

URBAN STORMWATER MANAGEMENT PROGRAM

1.0 Introduction

This document provides details of the Urban Stormwater Management Program for Fort Myers Brewing Company in Fort Myers, Florida. This Plan discusses non-structural controls, intended to improve the quality of stormwater runoff by reducing the generation and accumulation of potential stormwater runoff contaminants at or near the respective sources for each constituent, along with significant structural components of the primary stormwater treatment system. Although many of the methodologies and procedures outlined in this document are general Best Management Practices (BMP's) which can be useful in attenuating pollutants in many types of urbanized settings, the implementation of these practices has been optimized, to the maximum extent possible, to reflect the unique character of Fort Myers Brewing Company and the surrounding hydrologic features.

Pollution prevention guidelines are provided for the areas of (1) nutrient and pesticide management; (2) street sweeping; (3) solid waste management; (4) operation and maintenance of the stormwater management and treatment system; (5) construction activities. A discussion of each of these activities is given in the following sections.

2.0 Nutrient and Pesticide Management

Nutrient and pesticide management consists of a series of practices designed to manage the use of fertilizers and pesticides so as to minimize loss of these compounds into stormwater runoff and the resulting water quality impacts on adjacent water bodies. Implementation of a management plan will also maximize the effectiveness of the nutrients and pesticides that are applied.

2.1 General Requirements

Commercial applicators of chemical lawn products must register with the property owners annually and provide a copy of their current occupational license, proof of business liability insurance, and proof of compliance with applicable education and licensing requirements. Individual employees working under the direction of a licensed commercial applicator are exempt from the educational requirements.

Only registered commercial applicators and individual lot owners are permitted to apply chemicals within the property on a private lot. All chemical products must be used in accordance with the manufacturer's recommendations. The application of any chemical product within five (5) feet of any surface water including but not limited to ponds, lakes, drainage ditches or canals, is prohibited. The use of any chemical product in a manner that will allow airborne or waterborne entry of such products into surface water is prohibited. This rule shall not apply to the use of chemical agents, by certified lake management specialists, for the control of algae and vegetation within the stormwater lakes or ponds.

2.2 Nutrient Management Program

Management and application of nutrients and fertilizers within Fort Myers Brewing Company will adhere to the following guidelines:

- A. All fertilizers shall be stored in a dry storage area protected from rainfall and ponding.
- B. No fertilizer containing in excess of 2% phosphate/phosphorus (P_2O_5) per guaranteed analysis label (as defined by Chapter 576, Florida Statutes) shall be applied to turf grass unless justified by a soil test.
- C. Fertilizer containing in excess of 2% phosphate/phosphorus (P_2O_5) per guaranteed analysis label shall not be applied within 5 feet of the edge of water or within 5 feet of a drainage facility.
- D. All fertilizer shall be applied such that spreading of fertilizer on all impervious surfaces is minimized.
- E. Liquid fertilizers containing in excess of 2% phosphate/phosphorus (P_2O_5) per guaranteed analysis label shall not be applied thorough an irrigation system within 10 feet of the edge of water or within 10 feet of a drainage facility.
- F. Liquid fertilizers containing in excess of 2% phosphate/phosphorus (P_2O_5) per guaranteed analysis label shall not be applied through high or medium mist application or directed spray application within 10 feet of the edge of water or within 10 feet of a drainage facility.

2.3 Pest Management Program

Proper maintenance of plants and turf areas will minimize the ability of pests to successfully attack landscaping. Several general guidelines follow:

- A. Apply fertilizer and water only when needed and in moderate amounts. Excessive amounts of either can cause rapid growth that is attractive to insects and disease.
- B. Mow St. Augustine grass to a height of 3-4 inches. If cut shorter, the plants may become stressed and more vulnerable to pest infestation. Each mowing should remove no more than one-third of the leaf blade, and those cuttings should remain on the lawn to decompose.
- C. It is recommended that pesticides, fungicides, and herbicides be used only in response to a specific problem and in the manner and amount recommended by the manufacturer to address the specific problem. Broad application of pesticides, fungicides and herbicides as a preventative measure is strongly discouraged.

The use of pesticides, fungicides, or herbicides is limited to products that meet the following criteria:

- A. Must be consistent with the USDA-NRCS Soil Rating for Selecting Pesticides
- B. Must have the minimum potential for leaching into groundwater or loss from runoff
- C. Products must be EPA-approved
- D. The half-life of products used shall not exceed seventy (70) days

3.0 Solid Waste Management

In general, solid waste management involves issues related to the management and handling of urban refuse, litter and leaves that will minimize the impact of these constituents as water pollutants.

Maintenance of adequate sanitary facilities for temporarily storing refuse on private premises prior to collection is considered the responsibility of the individual homeowner. Local requirements for refuse collection will be brought to the attention of every homeowner at closing for the sale of the property. Information will be distributed as necessary stating specifications for containers, separation of waste by type, where to place containers prior to collection, and established collection schedules.

Fallen tree leaves and other vegetation, along with grass clippings, may become direct water pollutants when they are allowed to accumulate in swales and street gutters. All homeowners will receive periodic educational materials that address proper disposal of leaves and other vegetation to minimize water quality impacts.

4.0 Stormwater Management and Treatment System

The stormwater management system for Fort Myers Brewing Company is designed to maximize the attenuation of stormwater generated pollutants prior to discharge to the off-site systems. Operational details and maintenance requirements of the various system components are given in the following sections.

4.1 Wet Detention Lakes and Lake Interconnect Pipes

The basic element of the stormwater management system consists of a series of interconnected wet detention ponds that provide stormwater treatment through a variety of physical, biological, and chemical processes. A wet detention pond acts similar to a natural lake by temporarily detaining stormwater runoff, allowing opportunities for treatment processes to occur, prior to slow controlled discharge of the treated water through the outfall structure. Pollutant removal processes in wet detention systems occur during the quiescent period between storm events. Significant removal processes include gravity settling of particulate matter; biological uptake of nutrients and other ions by aquatic plants, algae and microorganisms; along with natural chemical flocculation and complexation processes.

Maintenance of the wet detention ponds will consist of an annual inspection. During each annual inspection, the following items will be reviewed and corrected as necessary:

- A. Inspect the outfall structure and orifices to ensure free-flowing conditions and overall engineering stability of the outfall system.
- B. Review the banks of the lakes and canals to ensure proper side slope stabilization and inspect for signs of excessive seepage that may indicate areas of excessive groundwater flow and possible subsurface channeling.
- C. Physically evaluate each of the lakes and canals for evidence of excessive sediment accumulation or erosion.

- D. Inspect the planted aquatic vegetation in the littoral zone to ensure that the desired vegetation species, percent coverage, and density are maintained.

At the completion of the inspections, a written inspection report will be prepared, listing any deficiencies that need to be addressed or corrected by the Homeowners Association.

4.2 Stormwater Inlets, Pipes and Culverts

The grates should be unobstructed and the bottom, inside the inlet, should be clean. Check for any accumulation of sediment, trash such as garbage bags, or debris in the culverts connecting these inlets. Flushing out with a high-pressure hose may clean some sediment. Any noted blockage (due to a possible obstruction, or broken pipe, etc.) should prompt further investigation. Crushed or corroded culverts should be replaced with new ones of the same size.

4.3 Swales and Grassed Water Storage Areas

These provide for conveyance and/or above-ground (or surface) storage of stormwater. With age, these areas usually fill in with vegetation and sediment. Swales may need to be regraded and/or revegetated. It is a good idea to compare the existing slope and dimensions of the swale with the permitted design plans prior to the removal of excess sediment or regrading. Areas that show erosion should be stabilized with appropriate material such as sod, planting, rock, sand bags, or other synthetic geotextile material.

Regular mowing of grass swales is essential. These areas also improve water quality by catching sediment and assimilating nutrients, and recharge the underground water table. Remove any undesirable exotic vegetation. Culverts underneath driveways should be checked for blockage, and, if necessary, flushed with a high-pressure hose. After a storm, swales may remain wet for an extended period of time. This is normal and the water will recede gradually.

5.4 Ditches or Canals

Fill material, yard waste, clippings and vegetation, sediment, trash, appliances, garbage bags, shopping carts, tires, cars, etc. should be completely removed. Also check to make sure there are no dead trees or any type of obstructions which could block the drainage flow way.

Maintenance cleaning/excavation must be limited to the same depth, width and side slope as approved in the current permit. Making a ditch deeper or wider may trigger a need for a permit modification. Provisions must also be made to prevent any downstream silting or turbidity (*Contact the SFWMD Resource Compliance staff if you are unsure or need clarification.*) Be sure to dispose of all removed material properly so it won't affect any other water storage or conveyance system, environmental area, or another owner's property.

5.5 Outfall Structure (also called the Discharged Control Structure or Weir)

The outfall structure should be routinely inspected to determine if any obstructions are present or repairs are needed. Trash or vegetation impeding water flow through the structure should be removed. The structure should have a "baffle" or trash collector to prevent flow blockage and

also hold back any floating oils from moving downstream. Elevations and dimensions should be verified annually with all current permit information. Periodic inspections should then be regularly conducted to make sure these structures maintain the proper water levels and the ability to discharge.

5.6 Earthen Embankments (Dikes and Berms)

Check for proper elevations, width and stabilization. Worn down berms - especially if used by all-terrain vehicles or equestrian traffic – and rainfall – created washouts should be immediately repaired, compacted and re-vegetated.

5.0 Construction Activities

A Stormwater Pollution Prevention Plan (SWPPP) has been prepared for construction activities to minimize activities contamination that may be caused by erosion and sedimentation during the construction process. The plan includes provisions related to soil stabilization, structural erosion controls, waste collection disposal, offsite vehicle tracking, spill prevention and maintenance and inspection procedures. A copy of the SWPPP is attached hereto and made a part of hereof.