

South Indian River Water Control District
 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 South Indian River Water Control District 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 uses and BMPs
- 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
 - 2. evaluate trends in water quality (of discharge from the MS4)
 - 3. identify portions of the MS4 to be targeted for loading reduction/corrective action

Part A – Water Quality Monitoring Plan

Monitoring Locations

Based on the location of the outfalls of our MS4, two (2) monitoring stations have been selected. The following table identifies these monitoring stations, along with relevant information about each location.

MS4 Monitoring Station Table

Monitoring Station No.	Location Description	Latitude/ Longitude	Receiving Water Body	Verified Impaired	Adopted TMDL?
SW-4	Upstream of MS4 outfall control structure on Canal 4 which discharges to Canal 14	26°55'11.82"N 80°11'28.38"W	NW Fork of Loxahatchee River	No	No
SW-D	Upstream of MS4 outfall control structure on Canal D which discharges to the Turnpike West Borrow Canal	26°54'13.47"N 80°08'27.05"W	SW Fork of Loxahatchee River	Yes	Yes

Monitoring Station SW-4 serves an area of 1120 acres and SW-D serves an area of 2,167 acres of Palm Beach Country Estates west of the Turnpike. Land use for both areas is mainly Low Density Residential (< 3 dwelling units per acre), that is zoned Agricultural Residential.

Sampling Method

The grab sample collection and laboratory analyses are contracted out to Pace Analytical. The water quality sampling procedures follow the protocols set forth by the Florida Department of Environmental Protection (FDEP). The grab samples are collected within the first week of each month if there is discharge occurring, and the test results are provided within one (1) month of the sample collection date.

Monitoring Parameters

The parameters being sampled for each monitoring station, and that will be used as part of South Indian River Water Control District's Assessment Program, include those shown in the table below.

SIRWCD Monitoring Parameters Table

Parameter	Parameter
Alkalinity	Nitrogen, Total Kjeldahl
Arsenic	pH
Cadmium	Phosphorus, Orthophosphate
Chlorophyll-a	Total Phosphorus
Copper	Conductivity (salinity)
Color	Specific Conductivity
Dissolved Oxygen	Temperature
Fecal Coliform*	Total Hardness (as Ca CO ₃)
Lead	Total Suspended Solids
Nitrogen, Nitrate + Nitrite	Turbidity
Nitrogen, Ammonia	Zinc

***SIRWCD's current contract with PACE is for Fecal Coliform. SIRWCD will work to revise contract with PACE to sample for E. Coli instead of Fecal Coliform**

The location of the monitoring stations to be used in this Assessment Program, are shown in the attached figure.

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, South Indian River Water Control District 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.

In accordance with the MS4 Permit, pollutant load estimates for the following parameters must be developed once during each permit cycle: Biochemical Oxygen Demand (BOD₅), Copper (Cu), Total Nitrogen (TN), Total Phosphorus (TP), Total Suspended Solids (TSS), Zinc (Zn).

The EMC values to be used in the Cycle 4 pollutant loading estimates are the same as those used in Cycle 3. This will provide consistency in comparing data to previous estimates.

The EMC values used in the Cycle 3 pollutant loading estimates were taken from the 2012 City of Lake Worth Stormwater Master Plan completed by CDM Smith, because the values were determined to be representative of all of the Palm Beach County MS4s. CDM Smith chose EMC values appropriate for each land use category, from sources including NPDES data, Harvey Harper’s studies, and NURP studies.

Event Mean Concentrations (mg/l)

Land Use	% DCIA	BOD ₅	Cu	TN	TP	TSS	Zn
Agriculture/Pasture	1	3.8	0.013	1.86	0.430	43.2	0.021
Forest/Open	0	17.0	0.006	2.20	0.430	94.0	0.170
Cropland	1	11.0	0.015	1.27	0.350	64.0	0.096
Single-Family, Low Density	5	17.0	0.006	2.20	0.430	94.0	0.170
Single-Family, Medium Density	25	13.0	0.001	0.71	0.210	16.0	0.010
Single-Family, High Density	50	10.0	0.005	1.18	0.280	21.0	0.026
Industrial, Heavy	90	7.0	0.008	1.64	0.340	26.0	0.042
Industrial, Light/Office	60	12.0	0.010	1.90	0.450	74.0	0.100
Commercial	75	3.0	0.001	1.18	0.020	11.0	0.006
Highway, Major	75	5.2	0.025	1.10	0.200	46.0	0.116
Wetlands	25	3.8	0.013	1.86	0.430	43.2	0.021
Water	25	3.0	0.001	1.18	0.020	11.0	0.006

A recent evaluation of DCIA values within Palm Beach County was completed by CDM Smith in November 2012 for the City of Lake Worth Stormwater Master Plan. The DCIA values developed for that

effort are reasonably believed to be more representative of Palm Beach County than national data, and therefore, have been used for this effort.

Land Use	% DCIA
Agriculture/Pasture	1
Forest/Open	0
Cropland	1
Single-Family, Low Density	5
Single-Family, Medium Density	25
Single-Family, High Density	50
Industrial, Heavy	90
Industrial, Light/Office	60
Commercial	75
Highway, Major	75
Wetlands	25
Water	25

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, South Indian River Water Control District 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

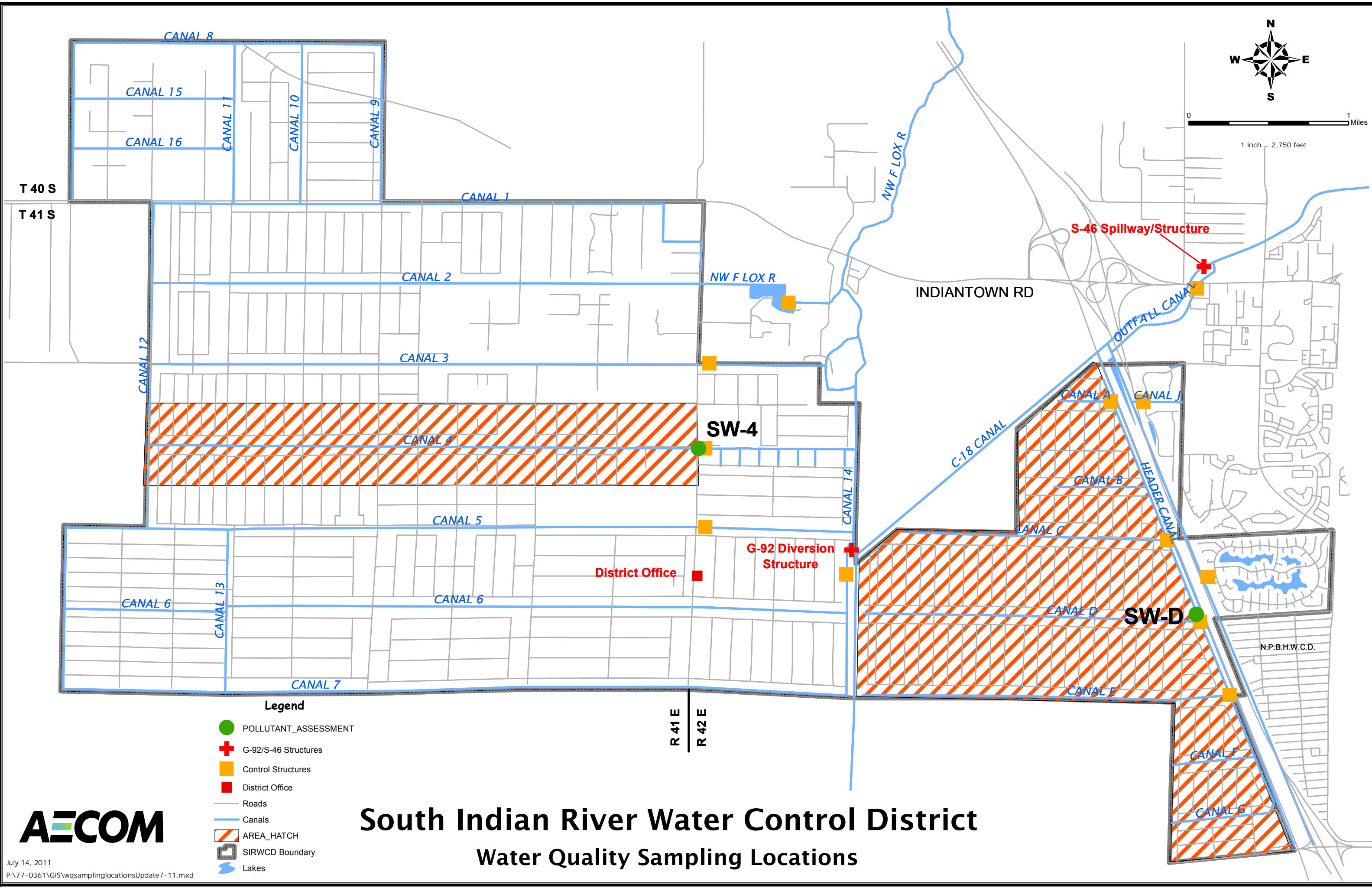
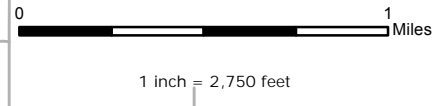
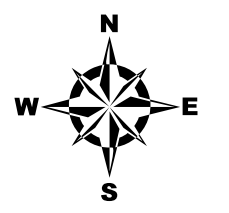
The first annual report on the Assessment Program will be concurrent with the Year 3 Annual Report Form (March 2020).

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 our MS4 discharge. A summary of the water quality monitoring data, with respect to our MS4 will be developed and included in an Assessment Program Annual Report. The SIRWCD monitoring data for SW-4 will be compared to the Loxahatchee River Environmental Control District data collected within SIRWCD for the same period.










The pollutant loading estimates developed during Year 3 of the permit cycle will be reviewed, 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, will be reviewed, and a discussion will be included in South Indian River Water Control District'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.



Legend

-  POLLUTANT_ASSESSMENT
-  G-92/S-46 Structures
-  Control Structures
-  District Office
-  Roads
-  Canals
-  AREA_HATCH
-  SIRWCD Boundary
-  Lakes

South Indian River Water Control District

Water Quality Sampling Locations

