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Master of Landscape Architecture, Spring Commencement, 2000
Major: Landscape Architecture
The Use of Stormwater Wetlands in Suburban Shopping Center Parking Lots
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Page in thesis, 170. Words in Abstract, 288

ABSTRACT

"The Use of Pond-Marsh Stormwater Wetlands in Suburban Shopping Center Parking Lots" examines the feasibility of integrating a Pond-Marsh stormwater wetland into suburban shopping center parking lots. Chapter One outlines the background, problem statement, objective, methodology and scope of the thesis.

Chapter Two is an examination of three issues associated with the typical parking lot. These issues are increased runoff volume, poor runoff water quality and decreased aesthetics. It discusses general and localized effects of these issues. How shopping center parking lots add to these effects is explored.

Chapter Three is an investigation of stormwater wetlands as a solution to these issues. The abilities of a Pond-Marsh stormwater wetland to deal with the issues described above are discussed. Chapter Four discusses the problems of using a Pond-Marsh system and possible solutions are developed.

Chapter Five details the design of a Pond-Marsh. Chapter Six proposes guidelines for developing a Pond-Marsh. The guidelines are focused on integrating such a system into shopping center parking lots.

Chapter Seven is a case study used to test the feasibility of integrating a Pond-Marsh system into a large suburban shopping center. Design criteria, providing maximum runoff detention while maintaining runoff treatment and aesthetic values, are developed using the guidelines. Three design options, using different configura-

tions, are created to explore integration possibilities. The results show none of the design options can be successfully used on the case study site.

Chapter Eight examines why these design options cannot be integrated into the case study site. Discussion moves to why these particular design options failed to prove the hypothesis. Suggestions and examples of changes in the design criteria and/or the case study site are made. The limitations of the thesis and suggestions for further research are made.