

Town of Manalapan
MS4 Permit No. FLS000018-004
Part V. – Monitoring Requirements; Sub-part A. –
Assessment Program

Assessment Program Objective

The purpose of this assessment program is to provide information for the **Town of Manalapan** to determine the overall effectiveness of its Stormwater Management Program (SWMP) in reducing stormwater pollutant loadings from its Municipal Separate Storm Sewer System (MS4) to receiving water bodies.

Assessment Program Components

As required by the MS4 Permit, the following parts make up this Assessment Program:

- A. **A Water Quality Monitoring Plan** – The water quality monitoring plan is intended to identify local sources where urban stormwater is adversely affecting surface water resources
- B. **A Pollutant Loading Estimate Plan** – The Town of Manalapan MS4 is mainly highly maintained single family residential. There is one hotel and a small shopping plaza that is our commercial district. We have one small park and a passive park, both together are less than ¼ acre in land. Waterways are the Atlantic Ocean, the Intracoastal and Manatee Cove. Almost 95% of our homes are waterfront. There are twelve catch basins that are maintained by the Town. They are located in the swales which act as our drainage. As separating out the Town’s contributions to the interconnected stormwater management systems is impractical, the Town of Manalapan will rely on the Group Report and Data.
- C. **An Evaluation and Response Plan** – The response plan is the plan of action to be taken based on the results from A. and B. and will be used to:
 1. evaluate trends in pollutants loading from the MS4-see Group Report
 2. evaluate trends in water quality (of discharge from the MS4) see Group Report
 3. Identify portions of the MS4 to be targeted for loading reduction/corrective action-Group Report to date does not indicate any areas need to be targeted.

Part A – Water Quality Monitoring Plan

Currently, the joint NPDES program in Palm Beach County collects ambient water quality data at several monitoring sites based on the location of major outfalls and TMDL’s within the County. For the Water Quality Monitoring Plan, the Town of Manalapan is proposing to use the ambient water quality data provided by the joint program from site LWL-13.

Monitoring Locations

Since the Town of Manalapan does not own any major outfalls within the MS4, the one (1) monitoring station closest to the Town’s MS4 that collects data for the joint program has been selected. The following table identifies this monitoring station, along with relevant information about the location.

MS4 Monitoring Stations Table

Monitoring Station Number	Location Description	Latitude/ Longitude	Receiving Water Body	Verified Impaired?	Adopted TMDL?
LWL13	This former DEP station (28010783) is located at the Ocean Ave Causeway in the Town of Lantana, on south side of the bridge, West of the ICW and East of the Marina and public boat ramp.	26.35025 / -80.00246	Lake Worth Lagoon (South Segment)	Yes. Copper	No

Sampling Method

Palm Beach County Environmental Resource Management (ERM) performs the sampling at monitoring station LWL13. This site is sampled and initially analyzed in-situ by ERM staff using a multi-parameter water quality-monitoring instrument. Water samples are collected, preserved and stored according to the DEP's Standard Operating Procedures. Quality assurance / quality control measures include pre-cleaned equipment blanks, field-cleaned equipment blanks, field spikes, and the collection of duplicate samples.

Further analysis of samples from all ERM-monitored sites is conducted by an independent laboratory under contract with ERM.

Monitoring Parameters

The parameters samples at monitoring station LWL13 are shown in the table below. Since nutrients appear to be a major concern for impairments in water bodies in the State of Florida, total nitrogen and total phosphorous will be the parameters used by the Town for their Assessment Program. Trend graphs and historical data will be evaluated for this site.

MS4 Monitoring Parameters and Sampling Table

Monitoring Station #	Monitoring Parameters	Type of Monitoring	Collection Method	Sampling Frequency
LWL13	Arsenic	Ambient Water Quality	Grab Samples	Quarterly
LWL13	Cadmium	Ambient Water Quality	Grab Samples	Quarterly
LWL13	Chlorophyll-a	Ambient Water Quality	Grab Samples	Monthly
LWL13	Copper	Ambient Water Quality	Grab Samples	Quarterly
LWL13	Dissolved Oxygen	Ambient Water Quality	Grab Samples	Monthly
LWL13	Lead	Ambient Water Quality	Grab Samples	Quarterly
LWL13	Nitrogen, Ammonia	Ambient Water Quality	Grab Samples	Monthly
LWL13	Nitrogen, Nitrate-Nitrite	Ambient Water Quality	Grab Samples	Monthly
LWL13	Nitrogen, Total	Ambient Water Quality	Grab Samples	Monthly
LWL13	pH	Ambient Water Quality	Grab Samples	Monthly
LWL13	Phosphorous, Orthophosphate	Ambient Water Quality	Grab Samples	Monthly

LWL13	Phosphorous, Total Kjeldahl	Ambient Water Quality	Grab Samples	Monthly
LWL13	Salinity	Ambient Water Quality	Grab Samples	Monthly
LWL13	Specific Conductivity	Ambient Water Quality	Grab Samples	Monthly
LWL13	Temperature	Ambient Water Quality	Grab Samples	Monthly
LWL13	Turbidity	Ambient Water Quality	Grab Samples	Monthly
LWL13	Zinc	Ambient Water Quality	Grab Samples	Quarterly

The location of the monitoring station to be used in this Assessment Program is shown in Figure 1 below.



Figure 1. LWL13 Monitoring Station

Part B – Pollutant Loading Estimate Plan

The Palm Beach County MS4 permittee group will be developing pollutant loading estimates during the 3rd year of this permit cycle, using the SIMPLE protocol. In order to provide each permittee with pollutant loading estimates that reflect their respective MS4 areas, the group effort will provide the loading estimates “by MS4,”

in addition to “by watershed” (as was done in past permit cycles). Prior to Year 3, the Town of Manalapan’s will participate in this effort by reviewing its MS4 contributing areas to each receiving water, and will provide updated information on the area extents and the land uses located therein. In addition, any water quality best management practices (BMPs) that are in place within the MS4 area, will be identified, along with their geospatial extent. Information on the pollutant load estimates and event mean concentration values for various land uses is reported in the group’s Joint Annual Report (Year 3).

The group’s estimated pollutant loading results will be provided to each permittee for use in this assessment effort.

To determine a practical estimate of the current pollutant loading, the Town of Manalapan will use the land use based pollutant loading estimates provided by the group as the starting point from which pollutant load reductions will be subtracted. The pollutant load reductions will be estimated based on the BMPs that have been put in place within the MS4 contributing areas. In this way, when future estimates are done, and potentially additional reduction measures or BMPs are put in place, the estimated pollutant loading will reflect the reductions.

Part C – Evaluation and Response Plan

Once the Assessment Program is approved by FDEP, presumably sometime during Year 2 of the permit cycle, Town of Manalapan will extract sampling information for site LWL13 from prior joint annual reports for use moving forward. The first annual report on the Assessment Program will be concurrent with the Year 3 Annual Report Form (March 2020).

Water quality monitoring results will be available annually, and the most recent year’s data will be compared to that which came before, with respect to sampling site LWL13, which monitors the Lake Worth Lagoon just north of the Town’s MS4. A summary of the water quality monitoring data, with respect to our MS4 will be developed and included in Assessment Program Annual Report.

The pollutant loading estimates developed during Year 3 of the permit cycle will be reviewed and adjusted based on the Town’s Stormwater Management Plan (catch basin pollution control, public education, etc.), and if possible, compared with previous permit cycles, with respect to our MS4. A discussion of the comparison will be included in the Assessment Program Annual Report.

Receiving water trending reports/graphs for various parameters, as presented in the Joint Annual Report, will be reviewed, and a discussion will be included in Town of Manalapan’s annual Assessment Report.

Based on the data from the water quality monitoring and the pollutant loading estimates, an effort will be made to determine if one portion of the MS4 should be targeted for additional loading reduction efforts, or additional pollutant control measures.