Operational Project Monitoring Plan

For

HOLEY LAND

(HOLY)

11/02/2021

11/4/2021

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SFWMD-FIELD-MP-024-04

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1.0 Project Organization

The following documents define the procedures used by South Florida Water Management District (SFWMD or District) personnel to meet the Florida Department of Environmental Protection's (FDEP or Department) Quality Assurance (QA) Rule, Florida Administrative Code (F.A.C.) 62-160, and should be referred to for details on key personnel and relevant responsibilities.

- Overall project organization and responsibilities -
  - SFWMD Water Quality Bureau (WQB) and Applied Sciences Bureau (ASB) Quality Management Plan (QMP).
- Field activity and data validation responsibilities -
  - SFWMD Water Quality Monitoring Section's (WQM) Quality Manual (QM), Field Sampling Manual (FSM), and applicable Standard Operating Procedures (SOP).
- Laboratory analysis and data validation responsibilities –
  - SFWMD Analytical Service's (AS) Chemistry Laboratory Quality Manual (CLQM) and applicable SOPs.

2.0 Project Description

2.1 Project Introduction and Background

This plan details permit mandated monitoring requirements for surface water quality sampling at stations G200A (G200 is the station name), G204, G205, G206, G372S and sediment sampling at stations HOLYSD1, HOLYSD2, HOLYSD3, and HOLYSD4. This operational monitoring plan includes brief descriptions of all mandates and/or permits requiring monitoring including frequency of collection and parameters by station.

Details regarding compliance monitoring for metals in sediments related tothe four interior Holey Land marsh monitoring stations can be found in the EVPA Sediment Operational Monitoring Plan 084 (EVPA Sediment MP-084).

The HOLY project was initiated in 1983 with the establishment of a Memorandum of Agreement (MOA) among the Florida Department of Environmental Protection (FDEP), the Board of Trustees of the Internal Improvement Trust Fund (BTIITF), the SFWMD, and the Florida Fish and Wildlife Conservation Commission (FFWCC). In 1990, the SFWMD and FFWCC officially required monitoring surface water quality within the project.

The G200 automatic water sampler was removed in 2005 when the Chapter 40E-63, EAA mandate was discontinued for the station as described in Section 2.2.

The Holey Land Wildlife Management Area consists of approximately 35,350 acres (14,140 hectares) bounded by the Miami Canal on the west, the L-5 levees and borrow canal on the south, the Storm Water Treatment Area 3/4 (STA-3/4) Supply Canal on the north, and STA-3/4 on the east. Structures monitored for water quality include the G200

pump station located in the northwest corner of the project's footprint, immediately downstream of the G-373 structure.

Construction of the adjacent A-2 Stormwater Treatement Area (STA), scheduled to be completed in 2023, will result in the demolition of G-200 and the construction of a new structure, G-200E slightly to the east. During this time, G-372S will be the primary source of water to the Holey Land WMA, however temporary pumps near the current location of G-200 might also be employed. It is expected that the temporary pumps will draw water from the same location as G-200, thus the G-200 sampling location should be adequate to monitor these pumps, if this is found not to be the case new monitoring locations will be initiated. These interim inflows (temporary pumps and G-372S) will be monitored, at the same frequency and for the same parameters as G-200, until construction of G-200E is complete and/or they no longer serve as inflows.Once G-200E begins operations it will be monitored at the same frequency and for the same parameters as G-200 was.

G372S is a representative and accessible location for water quality monitoring and it is hydrologically connected to the G372HL box culvert Holey Land WMA inflow structure. Monitoring at G-372S bagan the first quarter of calendar year 2021 because it will likely serve as an inflow source to the Holey Land WMA.

Holey Land outflow structures G-204, G-205, and G-206 are located along the L5 levee between the southwest corner of STA3/4 and the S-8 pump station and discharge directly into the L5 Canal.

The guidance contained herein is intended to help maintain consistency in sampling locations, parameter lists, and frequencies as well as providing documentation of the project scope and an ongoing historical perspective.

2.2 Sampling Mandates

Station locations, sampling frequencies, and parameters to be sampled are dictated by the mandate and/or permits governing this project (see Appendix 1 for details). The water quality monitoring plan for HOLY was originally established for compliance to the 1984 and 1986 FDEP permits Nos. 06-500809209, and 06-501191549, the Chapter 40E-63 Everglades Agricultural Area (EAA) water quality rule and the 1983 and 1990 MOA between SFWMD and FFWCC. In addition, the 1991 Settlement Agreement issued by the United States District Court requires water quality monitoring at structures discharging into the Holey Land WMA.

The FDEP permits Nos. 06-500809209, and 06-501191549 have had three letters of modification from the FDEP. The 1997 permit modification eliminated collection of pesticides at all stations. All monitoring at stations G-200B and G-201 were eliminated based on the 2002 permit modification letter. Additionally, the 2002 permit modification

resulted in elimination of collection of metals at all surface water stations except Cadmium, Copper and Zinc. There was no change to sediment compliance monitoring for metals at the 4 interior marsh stations. The September 20, 2005 minor modification letter eliminated surface water quality monitoring for Orthophosphate, Ammonia, and all metals and ions with no changes to monitoring of the 4 interior marsh stations.

The monitoring plan outlined in the 1983 and 1990 MOA between SFWMD and FFWCC reflects current and future FDEP permit modifications to the HOLY project with a revision in 2003 to monitor phosphorus, mercury and dissolved oxygen is no longer required by the FDEP permits.

In December 2005, the Chapter 40E-63, EAA mandate was discontinued for the G-200, G-204, G-205 and G-206 stations. The discontinued mandate was due to redirected EAA Basin flow in the Miami Canal towards the completed construction of STA3/4 north of the G-373 diversion structure and treated water from STA5 discharge directed south of the G-373 diversion structure in the Miami Canal.

The current monitoring program adheres to the 2005 FDEP permit modification letter and the 1983 and 1990 MOA between the SFWMD and FFWCC which have been administratively extended until further modification.

In May of 2020 the FDEP approved of the direct measurement of TN for the HOLY Sampling Project. TN replaced TKN after this FDEP approval.

In January of 2021, FDEP and SFWMD discussed construction implications of the adjacent A-2 Stormwater Treatement Area (STA) since it will result in the eventual demolition of G-200 and the construction of a new structure, G-200E slightly to the east. During this time, G-372S will be the primary source of water to the Holey Land WMA, however temporary pumps near the current location of G-200 might also be employed. It is expected that the temporary pumps will draw water from the same location as G-200, thus the G-200 sampling location should be adequate to monitor these pumps, if this is found not to be the case new monitoring locations will be initiated. These interim inflows (temporary pumps and G-372S) will be monitored, at the same frequency and for the same parameters as G-200, until construction of G-200E is complete and/or they no longer serve as inflows.Once G-200E begins operations it will be monitored at the same frequency and for the same parameters as G-200 was.

Monitoring was initiated by the District on 07/26/1989 as a MOA between the SFWMD and FFWCC. The FDEP 1984 and 1986 permits and the MOA between the SFWMD and FFWCC have been administratively extended for this project.

2.3.1 Modification or Termination Conditions

The monitoring described herein will continue as required by the mandate(s) listed in Section 2.2 and Appendix 1. Conditions for modification or termination of the project are detailed in the mandate(s) specifying the conditions of the project.

3.0 Geographic Location

3.1 Regional Area

The HOLY project lies in the southwest corner of Palm Beach County (Section 7, Township 47, Range 36) within the Holey Land Wildlife Management Area and Broward County (Sections 11 and 29, Townships 48 and 47, Ranges 36 and 38). The Holey Land WMA is east of the Rotenberger WMA and the L-23 Canal (Miami Canal) and north of the L-5 Canal.

3.2 Station Location and Access

The locations of all monitoring stations are depicted on the map in Figure 1 with exact locations described in Table 1. The levee road access gates at G200 and near G372S are secured with a District lock. The lock requires a "C" key which can be obtained through a request made through the FPM and/or Field Supervisor.

Table 1: HOLY Surface Water Monitoring Sites and GPS Coordinates

Station	Latitude (ddmmss.sss)	Longitude (ddmmss.sss)	Description
G200[1]	262604.403	804839.908	Pump station at NW corner of Holey Land. Sample on the west side of the structure.
G204	261957.097	804553.257	Western discharge culvert on south side of Holey Land along L-5 discharge. Sample on the north side of the structure.
G205	261959.003	804300.226	Middle discharge culvert on south side of Holey Land along L-5 discharge. Sample on the north side of the structure.
G206	262000.860	803908.758	Eastern discharge culvert on south side of Holey Land along L-5 discharge. Sample on the north side of the structure.
G372S	262608.676	804824.732	Seepage pumps intake on north side of G372 pump station. G372S is the source of water that can be moved to G372HL.
HOLYSD1	262429.275	804615.211	Station located at northwest interior of Holey Land Wildlife Management Area
HOLYSD2	262416.275	804319.207	Station located at northeast interior of Holey Land Wildlife Management Area
HOLYSD3	262133.281	804524.211	Station located at southwest interior of Holey Land Wildlife Management Area
HOLYSD4	262104.282	804259.207	Station located at southeast interior of Holey Land Wildlife Management Area

The standard positional goal for station coordinates is detailed in the Wate Quality Monitoring Station Registration SOP (SFWMD-FIELD-SOP-031). Coordinates are relative to NAD83 HARN horizontal datum.

[1]G200 was formerly referred to as G200A.

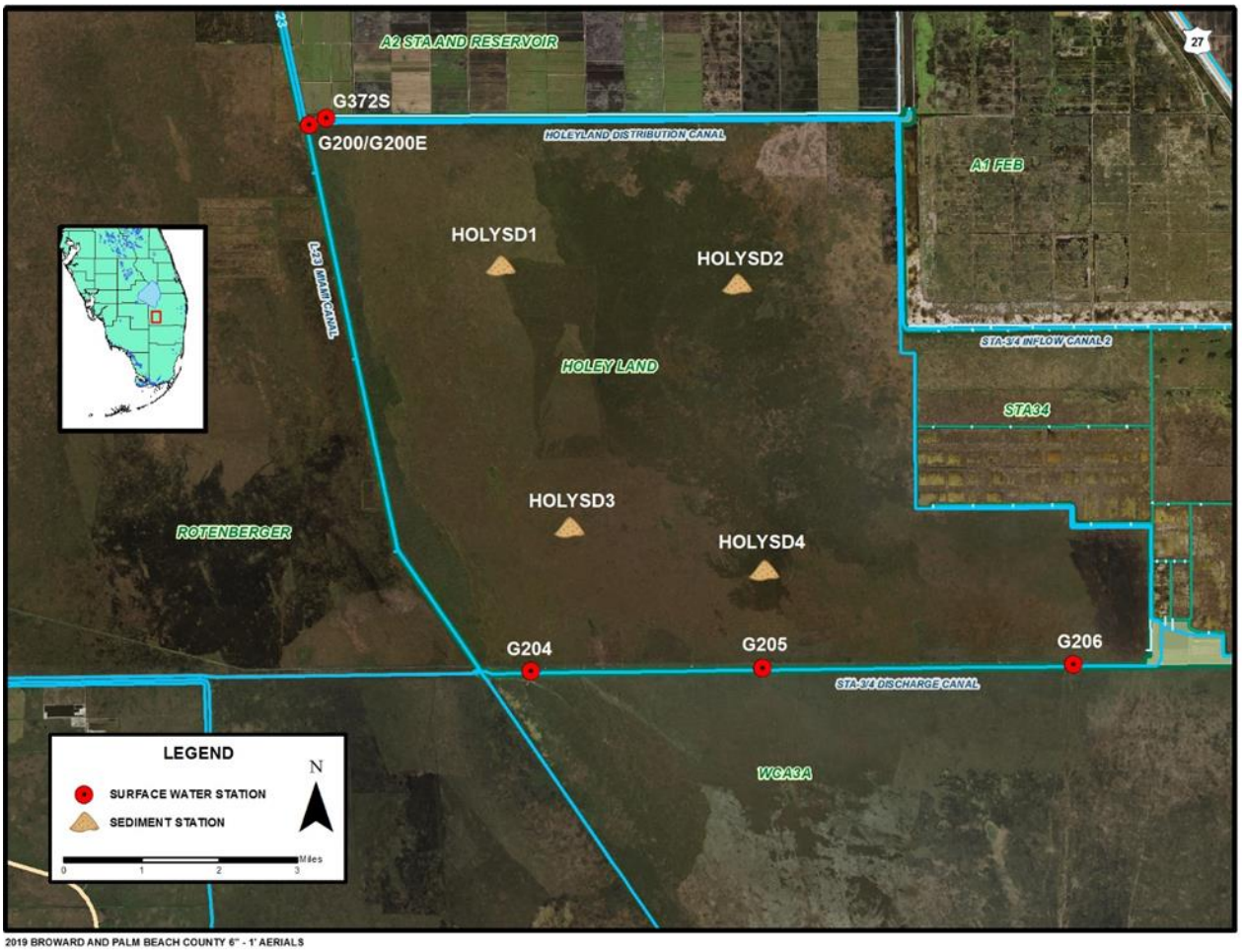

Figure 1: HOLY Site Locations

4.0 Field Activities

4.1 Monitoring Frequencies by Station and Parameter (ACODES)

All monitoring parameters, frequencies of collection and locations are listed in Table 2. Some analytes may be reported by the lab that are not requested by the project.

In addition to surface water samples, annual sediment sampling is conducted at four interior marsh sites. This monitoring is described in detail within the EVPA Sediment Monitoring plan (EVPA Sediment MP-084).

Table 2: HOLY Station Frequency and Parameter TESTS

Station	Matrix	Collection Method	Frequency	Parameter TESTS
G200 G204 G205 G206 G372S	Surface Water	Grab	Quarterly (Q)	Nitrate-Nitrite (NOX), Total Nitrogen (TN), Total Phosphorous (TP)
		In-situ Grab	Q	pH (PH), Specific Conductance (SCOND), Temperature (TEMP)
HOLYSD1 HOLYSD2 HOLYSD3 HOLYSD4	Sediment	Grab	Annually (A)	Antimony (TSB), Arsenic (TAS), Beryllium (TBE), Cadmium (TCD), Chromium (TCR), Copper (TCU), Lead (TPB), Mercury (THG), Nickel (TNI), Selenium (TSE), Silver (TAG), Thallium (TTI), Zinc (TZN)

4.2 Project Specific Guidelines

All surface water grab samples are collected on the upstream side of any structure at a depth of 0.5 meters unless collection of a representative sample is inhibited by vegetation and/or other conditions. If an alternative sampling location is required, a consultation with a Science Technician Supervisor and/or the Field Project Manager (FPM) must take place prior to the sampling being collected; this action must be documented in the field notes.

4.3 Grab Sampling Procedures

Sample collection for this project follows the procedures and requirements found in the *Grab Sampling Protocol* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.4 Field Parameters

The collection of field parameters follows the procedures and requirements outlined in the *Instrument Calibration and Field Measurements* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.5 Field Quality Control Requirements

F Field quality control requirements shall follow the procedures found in the *Field Quality Control Measurements and Requirements* section of the WQM FSM. Project-specific deviations are detailed in Section 4.2.

4.6 Autosampler Collection

There is no requirement for the use of autosamplers for this project.

4.7 Sample Submission

If the District laboratory is to be used, samples are transported to the laboratory and submitted for analyses in accordance with the requirements specified in the WQM FSM. Samples are submitted to the laboratory on the same day as collection or via courier the

following day. Sample acceptance criteria are detailed in Section 6 of the CLQM. If samples are submitted to another laboratory that laboratory must meet the contract laboratory requirements as specified in Section 5.2 below.

5.0 Data Quality Objectives

5.1 Data Usage

The data from this project are compiled and are summarized in an annual report in accordance with the conditions outlined in the mandate named in Appendix 1.

5.2 Data Quality

All monitoring described herein meet the requirements conveyed in the FDEP's QA Rule, 62-160 F.A.C. The District has adopted a uniform set of DQOs following criteria detailed within the *Analytical Methods and Default QA/QC Targets* table of the CLQM.

Field parameter DQOs are described in the *Field Instrument Minimum Accuracy Requirements* table found in the *Instrument Calibration and Field Measurements* section of the FSM. The most recent version of the FSM details the specific field testing DQOs at the time of sample collection.

Samples are analyzed according to the provisions within the FDEP QA Rule, 62-160 F.A.C. and the CLQM. The most recent version of the CLQM details DQOs at the time of sample collection for each specific laboratory analysis. Data are qualified in accordance with the FSM, CLQM and applicable data validation SOPs.

No contract laboratory is being used.

5.3 Completeness Target

The completeness target (i.e., the number of samples successfully collected and analyzed, as a percentage of those that were planned) has been set at 95% annually for this project. Sampling attempts shall be included in the completeness target. At times samples will not be able to be collected due to no flow or low water conditions, unsafe station conditions, equipment malfunction, site maintenance, tropical storms/hurricanes or other unforeseen problems that might affect sample collection and/or quality. If samples cannot be collected on an attempt, collectors shall document the sample as a "NOB" to indicate an attempt was made and/or the sample could not be collected for the documented reasons.

6.0 Data and Records Management

The District evaluates data in accordance with the data quality objectives stated in the District's FSM and CLQM. All data submittals shall conform to existing District guidelines.

6.1 Contract Deliverables

No contract deliverables are associated with this project.

6.2 Data and Record Storage

After the data validation process, all data and records are maintained so that end users can retrieve and review information relative to a sampling event. Field records are maintained in accordance with the *Archive Records Storage and Retention* SOP (SFWMD-FIELD-SOP-022). All analytical data and specified metadata are sent to the DBHYDRO database for long-term storage and retrieval.

The District shall maintain master copies of field and laboratory generated records. It is the responsibility of the District to maintain both records of current and historical methodologies and operating procedures so that at any given time the conditions that were applied to a sampling event can be evaluated.

Field records storage protocols are outlined in the *Archive Records Storage and Retention* SOP (SFWMD-FIELD-SOP-022). Corrections of field data or records must follow the applicable WQM *Correction of Field Records SOP* (SFWMD-FIELD-SOP-032) and the FSM. Corrections to data in DBHYDRO must follow *Data Investigations and Corrections* (SFWMD-DVS-SOP-010).

7.0 References

FDEP (Florida Department of Environmental Protection). Florida Department of Environmental Protection Table as Required By Rule 62-4.246(4) Testing Methods for Discharges to Surface Water. April 25, 2006.

FDEP (Florida Department of Environmental Protection). Quality Assurance Rule, 62-160 Florida Administrative Code (F.A.C.)

SFWMD (South Florida Water Management District). Archive Records Storage and Retention, SFWMD-FIELD-SOP-022, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). Chemistry Laboratory Quality Manual (CLQM), SFWMD-LAB-QM-20##-001 or most current effective version. Analytical Services Section

SFWMD (South Florida Water Management District). Correction of Field Records, SFWMD-FIELD-SOP-032, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). Field Sampling Manual (FSM), SFWMD-FIELD-FSM-001, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). Field Quality Manual (QM), SFWMD-FIELD-QM-001, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). Quality Management Plan (QMP), SFWMD-QS-QM-001. Applied Sciences and Water Quality Bureaus

SFWMD (South Florida Water Management District). Water Quality Monitoring Station Registration, SFWMD-FIELD-SOP-031, Water Quality Monitoring Section

SFWMD (South Florida Water Management District). *Data Investigations and Corrections SOP*, SFWMD-DVS-SOP-010, Data Validation Services Unit.

8.0 Revisions and Modifications

Version	Date	Section	Notes
01	04/23/14	All	Review and revise plan template
02	12/20/16	2; 3.1; 3.2	Review and revise to comply with the installation of the 'temporary' electric pumps at G200
		Figure 1	Updated map
		All	Annual review, no content changes, made formatting edits to match OMP template for next version
03	4/23/2018	Section 2, Table 1 and 2, Appendix 1, Figure 1	Updated coordinates for G204, G205, G206 to reference the specific sampling location. Added field parameters to table 2. Updated mandates in Appendix 1. Added details regarding monitoring history of HOLY project in Section 2. Updated figure 1. Version 03 out for signatures on this date.
04	11/02/2021	All	Updated to match the most current MP Template language (Template Version Date April 28, 2021); Changed TKN to TN per the District's Total Nitrogen Fact Sheet and concurrence of FDEP on 05/12/2020. Added Station G372S because of construction of A-2 STA and expected source of inflow water to Holey Land WMA.

Appendix 1: Site Requirements by Mandate

Mandate	Station	Collection Method	Frequency	Parameters TESTS
FDEP permits; 09/20/2005 letter modification 06-500809209 06-501191549	G200, G204 G205, G206	Grab	Quarterly (Q)	Nitrate-Nitrite (NOX), Total Nitrogen (TN), Total Phosphorus (TP)
		In-situ Grab	Q	pH (PH), Specific Conductance (SCOND), Temperature (TEMP)
1983 and 1990 MOA between SFWMD and Florida GFWFC (2003 revision)	G200, G204 G205, G206	Grab	Q	TP
		In-situ Grab	Q	Dissolved Oxygen (DO)
1991 Settlement Agreement	G200	Grab	Q	NOX, TN, TP
		In-situ Grab	Q	DO, PH, SCOND, TEMP
FDEP permits 06-500809209 06-501191549	HOLYSD1 HOLYSD2 HOLYSD3 HOLYSD4	Grab	Annually	Antimony (TSB), Arsenic (TAS), Beryllium (TBE), Cadmium (TCD), Chromium (TCR), Copper (TCU), Lead (TPB), Mercury (THG), Nickel (TNI), Selenium (TSE), Silver (TAG), Thallium (TTI), Zinc (TZN)
FDEP request January 2021 due to A-2 STA construction and anticipated operational changes	G372S	Grab	Q	NOX, TN, TP
		In-situ Grab	Q	DO, PH, SCOND, TEMP