Introduction

In March of 2007, The State of Delaware's New Castle County Department of Special Services (NCCDSS) requested a level of service relative to the county's Stormwater Pollution Prevention Plan (SWPP). Comprehensive Stormwater Management (SWM) and Green Technology Best Management Practices (GTBMPs) design criteria required to maintain and enhance the structural, functional, and ecological integrity of county-owned SWM systems for the short and long-term were provided. NCCDSS is classified as a Phase I MS4 under the EPAs stormwater program. The first phase of the process included site tours and assessments of Stormwater Management Systems (SWMS) currently managed and maintained under a Comprehensive Stormwater Management Plan (CSWMP).

The second phase included an interpretation of the Management Units (MUs) and implementation procedures. This was completed in a conventional classroom situation accompanying the methods required to meet all learning styles.

The third phase was to conduct a needs assessment relating to four (4) professionally-engineered SWM systems, all of which were design-built retrofits. These four (4) SWMS were known as "Pilot Programs" and CSWMP manuals were created for each.

The fourth phase included "in-the-field" training exercises required to inform and demonstrate maintenance and management GTBMPs procedures and techniques to NCCDSS park maintenance staff.

The fifth phase was to create a cost(s) analysis for a continued maintenance and management program for sixty-two (62) remaining County-owned Stormwater Facilities.

The final stage was to design a "NCCDSS Stormwater Facility Maintenance & Management Service Provider Request for Proposals Qualifications Statement".

The CSWMP and GTBMPs resulted in structurally, functionally, and environmentally sound SWMS. All of the pilot program sites are adjoining areas where public use is significant; therefore meeting public expectations regarding aesthetic appeal in an environmentally sound manner is an objective. NCCDSS now possesses a much improved understanding of the capital required for the continued maintenance, management, regulatory policy, educational criteria, and the necessary qualifications for service providers. The acquired qualitative and quantitative information may be applied to all components of the county-owned MS4s.

REFERENCES

2 USEPA, Clean Water Act, Section 402, Phase I National Pollution Discharge Elimination System (NPDES) Stormwater Program.
3 State of Delaware, Department of Labor, Division of Industrial Affairs, Prevailing Wage Rate Sheets, 2007.
4 New Castle County Department of Special Services, Stormwater Facility Maintenance and Management Service Provider Request for Proposal Qualification Statement, 2008.
5 Data Collecting Forms, 2008: Service Log Sheets, Deficiency Reports, Quarterly Reports.

Demonstration of Management Units

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Conclusion

In order to demonstrate functional and stable SWMSs that are and have been maintained with CSWMP and implementation procedures, NCCDSS staffing was provided with site tours to five (5) different subdivision SWMS and one (1) municipal SWMS. Each site clearly modeled the distinct MUs. The tours and "in-the-field" interpretation of GTBMP implementation procedures proved to be successful and holistic understanding was demonstrated through verbal collaboration and written acknowledgment. This was determined because all MUs were clearly evident, much inquiry was generated, NCCDSS engineers determined that the SWMSs were structurally and functionally sound, all systems provided quality and quantity pre-discharge treatment, and a natural beauty to the system was evident.

Demonstration Site Clearly Indicating All MUs

Following this phase the NCCDSS requested an educational seminar to further this understanding of the MUs and maintenance procedures. This was completed with methods required to meet all learning styles, demonstration of applicable regulatory policies, and current GTBMPs. This phase was immediately followed by a contracted agreement between NCCDSS section and a qualified active EMS division for the design and implementation of a Comprehensive Management Plan (CMP) for the four pilot programs. These pilot program sites were all vegetatively enhanced, stabilized, and functional within eight (8) to twelve (12) weeks of initial implementation.

Before & After Photographic Documentation

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