on criteria and application.

^bAn "X" marker indicates the site constraints that would prevent each practice from being used, contingent on the appropriate documentation for that constraint.

^cAll practices of higher tiers must be used to the maximum extent possible or eliminated due to site constraints, before moving to lower tier practices

^dDetails on the design criteria and applied volumes for dual function systems are available in Section 4.9 on Innovative Systems.

^eOther practice types not shown here may be proposed, subject to DEP approval, see Section 4.9 on Innovative Systems.

^fWhere permeability rates of the site are 0.5 in/hr or greater, rain gardens, stormwater planters, and tree planting/preservation must be designed as infiltration practices

^gHigh groundwater (subsurface constraint) limits the use of most practices, except those enclosed in concrete with adequate anchoring, as determined by an engineer

^hSelect detention practices with treatment abilities may be used to manage WQv in MS4 areas when all design criteria are met

ⁱRemaining detention practices may only be used to meet sewer operations criteria, included here for completeness

^jDetention in series (e.g., blue roof to detention tank) require special calculations to account for changes in required detention volumes