

Clean Water Management Trust Fund (Summary Report)

Stormwater Source Area Treatment Device
CrystalStream Model 2056
Highlands, NC



Full Report—Pine Street Stormwater Management Facilities

The following data and evaluation has been taken from the Pine Street Stormwater Management Facilities Study (Innovative Stormwater Project Implementation) published by McGill Associates, prepared by Forrest Westall, PE and Joseph C. Williams, PE.

Independent, third party testing was performed on a CrystalStream Model 2056 Water Quality Vault treating approximately 14.6 acres including part of the Highlands, NC central business district and a small stream tributary to Mill Creek. Testing consisted of 20 rainfall events where samples were collected for the purpose of evaluating the performance of the CrystalStream device and an underground storage system immediately down stream. In addition, the sediments captured by the device were analyzed for particle size distribution and specific components such as heavy metals and nutrients. The coconut fiber filter was also analyzed to determine the quantity of additional pollutants removed by that element of the system. The table above summarizes the results of the analysis of the water samples collected. The full report is available upon request.

REMOVAL RESULTS	
96%	SUSPENDED SEDIMENTS
22%	Fecal Coli form
50%	Ammonia, Nitrogen
74%	Total Nitrogen
75%	Total Kjeldahl Nitrogen
7%	Nitrogen, NO2 plus NO3
74%	Total Phosphorous



CrystalStream devices are engineered to target the most common pollutants found in urban runoff including trash and debris, sediment, oil and hydrocarbons, and vegetative materials that contribute to excess nutrients being released into streams. This particular device was sized to meet the hydrological conditions as determined by the site engineer to provide removal rates meeting the local and federal guidelines for urban runoff. The engineering staff at CrystalStream will answer any questions you have related to the design and application of this technology.

The significance of an 96% removal efficiency for the entire range of sediments underscores the strength of the CrystalStream strategy of multiple treatment systems in a single vault. The average concentration of solids in the effluent flows from the CrystalStream device averaged under 12 mg/L, which is below any published standard for water quality protocol currently in place. In addition, the unit was cleaned on a regular basis as is required by federal and state ordinance to assure effectiveness. CrystalStream Technologies is committed to external and internal testing on an ongoing basis with an emphasis on proper application and site specific engineering.



PERFORMANCE TESTING

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