



**City Utilities
Design Standards
Manual**

Exhibit SW11-4
Modeling Methods for Various Water Quality Features

Created: October 2013

Revised:

Green Infrastructure	TSS Removal	Calculation Method	Modeling Method
Green Roofs	NA	Curve Number (CN) Adjustment	CN Reduced based on average depth of planting media [98-(2*Avg Depth in inches)]
Permeable Pavers	95%	Reduced Runoff Method	Modeled as a pond with an overflow structure – Volume based on depth of gravel and porosity of stone (#8 washed stone = 40% porosity)
Rainwater Harvesting	NA	Reduced Runoff Method	Modeled as a pond with an overflow structure – Volume based on volume of Cistern/Rain Barrel
Filter Strips	NA	N/A (Pre-Treatment)	(Volume Based on Constructed Depressional Volumes)
Bioretention	90%	Volume Based	Modeled as a pond with an overflow structure – Volume based on Storage Volume below lowest outlet
Constructed Wetlands	83%	Volume Based	Modeled as a pond with an overflow structure – Volume based on Storage Volume below lowest outlet
Water Quality Swales with Retentive Grading	81%	Reduced Runoff Method	Modeled as multiple ponds with overflow structures – Volume based on Constructed Depressional Volume
Subsurface Infiltration	90%	Reduced Runoff Method	Modeled as a pond with an overflow structure and Documented Infiltration rate. Infiltration should be addressed as a constant outflow (Outflow rate = soil infiltration rate * bottom surface area).
Wet Detention Basins	85%	Volume Based	Modeled as a pond with an overflow structure – Volume Based on Volume Below Lowest Outlet
Forebays	NA	Volume Based (Pre-Treatment)	Modeled as a pond with an overflow structure – Volume Based on Volume Below Lowest Outlet

NA – The green infrastructure is a pretreatment feature and cannot stand alone or it functions by retaining the quantity of the stormwater quality event.