

City of Riviera Beach
 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 **City of Riviera Beach** 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 pollutant loading exercise is to estimate the Pollutant Loading from the MS4 contributing area, based on land use and BMPs. The City of Riviera Beach 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

Based on the location of our MS4 outfall and the group’s monitoring station, three (3) monitoring stations will be used as part of the assessment. The following table identifies the monitoring station along with relevant information about each location.

MS4 Monitoring Stations Table

Monitoring Station Number	Location Description	Latitude/ Longitude	Receiving Water Body	Verified Impaired?	Adopted TMDL?
LWL4	John D. Macarthur Beach State Park – East of A1A	26.8004 / -80.0443	Lake Worth Lagoon (North Segment)	Cooper & Nutrients	No
C17S44	A1A Bridge	26.8172 / -80.0820	C-17	Nutrients	No
12A	45 th Street Bridge	26.7586 / -80.0880	C-17	Dissolved	No

Sampling Method

Palm Beach County Environmental Resource Management (ERM) performs the sampling at monitoring station LWL4 and 12A. The sites are 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.

South Florida Water Management District samples Site C17S44.

Monitoring Parameters

The parameters samples at the three monitoring stations are shown in Table 1. 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 City for their Assessment Program. Trend graphs and historical data will be evaluated for this site.

Table 1
MS4 Monitoring Parameters and Sampling Table

Monitoring Parameters	ERM Station Sampling Frequency LWL-4	ERM Station Sampling Frequency 12A	SFWMD Station Sampling Frequency C17S44
Arsenic	Quarterly	Bi-Monthly	----
Cadmium	Quarterly	Bi-Monthly	----
Chlorophyll-a	Monthly	Bi-Monthly	----
Copper	Quarterly	Bi-Monthly	----
Dissolved Oxygen	Monthly	Bi-Monthly	Monthly
Lead	Quarterly	Bi-Monthly	----
Nitrogen, Ammonia	Monthly	Bi-Monthly	Monthly
Nitrogen, Nitrate-Nitrite	Monthly	Bi-Monthly	Monthly
Nitrogen, Total Kjeldahl	Monthly	Bi-Monthly	Monthly
pH	Monthly	Bi-Monthly	Monthly
Phosphorous, Orthophosphate	Monthly	Bi-Monthly	Monthly
Phosphorous, Total Kjeldahl	Monthly	Bi-Monthly	Monthly
Salinity	Monthly	Bi-Monthly	Monthly
Specific Conductivity	Monthly	Bi-Monthly	Monthly
Temperature	Monthly	Bi-Monthly	Monthly
Turbidity	Monthly	Bi-Monthly	Monthly
Zinc	Quarterly	Bi-Monthly	----

The location of the monitoring stations and the City of Riviera Beach Boundary is attached.

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 City of Riviera Beach 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 City of Riviera Beach 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.

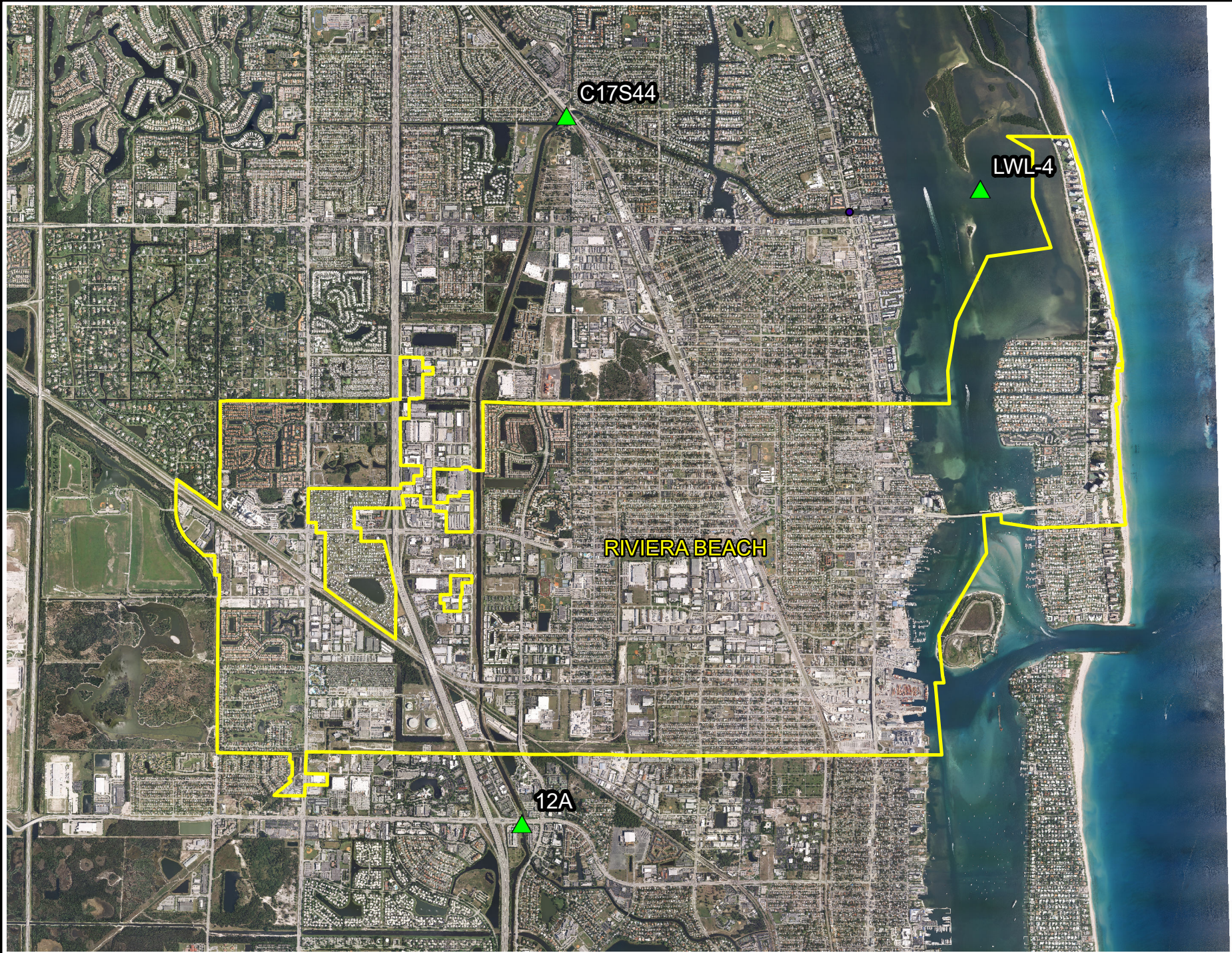
Part C – Evaluation and Response Plan

Once the Assessment Program is approved by FDEP, presumably sometime during Year 2 of the permit cycle, City of Riviera Beach will extract sampling information for sites LWL4, C17S44, and 12A 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 the three sites. 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 City’s Stormwater Management Plan (street sweeping, litter control, catch basin cleaning, public education), 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. Water trending reports/graphs for various parameters, as presented in the Joint Annual Report, will be reviewed, and a discussion will be included in City of Riviera Beach’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.



Water Quality Monitoring Stations