BACKGROUND
Rutgers University was contracted by the Meadowlands Commission to determine the feasibility of a Stormwater Utility.

The New Jersey Meadowlands District is an area of approximately 18,000 acres located in the middle of a natural wetlands system. The constant development of the area for the past 150 years has resulted in the transformation of 10,000 acres of wetlands into a commercial center surrounded by 8,000 acres of wetlands. Due to a combination of the low lying elevation of the area, excessive urbanization, disruption of the natural hydrology of the basin and other factors, a significant amount of the sections of the District are in constant distress from regularly occurring flooding events.

SCOPE
This project will approach sustainability on three fronts: the protection of property and health (people), the protection of industry (prosperity), and the protection of wetlands (planet). Once flooding issues are addressed, the damage to property, as well as the interruption of the daily transit that occurs in this area, can be eased.

DESIGN APPROACH
This project will approach sustainability in New Jersey; water quality BMPs are designed to control runoff from the water quality storm, which is defined as 1.25 inches of rain over two hours. By designing for the water quality storm, the BMP will treat approximately 90% of New Jersey’s annual storms, since most of the rainfall comes in storms of less than 1.25 inches.

Green Roof
Cisterns
Hydrodynamic Separation Systems
OBJECTIVES & GOALS
The proposed design by the Moonachie Group, along with the business plan, will demonstrate to the greater community of the New Jersey Meadowlands Region that proper design of BMPs can have a positive effect on the environment and the lives of the residents in that environment. The business plan helps demonstrate how a Stormwater Utility will maintain and improve the stormwater infrastructure of the New Jersey Meadowlands Region.

This project will address the topic of sustainability environmentally and financially. The creation of the Stormwater Utility will greatly reduce pressures on the environment by eliminating strenuous water inputs of higher quantity and lower quality. In doing so, the Utility will provide funding to restore the environment from years of human damage, and at the same time the utility will provide funding to repair, maintain, and replace failing stormwater infrastructure in a cost-effective manner. The Stormwater Utility will be self-sustaining by creating user fee based funds to pay for it’s own projects.

TARGET SITES
Site 1 is a large factory and parking lot located at 1 Carol Place. Flooding occurs at the site during rain events according to the 2005 NJMC Flood Plan. Images of the flooding can be found in Appendix A-5. Although the site lies in a tidally influenced area, the tide gates were rated as “fully functional” as per the last NJMC inspection. The problem is caused by the catch basins on Carol Place being clogged; the lot is poorly graded and almost 100% impervious, and the loading dock trenches lack pumping systems.

Site 2 is located near Grand Street & Christiana Avenue, and it also consists of a building and a parking lot. Flooding at this site is impacted more heavily by tidal issues because the tide gates in the area of interest are either damaged or clogged. Appendices A-2 and A-3 give examples of flooded conditions at Grand Street.

BMPs
- Essentially green roofs are large gardens built on roof tops constructed with plants that hold water.
- Cisterns are usually a tank or barrel placed beneath the downspout with a controlled outflow.
- Hydrodynamic separation systems are ideally suited as a BMP pretreatment device. This device can effectively remove floating and sinking debris from runoff flows before they enter a receiving body of water.

REFERENCES

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