

RESOLUTION NO. 2010-199

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY FLORIDA, APPROVING THE TERMS, OF A COOPERATIVE AGREEMENT BETWEEN ST JOHNS COUNTY AND THE ST JOHNS RIVER WATER MANAGEMENT DISTRICT REGARDING THE DEEP CREEK WEST REGIONAL STORMWATER TREATMENT (RST) FACILITY AND AUTHORIZING THE COUNTY ADMINISTRATOR OR DESIGNEE, TO EXECUTE THE AGREEMENT ON BEHALF OF THE COUNTY.

WHEREAS, St Johns River Water Management District (the District) and St Johns County BCC (the County) wish to enter a cooperative agreement to provide for the joint management of the RST Facility located in St. Johns County and licenses the County to enter upon the RST Facility; and

WHEREAS, the cooperative agreement licenses the County to provide maintenance and other operations per the agreement upon the RST Facility; and

WHEREAS, to the extent that there are typographical, scrivener or administrative errors that do not change the tone, tenor, or concept of this Resolution, then this Resolution may be revised without subsequent approval by the Board of County Commissioners.

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA AS FOLLOWS:

Section 1. The above recitals as hereby incorporated into the body of this Resolution and adopted as findings of fact.

Section 2. The Board of County Commissioners hereby approves the terms, provisions, conditions, and requirements of the attached Cooperative Agreement and authorizes the County Administrator, or designee, to execute said Agreement.

Section 3. The Clerk of Court is instructed to record the original Interlocal Agreement in Official Records of St. Johns County, Florida.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, Florida, this 21st day of September, 2010.

BOARD OF COUNTY COMMISSIONERS OF
ST. JOHNS COUNTY, FLORIDA

Attest: Pam Helterman
Deputy Clerk

By: Ron Sanchez
Ron Sanchez, Chair

Effective Date: September 21, 2010

RENDITION DATE 9/23/10

COOPERATIVE AGREEMENT

Deep Creek West Regional Stormwater Treatment Facility
Yarborough Parcel

THIS COOPERATIVE AGREEMENT ("Agreement") is made as of the _____ day of _____, 2010, between the GOVERNING BOARD OF THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373 of the Florida Statutes, whose mailing address is P.O. Box 1429, Palatka, Florida 32178-1429 (hereinafter called the "District") and ST. JOHNS COUNTY, a political subdivision of the state of Florida, whose address is 500 San Sebastian View, St. Augustine, FL 32084 (hereinafter called the "County").

WITNESSETH

Whereas, the District holds title to certain lands known as the Deep Creek West Regional Stormwater Treatment Facility ("RST Facility"), located approximately 4.5 miles east of the St. Johns River, south of County Road 206, south east of Hastings, in St. Johns County, as depicted on Exhibit "A" attached hereto and by this reference made a part hereof; and

Whereas, the District has initiated the development of the RST Facility, which includes a combination of catchbasins and vegetative filtration systems designed specifically to address nutrient and agricultural runoff issues associated with regional agricultural activities; and

Whereas, the County has the personnel and experience necessary to provide for the management and maintenance of natural, cultural, and recreational resources, nuisance and exotic plants, and components of the RST Facility; and

Whereas, the District, has the personnel and experience necessary to provide for the monitoring and maintenance of the water quality sampling equipment, nuisance and exotic plants, and components of the RST Facility; and

Whereas, by this Agreement, the District and the County desire to provide for the joint management of the RST Facility; and

Whereas, by this Agreement, the District licenses the County to enter upon the RST Facility for the purposes set forth herein; and

Whereas, the Operation and Management Plan ("O&M Plan") agreed upon by the parties, attached as Exhibit B and by reference incorporated herein, provides detailed information on the operation and management of the RST Facility and equipment. It identifies roles and responsibilities of key divisions within the District and the County to ensure that the RST Facility maximizes the intended benefits of the stormwater project and meets the goals of the District; and

Whereas, the District enters into this Agreement pursuant to Section 373.083(5) Florida Statutes, and Policy Number 90-16 (Cooperative Agreements), and

NOW, THEREFORE, in consideration of the premises above, which are hereby incorporated into the body of this Agreement and adopted as Findings of Fact, and the mutual covenants, terms, and conditions below, the parties hereby agree as follows:

1. The initial term of this Agreement is for a period of four (4) years, commencing on October 1, 2010. Thereafter, this Agreement will automatically renew in five (5) year increments, unless otherwise terminated as set forth herein.
2. The parties shall undertake their specified responsibilities set forth in the O&M Plan.
3. In addition to the activities set forth in the O&M Plan, the parties agree as follows:
 - a. The County shall secure electrical services in the County's name and assume all associated costs for such service.
 - b. The County shall provide natural resource-based recreational opportunities, excluding fishing, and as consistent with the O&M Plan, within only those portions of the RST Facility depicted in Exhibit A.
 - c. The County shall provide other services, including general management, as necessary to guarantee appropriate access and public, health, safety and welfare; e.g., electrical maintenance, firelines and roadways.
4. The parties mutually agree that any use or development of the RST Facility shall be subject to the following conditions:
 - a. The function of the RST Facility with respect to water management will be to serve as a regional stormwater treatment facility.
 - b. Any development of the RST Facility shall be set forth in the O&M Plan. No deviation from the O&M Plan shall occur without prior written approval of both parties.
 - c. No amendment to the O&M Plan shall be effective unless it is set forth in writing, signed by both parties, and made an amendment to this Agreement.
 - d. Historical and archaeological resources shall be preserved.
5. The County may enter into agreements with third parties to develop and implement the O&M Plan or to subcontract day-to-day management responsibilities to environmental, educational or governmental organizations and agencies consistent with the approved O&M Plan; provided, however, that any such third party agreements shall be subject to the prior written approval of the District, and such third parties shall agree to comply with the terms and conditions of this Agreement. The District shall not unreasonably withhold approval of such third party agreements.

6. The County shall pay all lawful debts incurred by it with respect to the RST Facility and shall satisfy all liens of contractors, sub-contractors, mechanics, laborers, and materialmen regarding any maintenance, management, construction, alteration and repair ordered by it in and on the RST Facility and any improvements thereon. Furthermore, the County shall not have authority to create any mortgages on the RST Facility or liens for labor or material on or against the RST Facility. All persons contracting with the County for the construction or removal of any structure or for the erection, installation, alteration or repair of any structure or improvement on the RST Facility, including materialmen, contractors, mechanics and laborers involved in such work, shall be notified that they must look to the County only to secure the payment of any bill or account for work done, material furnished, or money owed during the term of this Agreement.
7. The parties and any other governmental agencies or organizations involved in management-related activities on the RST Facility shall, through the term of this Agreement, provide, maintain, and keep in force a program of insurance or self-insurance covering its liabilities as prescribed by Section 728.28, Florida Statutes. The District's liability is further limited by the provisions of Section 373.1395, Florida Statutes. Nothing in this Agreement shall be construed as a waiver of the District's or the County's sovereign immunity in excess of the waiver under Section 768.28, Florida Statutes, or any other provision of law.
8. Any non-governmental agencies, organizations, or companies involved in management-related activities on the RST Facility shall be required to maintain general liability insurance in an amount not less than one million dollars covering its liabilities in the event of personal injury or death to persons or damage to property resulting from use or management of the RST Facility.
9. This Agreement and any and all rights and privileges contained herein are for the sole use of the parties and shall not be assigned or transferred to a third party without the written consent of the other party.
10. The District reserves the right for itself, its agents, consultants and employees, to enter upon the RST Facility for purposes of sampling, monitoring, and inspecting the RST Facility and determining compliance with the terms of this Agreement any other purpose set forth herein. The District, its agents, consultants or employees, shall be responsible for promptly closing and locking any gates through which they may pass in the exercise of such right of entry.
11. Either party may terminate this Agreement, with or without cause, at any time upon ninety (90) days written notice to the other party. In the event of termination, all improvements that are affixed to the realty shall become the property of the District.

12. The access to, disclosure, non-disclosure, or exemption of records, data, documents, correspondence, and/or materials associated with this Agreement shall be subject to the applicable provisions of the Florida Public Records Law (Chapter 119, Florida Statutes) and other applicable State or Federal law. Access to such records may not be blocked, thwarted, and/or hindered by placing the public records in the possession of a third party or an unaffiliated party.

13. All notices, consents, approvals, waivers and elections which any party shall be required or shall desire to make or give under this Agreement shall be in writing and/or shall be sufficiently made or given only when mailed by certified mail, postage prepaid, return receipt requested, addressed as follows to the parties listed below or to such other address as any party hereto shall designate by like notice given to the other party:

DISTRICT: ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
PO BOX 1429
PALATKA, FL 32178-1429
ATTENTION: DIRECTOR, DIVISION OF LAND MANAGEMENT

COUNTY: ST. JOHNS COUNTY
500 SAN SEBASTIAN VIEW
ST. AUGUSTINE, FL 32084
ATTENTION: Michael Wanchick, Administrator

Notices, consents, approvals, waivers, and elections given or made as aforesaid shall be deemed to have been given and received on the date of the mailing thereof as aforesaid.

14. Wherever used herein, the terms "District" and "County" include the parties to this Agreement, their respective employees, and the heirs, legal representatives, successors, and assigns.

15. If any word, phrase, sentence, part, subsection, or other portion of this Agreement, or any application thereof, to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, subsection, other portion, or the proscribed application thereof, shall be severable, and the remaining portions of this Agreement, and all applications thereof, not having been declared void, unconstitutional, or invalid shall remain in full force, and effect.

16. This Agreement constitutes the entire agreement of the parties. There are no understandings dealing with the subject matter of this Agreement other than those contained herein. This Agreement may not be modified, changed or amended, except in writing signed by the parties or their authorized representatives.

17. This Agreement shall be construed and interpreted according to the laws of the state of Florida. Venue for any administrative action arising under this Agreement shall be in Putnam County, Florida. Venue for any civil action arising under this Agreement shall be in St. Johns County, Florida.
18. Nothing contained in this Agreement shall be construed as a waiver of or contract with respect to the regulatory or permitting authority of the District or the County as they now or hereafter exist under applicable laws, rules and regulations.
19. Nothing in this Agreement shall create any rights for the benefit of any persons not a party to this Agreement.
20. To the extent that either the District or the County needs to obtain/acquire and maintain permits, certificates, licenses and/or approvals in order to undertake the tasks set forth in this Agreement or the attached and incorporated O&M Plan, then the District or County shall be responsible for securing, obtaining/acquiring, and maintaining, at the District or County's sole expense, any and all permits, certificates, licenses, and/or approvals required by federal state, and/or county law, rule, regulation, or ordinance.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement, on the date and year first above written.

ST. JOHNS RIVER WATER
MANAGEMENT DISTRICT

By: _____
Kirby B. Green III, Executive Director

APPROVED AS TO LEGAL FORM AND CONTENT:

Stanley J. Niego
Office of General Counsel, SJRWMD

ST. JOHNS COUNTY

By: _____

Title: _____

Executed on _____, 2010

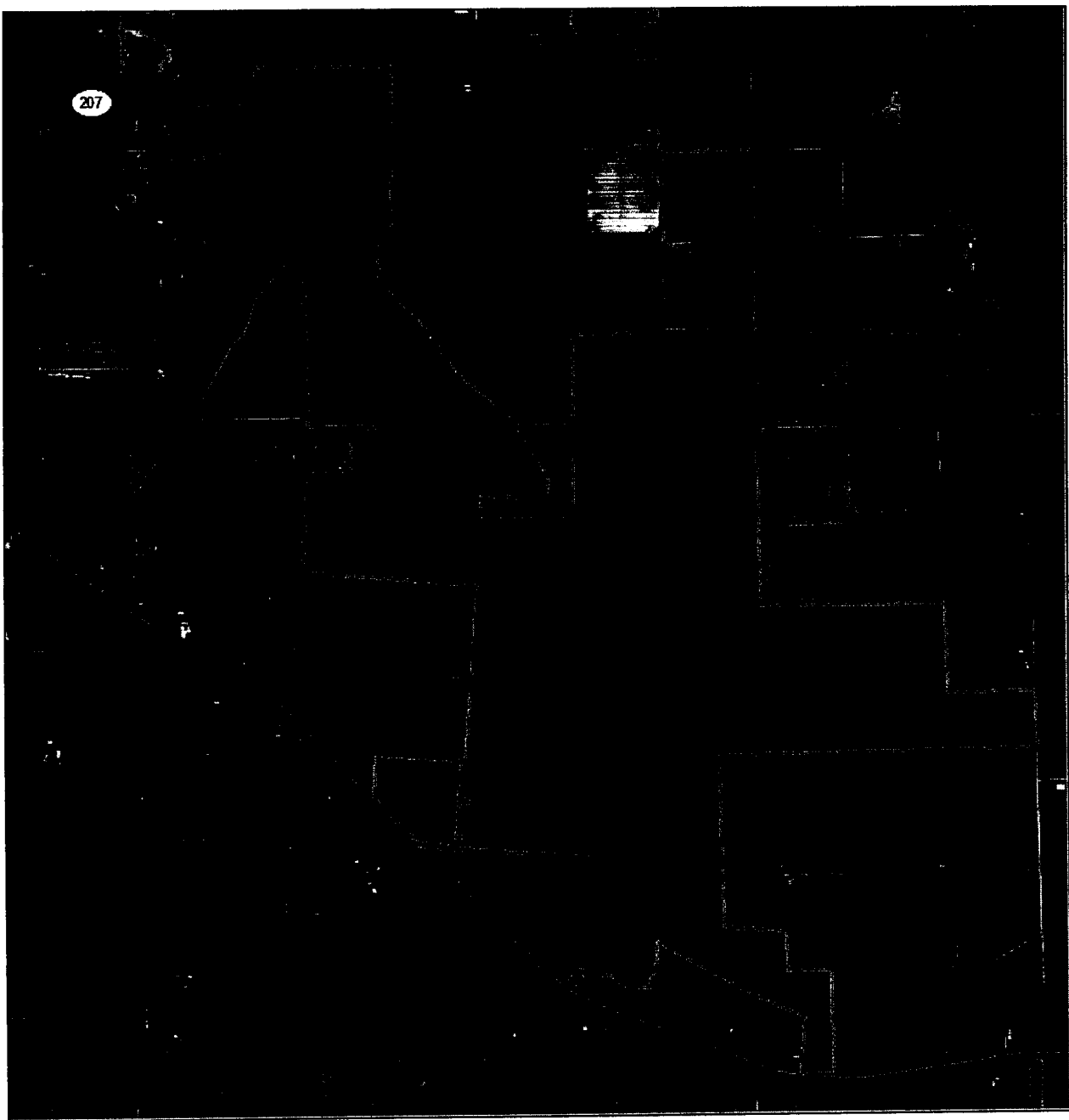
ATTEST:

By: _____

Title: _____

APPROVED BY:

COUNTY ATTORNEY






Deep Creek Conservation Area
Deep Creek West RST

Exhibit A



0.3
 Miles
 1:24000

Legend

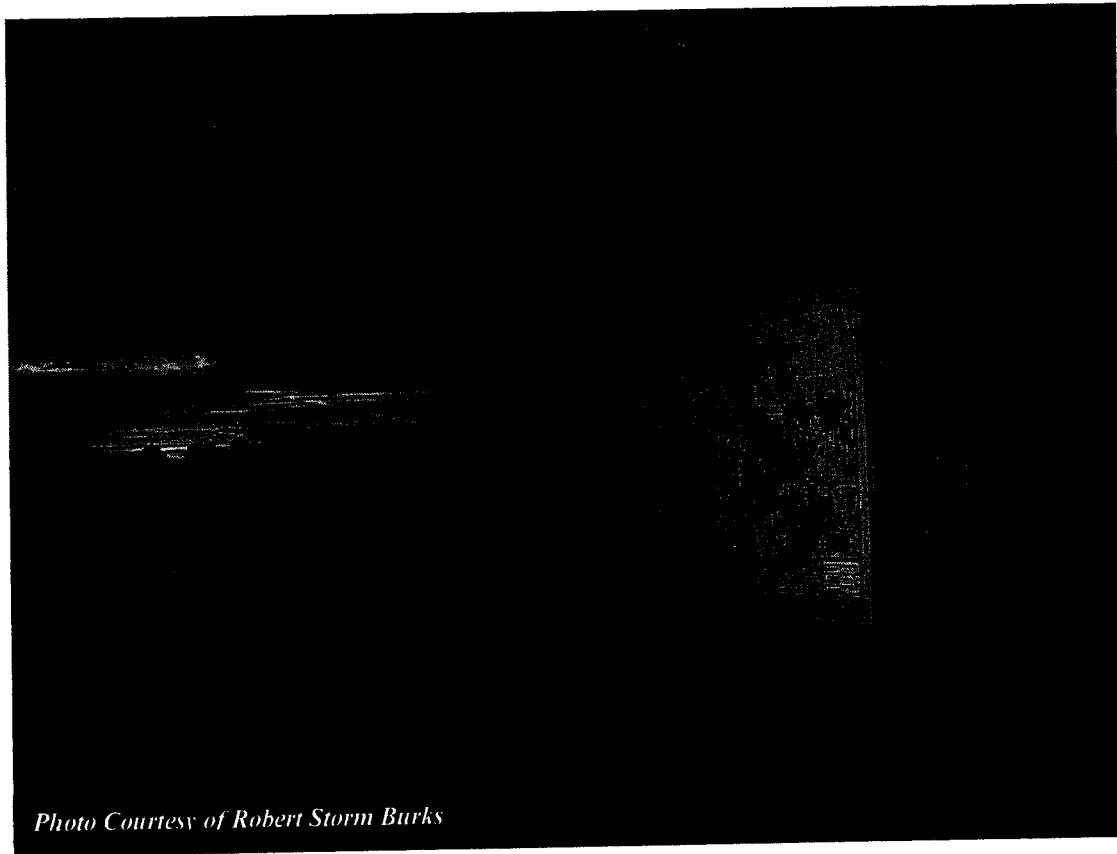
-  Recreation Area
-  RST Boundary
-  Deep Creek Conservation Area

The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems Program Management, P.O. Box 1429, 4049 Reid Street, Palatka, Florida 32178-1429 Tel: (386) 329-4176.

EXHIBIT B

Operation and Management Plan

Deep Creek West (Yarborough) Regional Stormwater Treatment Facility St. Johns County, Florida



**St. Johns River Water Management District
April 2010**

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- Appendix A:* Project Charter Document
- Appendix B:* Treatment Pond Pump and Electrical Standard Maintenance Requirements and Pump Station Operation and Maintenance Manual
- Appendix C:* Treatment Wetland Design and Monitoring Document
- Appendix D:* Biological Assessment
- Appendix E:* Site and Design Technical Memorandum (CDM, Inc.)
- Appendix F:* Ecological Risk Evaluation

1.0 Introduction

The purpose of this document is to provide information on the operation and management (O & M) of the Deep Creek West (Yarborough Tract) Regional Stormwater Treatment (RST) facility. In addition, this document will identify the roles and responsibilities of key divisions within the St. Johns River Water Management District (District) and St. Johns County (County) to ensure that the facility maximizes the intended benefits of the project and meets the goals of the District. It also provides some background on the reason for the project and its anticipated benefits.

Operation and management of the Deep Creek West RST facility is a cooperative effort between the District and the County. Close coordination between these units is essential to ensuring that the treatment system is successful in achieving nitrogen, phosphorus, and total suspended solids (TSS) reduction goals. Nutrient reductions are needed to meet the Total Maximum Daily Loads (TMDLs) for the impaired waters of the freshwater section of the St. Johns River as listed on the Florida Department of Environmental Protection's 303(d) list and as mandated by the Clean Water Act.

This document identifies responsibilities according to major project components and identifies the organizational units having lead responsibility for O & M of each component. It also identifies which units should be consulted under different circumstances. The primary divisions involved along with contact information are listed in Section 7. The responsibilities of these groups are described in connection with the following major project components: Water Quality Monitoring, Invasive Vegetation Monitoring, Fish Kill Contingency Plan, Pump and Forebay Management, Treatment Pond Management, Treatment Wetland Management, and General Maintenance.

This plan reflects the dynamic nature of these RST projects. As the project matures this plan will require modification to reflect lessons learned through time. It is the goal of the project team to consistently review and amend this document as needed. To facilitate this it will be stored in Portable Document Format (.pdf) within a program folder on the District's server. Any changes to the original Word document should be authorized by the Basin Program Manager prior to modification.

Additionally, this O & M plan will be placed on the project team site once project web access is enabled by the District.

O & M plans will be reviewed at least once per calendar year between January and March. If a team member determines that a change is warranted at other times, they may provide their suggested changes to the Basin Program Manager. The Program Manager will then present the suggested change to the project team, as applicable.

2.0 Project Purpose and Background

The lower St. Johns River (LSJR) is a blackwater, tidal estuary that extends approximately 100 miles from the confluence of the Ocklawaha River to the mouth of the St. Johns River, where it empties into the Atlantic Ocean at Mayport. The LSJR can be divided into four ecological zones based on flow patterns, average salinity regime, and morphological characteristics: a freshwater riverine zone which extends from the city of Welaka north to Black Creek near Green Cove Springs; a predominantly oligohaline, lacustrine zone extending from Black Creek northward to the city of Orange Park; a mesohaline lacustrine zone reaching from Orange Park to the Fuller Warren Bridge in Jacksonville; and a polyhaline riverine zone downstream to the mouth of the river. Algal blooms that peak during spring and summer can be particularly severe in the freshwater lacustrine zone of the river, degrading water quality, decreasing dissolved oxygen concentrations, and prohibiting light from reaching submerged grasses.

The Tri-County Agricultural Area (TCAA), located in Flagler, Putnam, and St. Johns counties, encompasses 380,500 acres within the LSJR. Approximately 10% of the TCAA watershed acreage, or 31,000 acres, is irrigated cropland; predominately potato, cabbage, and sod farms according to a 2006 land use update. Row crop agriculture contributes 82% of the existing total nitrogen and 72% of the phosphorus loads in the TCAA watershed. Early spring production of irrigated vegetables grown on flat and poorly drained soils, with standard agricultural management practices of fertilization, irrigation and drainage, effectively conveys nutrient-rich stormwater to the freshwater zone of the river through a network of canals and ditches.

The objective of the District's regional stormwater system initiative is to design, construct and operate site-specific regional treatment systems to improve water quality in the receiving surface waters and mainstem of the Lower St. Johns River. This is achieved by

removing nutrients in the form of dissolved and particulate material from drainage waters from priority agricultural basins before water is discharged to surface waters at the basin outlet. The Deep Creek West RST facility was the first facility constructed in the TCAA.

Since 1998, best management practices (BMPs) designed to reduce nutrient-rich runoff have been implemented in the TCAA, primarily through growers voluntarily participating in the St. Johns River Water Management District's TCAA Water Quality Protection Cost-Share Program. Annual reductions of nitrogen and phosphorus through implementation of in-field agricultural BMPs have been estimated to reduce watershed nitrogen loading by 24% and phosphorus loading by 14%, based on 2000 land use data for row crop acreage. However, the reduction in nutrients through implementation of current in-field BMPs is not sufficient to meet nitrogen and phosphorus reductions required for the TMDLs for the freshwater section of the river, as mandated by the Clean Water Act for the Florida Department of Environmental Protection's 303(d) listed impaired waters. In order to meet the TMDL for the freshwater lacustrine zone of the LSJR, the TCAA must implement BMPs on all of the row crop acreage in order to meet the required 37% reduction in nitrogen and 15% reduction in phosphorus from the watershed. If these reductions are not met, then other public works projects must be implemented to achieve the TMDL reduction. These goals are based on the Basin Management Action Plan (BMAP) dated October 2008.

In an effort to meet nutrient reductions required by the TMDL, the District purchased the Yarborough Tract for construction of an RST facility to treat nutrient-laden runoff from the Deep Creek sub-basins that eventually discharges into the Deep Creek tributary of the LSJR. The Deep Creek sub-basin is a high priority sub-basin comprised of 22,806 acres with 95% agricultural land use, 65% of which is row crop agriculture.

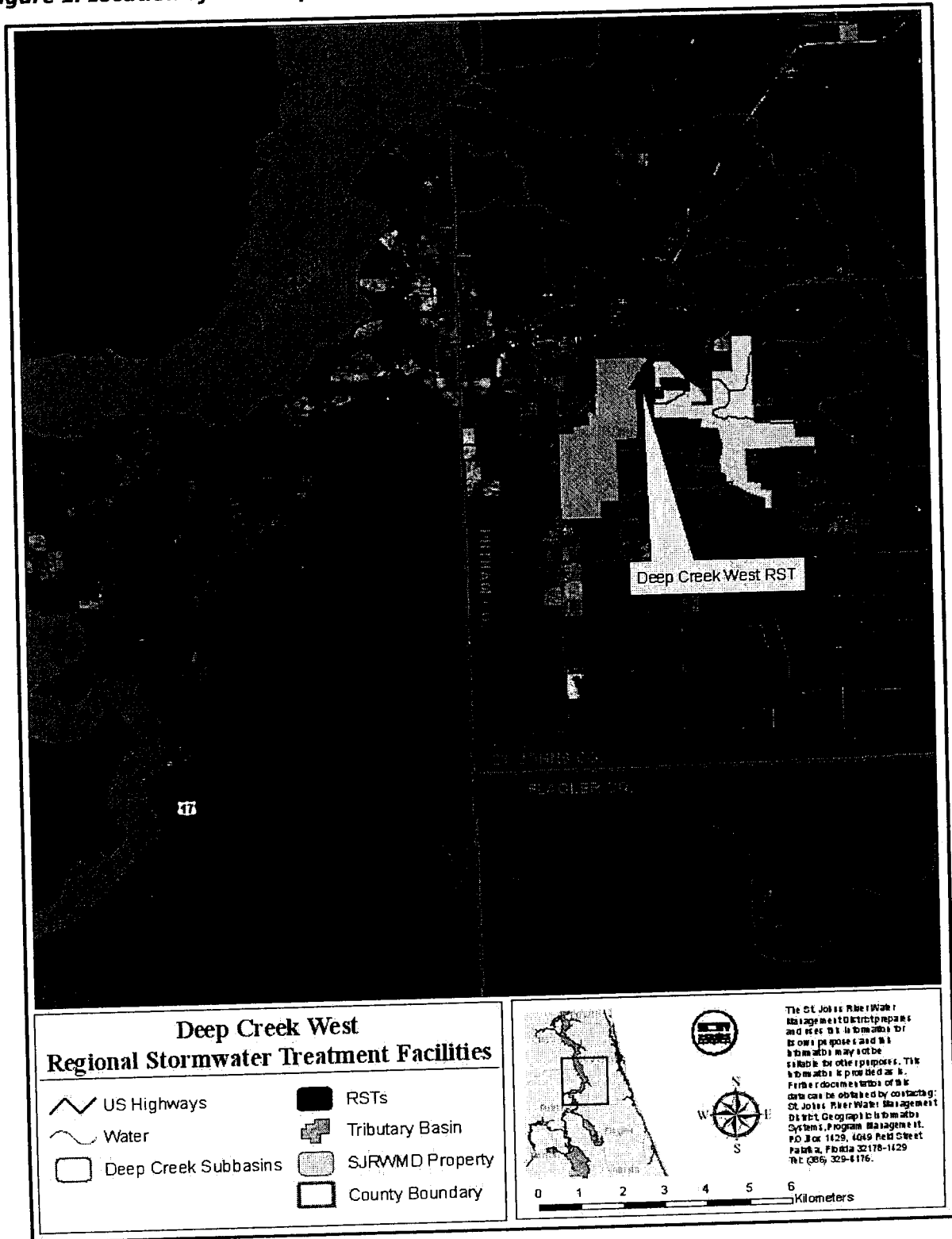
During the life span of each treatment component (pond and wetland) of the RST facility, the primary monitoring objective will be to maintain the optimum performance of each treatment component, and its ability to reduce nutrients and sediments from agricultural runoff that is conveyed through the system during base flow and storm flow conditions. The secondary objective will be to maintain the physical and biological health of the system itself. To accomplish these objectives, various parameters will be monitored by the District's Division of Environmental Sciences and will include base flow and storm flow water quality, fish tissue analyses, seasonal vegetation mapping, soil oxidation/reduction conditions, wildlife surveys, and

land use surveys. The complete monitoring plan is included within Appendix C. Monitoring parameters are based on information compiled during the Biological Assessment Report (Appendix D), Site and Design Technical Report (Appendix E), and the Ecological Risk Evaluation (Appendix F).

3.0 Project Location

The District purchased the entire Yarborough Tract in 1998, consisting of 1,103 acres. The Deep Creek West facility is located on a portion of the acreage purchased, approximately 93 acres, located in southwest St. Johns County, Florida (Section 21 of Township 9 South, Range 28 East) approximately 1.5 miles from Hastings, Florida within the Deep Creek sub-basin (Figure 1).

Figure 1. Location of the Deep Creek West RST Facility



4.0 Project Design

The Deep Creek West RST facility is a BMP treatment train consisting of a 0.1-acre sediment forebay, a 15-acre wet detention pond and a 38-acre treatment wetland system designed to treat agricultural runoff from a 1,196-acre watershed; George Miller Road separates the wet detention pond and the treatment wetland (Figure 2). The wet pond bottom elevation is -6 ft NGVD and the pond side slope is 4:1. Wet pond water flows through a weir at the pond outfall. The wet pond weir crest is 7.39 ft NGVD. The wet pond maintains a permanent pool at approximately 7.5 ft NGVD with the depth of the permanent pool at 13.5 ft.

A 15-acre wetland mitigation area, within the 38-acre wetland, for the State Road 207 widening in St. Johns County by the Florida Department of Transportation is shown in Figure 4. Environmental Sciences staff is the contact for the wetland mitigation area.

Agricultural drainage water is pumped from the confluence of Hastings Drainage District (HDD) canals No. 1 and No. 2, located at the north end of the wet detention pond into the wet detention facility. The pump station is equipped with two 10-cfs pumps and the telemetry is set up to continuously pump canal base flow (average 1.5 cfs) as well as storm runoff (maximum 20 cfs into the system). The pump station is designed for 90% capture of flow conveyed in HDD canals No.1 and No. 2. Pond-treated water exits and gravity flows continuously to the wetland through a weir structure and a siphon culvert under George Miller Road (Figure 3). Facility construction was completed in 2005 and the entire system became operational in April 2006 with the wetland consistently functional in July 2006.

Additional design documentation is attached and are listed in the Appendix. The final engineering plans are on file at the District and available upon request.

Figure 2. Design of the Deep Creek West RST Facility

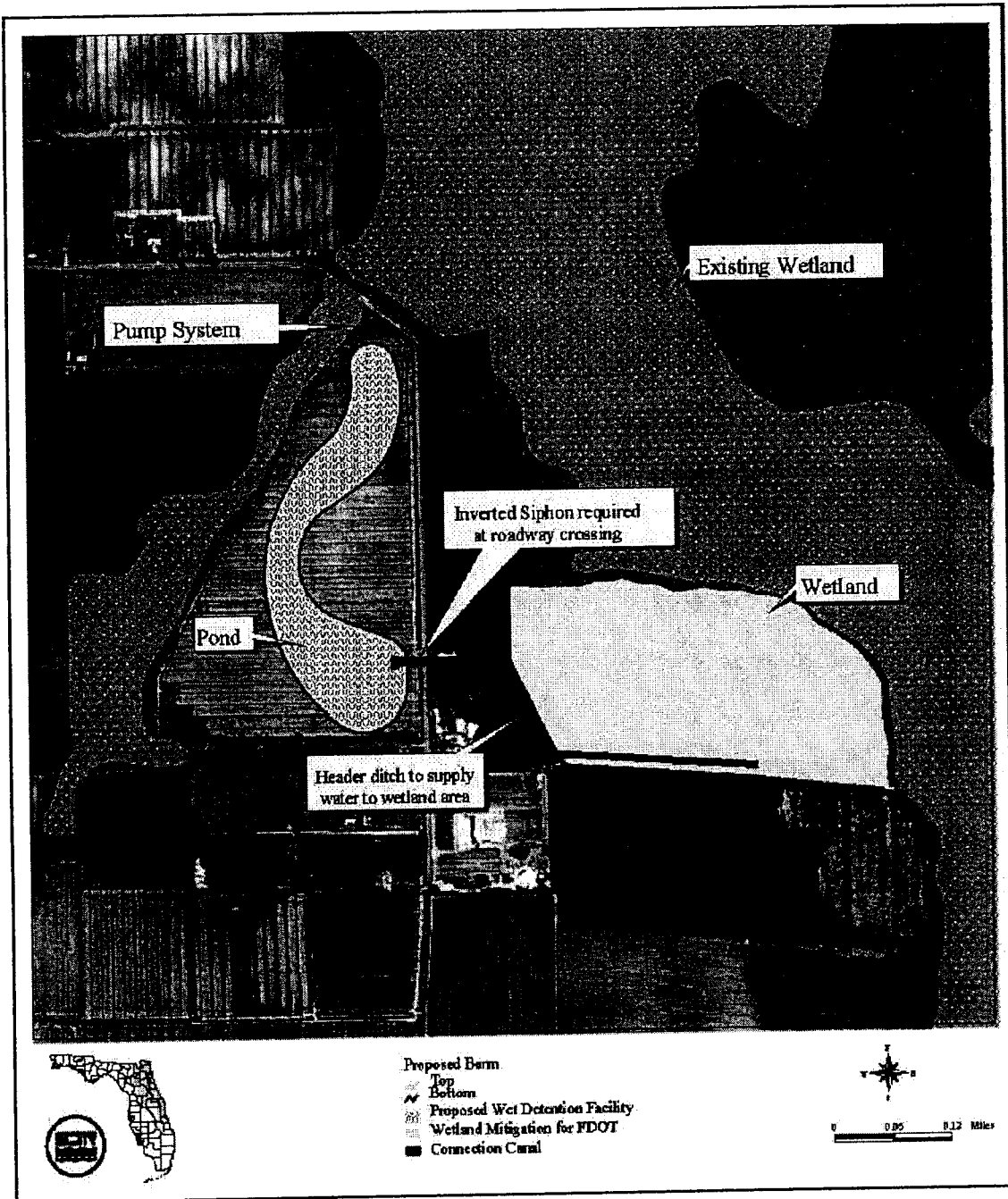
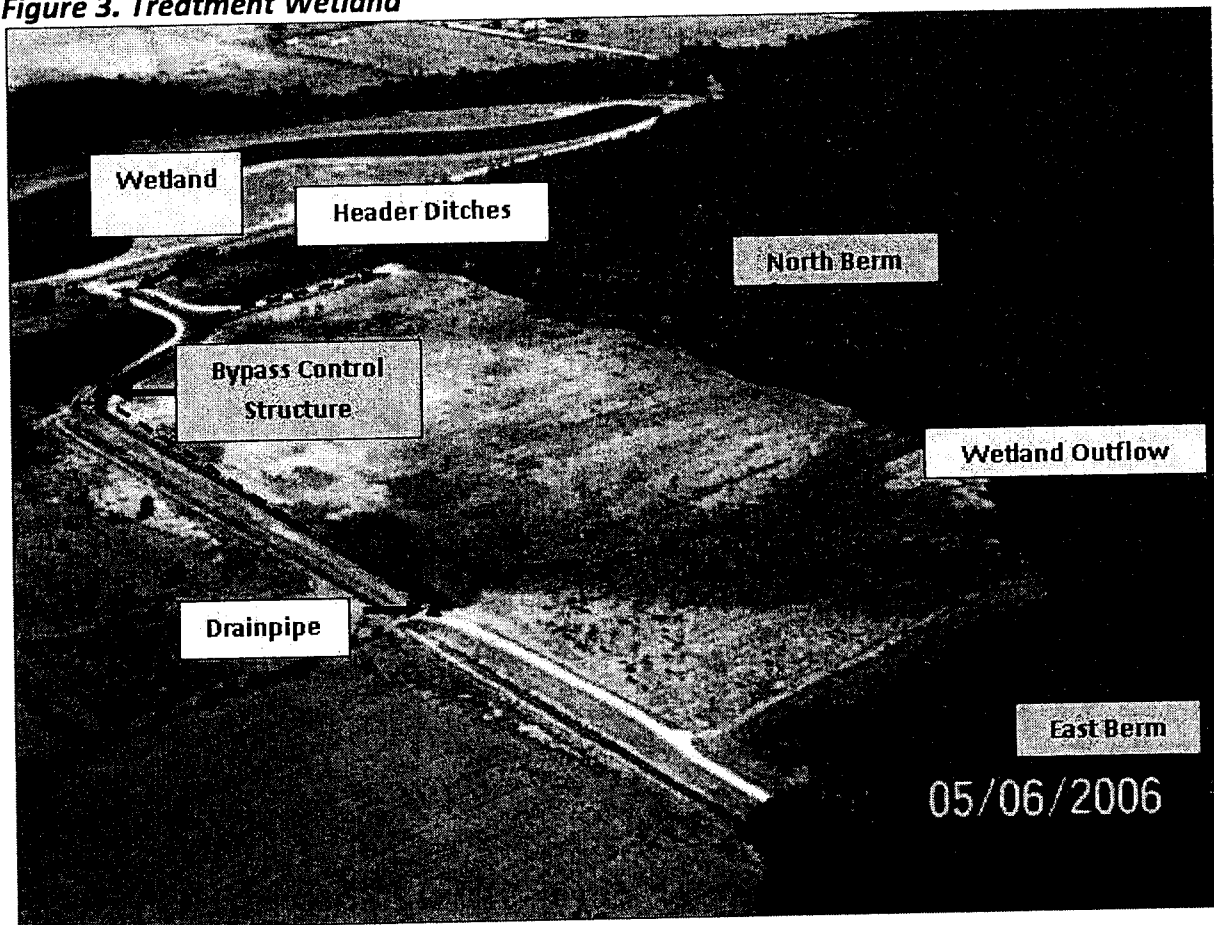


Figure 3. Treatment Wetland



5.0 Monitoring

5.1 Water Quality and Hydrologic Monitoring

District Environmental Sciences staff will operate and maintain the automated water quality sampling stations that are located at the canal inflow of the treatment system, outflow of the pond, and outflow of the wetland to collect water associated with storm events. Storm event samples are collected by ISCO Avalanche automated refrigerated sampling units powered by AC power at the canal inflow and pond outflow, and a solar-charged battery system at the wetland outflow. Automated samplers are triggered by water level increases representative of storm events and then continue sampling for seven days once triggered. Samples are collected every 8 minutes for the first 2 hours to capture the rising limb of the storm hydrograph and “first-flush” nutrient effect, succeeded by sampling in equal time intervals for the remainder of the first day of the storm, and then every 3 hours for the next 6 days. Monitoring is conducted so that both

spatial and temporal trends can be measured and evaluated. These measurements allow project managers to make decisions regarding site-specific operational changes for maintaining and/or improving performance of the Deep Creek West RST facility. District Environmental Sciences staff assess treatment performance of the RST facility to reduce nutrients and sediments from agricultural runoff that is conveyed through the system. Treatment performance will be determined for the pond independent of the wetland, the pond and wetland collectively, and watershed nutrient reductions achieved. Environmental Sciences staff will develop bi-annual water quality update reports and annual treatment performance reports.

Hydrologic monitoring will include a combination of stage, flow, and rainfall measurements for calculating a water budget. One stage recorder is used to measure water level in the canal, an additional stage recorder measures water level in the pump basin, and two stage recorders are used to measure water levels within the pond. One stage recorder is placed at the inflow of the pond for measuring water level at the emergency overflow structure and the second recorder is located at the outflow structure of the pond. Two additional stage recorders measure headwater and tail water levels, respectively at the wetland outflow structure.

Flow volumes into the pond will be measured by recording pump run times and static head. Static head is developed from the elevation differences in the sump and in the discharge end. Flow volumes are calculated by multiplying pump run time duration by the pump discharge flow rate. Flow volumes exiting the pond are calculated using stage levels and a weir equation. A rain gauge is also located at the inflow of the pond. The rain gauge measures the volume of rainfall that is contributed to the water budget of the pond and wetland through atmospheric deposition.

A data logger (Figure 5), which is considered the “base station” located at the pond inflow is used to record and store all the data points collected electronically by the monitoring equipment located at each station. The data logger is housed within the existing fenced discharge station for security purposes. All operations are controlled by Campbell Scientific equipment, specifically a CR1000 in the base station, supported by CR 206 units at the outflow stations and inflow canal. All information is transmitted to District HQ via an *AirLink* telemetry system, which communicates to Environmental Sciences staff via the Campbell software, *Loggernet*. All associated data files are downloaded and analyzed by staff as necessary to

monitor and adjust project performance. The base station houses the radio and antenna, phone modem for telemetry access of the collected data, and a solar-charged battery system.

Data logger programming has been developed by an outside contractor, Aqua Flora Instrumentation, Inc. of Lakeland, FL. Any alterations to the programming system should be conducted by authorized personnel. This programming follows an operational decision tree intended to give readers and programmers a clear illustration of the matrix of commands the telemetry equipment must execute as project water levels and conditions change. Programmed water levels in the pump basin that activate operation of pump 1, pump 2, and deactivate pumps, should not be altered without first notifying the Division of Environmental Sciences. Additionally, AC power at the pump station should not be turned off without first contacting the Division of Environmental Sciences. Interruption of AC power will directly interfere with autosampler operation at the canal and pond stations. Pond operations should be coordinated with the District Division of Engineering.

Figure 4. FDOT Wetland Mitigation Area

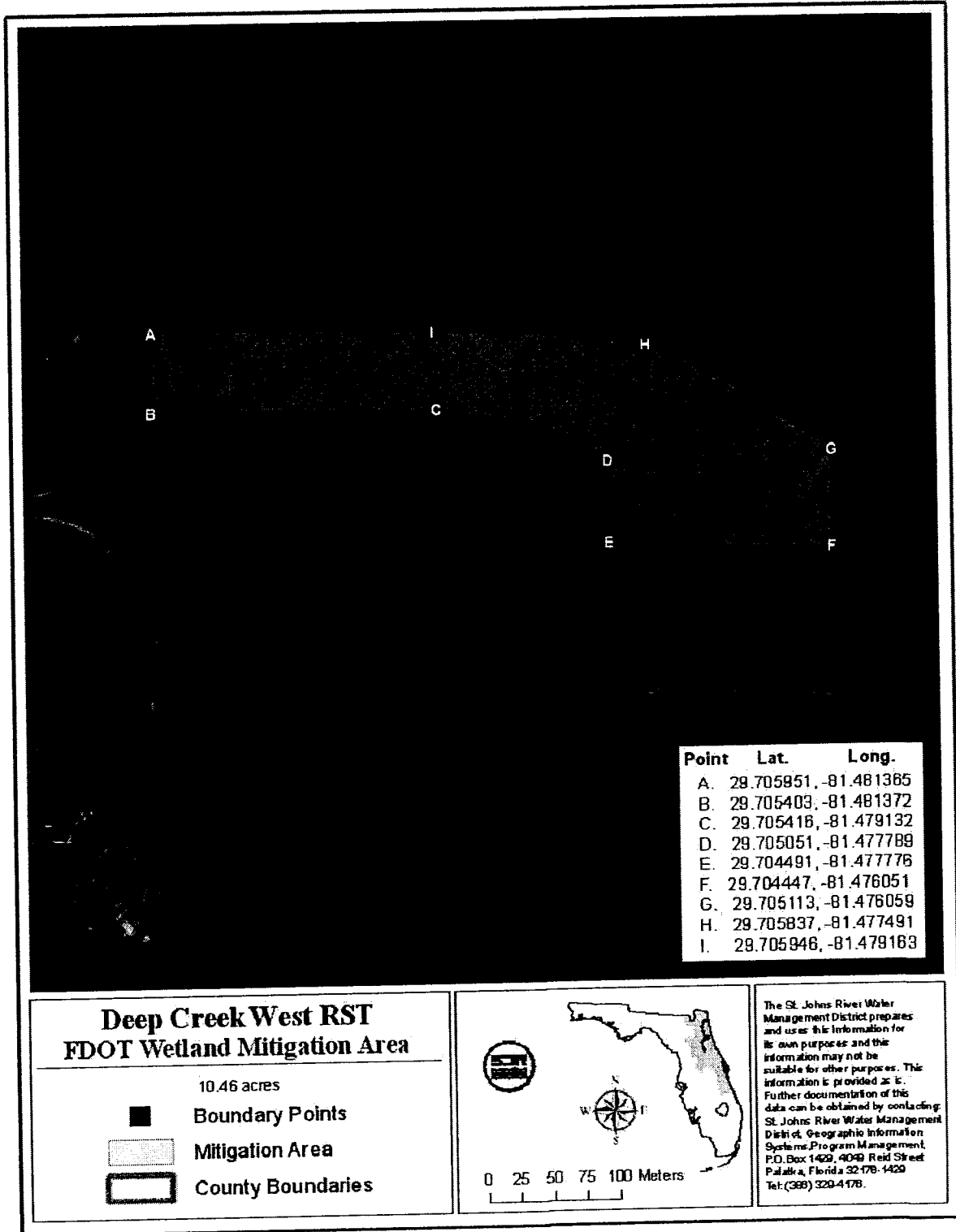
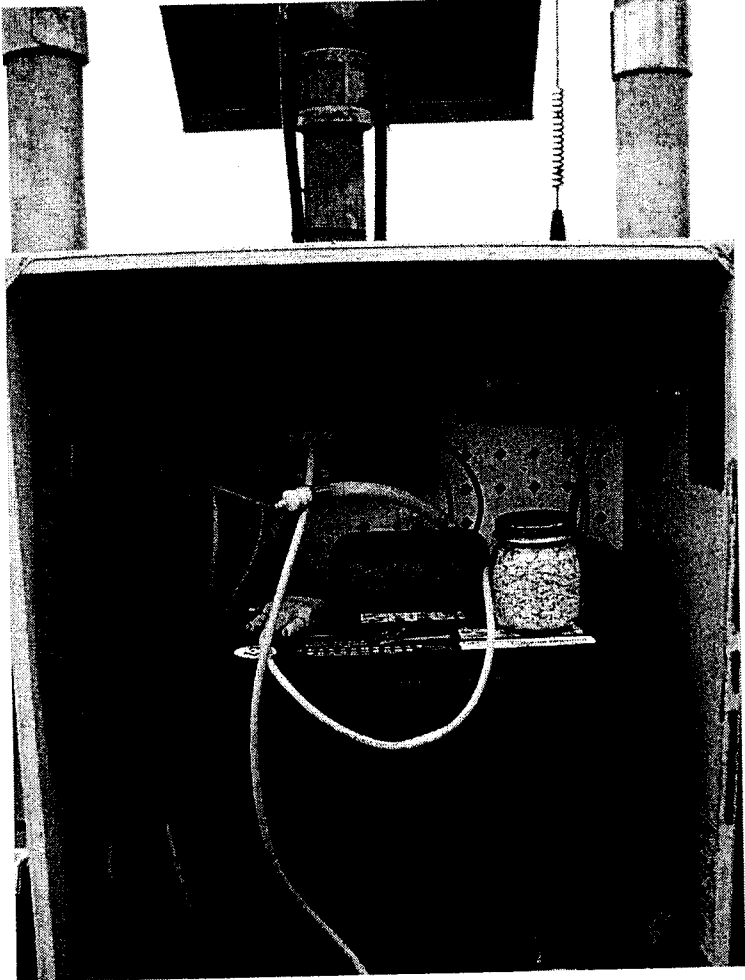
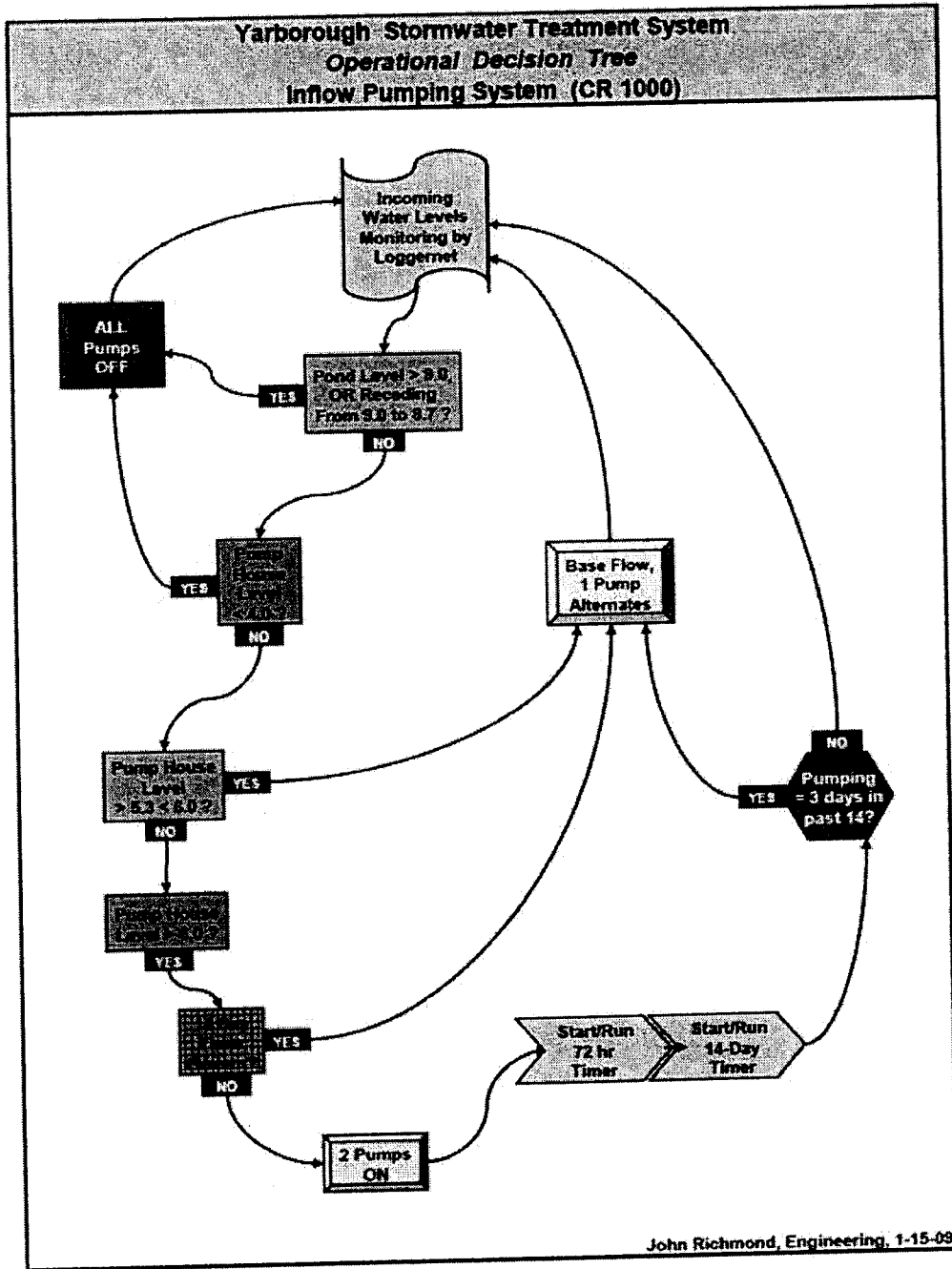


Figure 5. CR1000 Base Station Data logger at Forebay/Treatment Pond



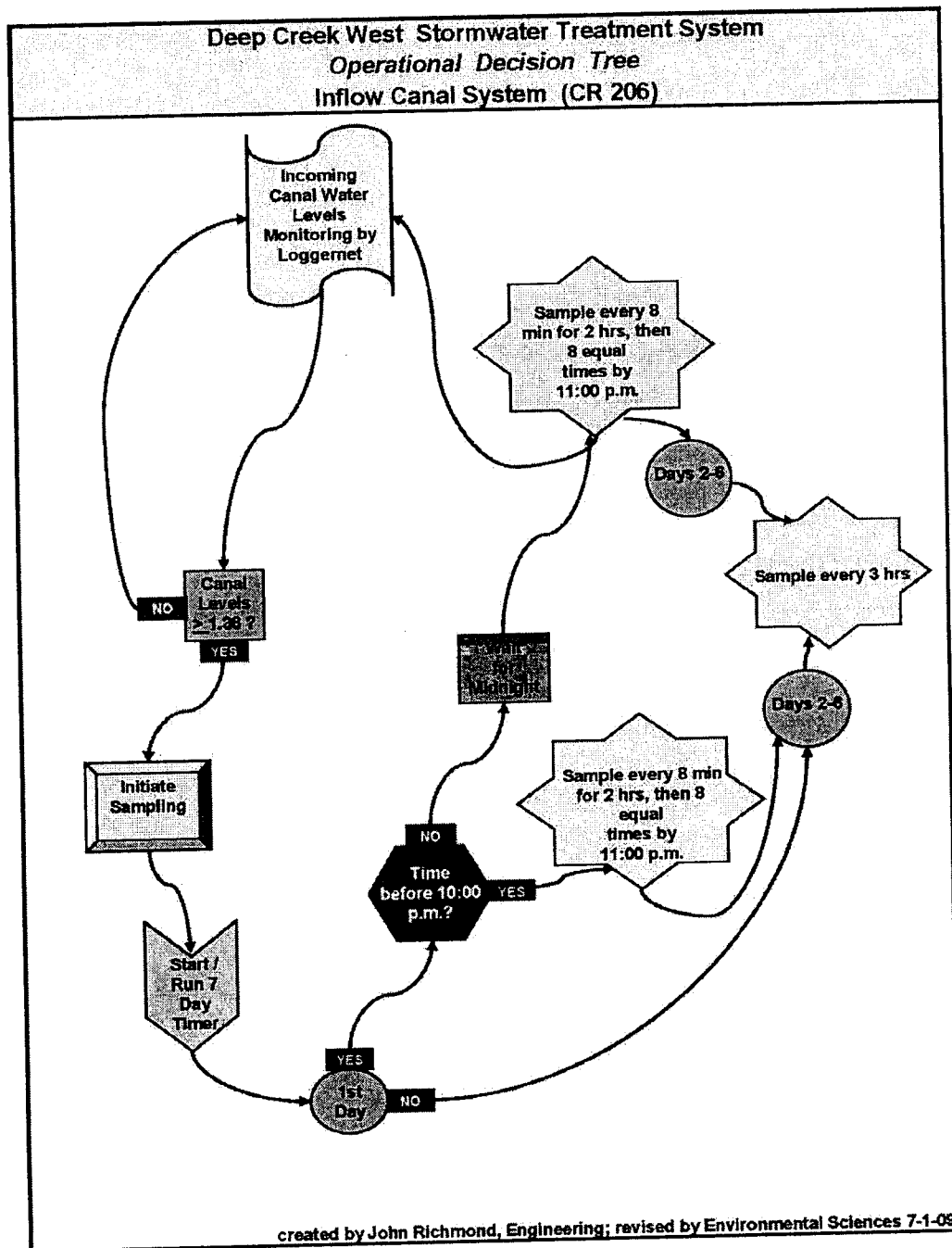
The following Operational Decision Tree (Figure 6) is provided to concisely display the matrix of all possible courses of action the inflow system must recognize and act upon.

Figure 6. Operational Decision Tree – Inflow Pumping System



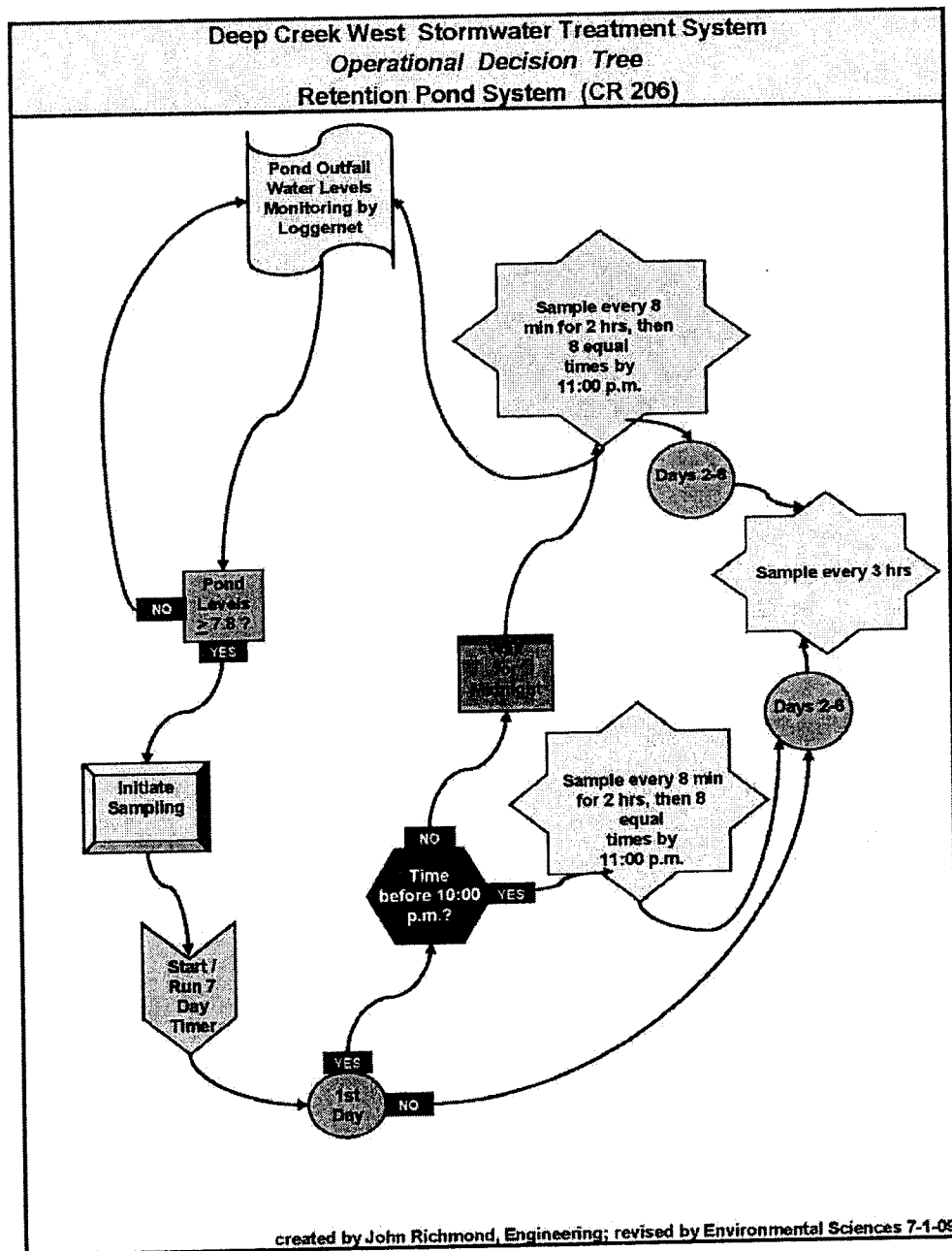
The following Operational Decision Tree (Figure 7) is provided to concisely display the matrix of all possible courses of action that the inflow canal system must recognize and act upon.

Figure 7. Operational Decision Tree – Inflow Canal Sampling System



The following Operational Decision Tree (Figure 8) is provided to concisely display the matrix of all possible courses of action that the retention pond system must recognize and act upon.

Figure 8. Operational Decision Tree – Retention Pond Sampling System



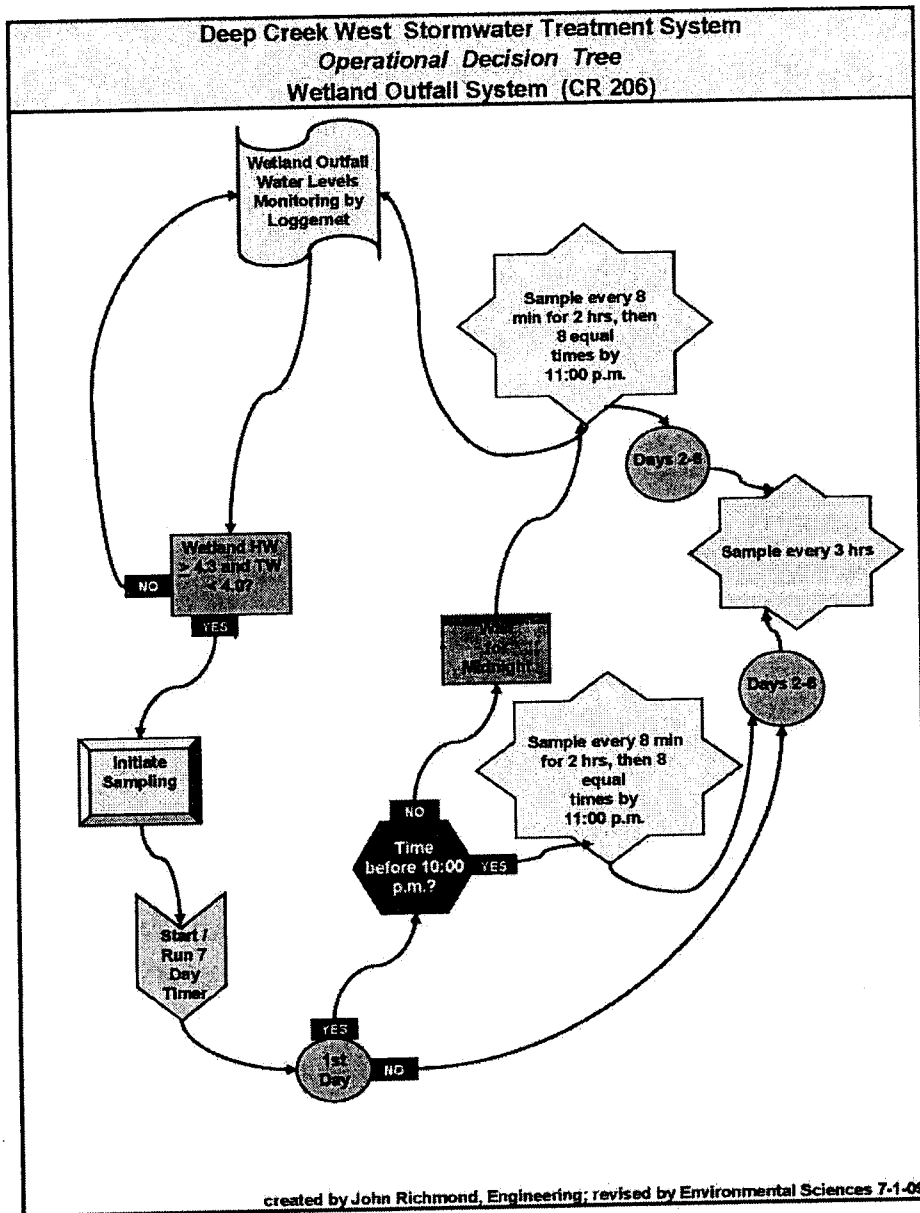
Similar to the hydrologic monitoring at the pond, monitoring at the wetland outflow structure will include a combination of stage and flow measurements, which are connected via telemetry through a wireless connection to the base station. The radio and antenna for telemetry access of the hydrologic and water quality data is located at the wetland outflow site, as well as a power supply with a charging system. The District's Division of Environmental Sciences conducts water quality monitoring at the outflow of the wetland including storm event sampling by an automated refrigerated sampling unit powered by a solar-charged battery system.

The suction line and strainer associated with the sampling unit is located on the water control structure at the weir crest elevation. The autosampler is programmed to collect time-weighted composite samples during storm events at a specified water level height above the weir crest. During storm events, water levels will stage up at the outflow structure. The stage level recorder on the upstream side of the water control structure monitors the rise in water elevation. The increase in water level is recorded by the data logger. The data logger is programmed to initiate water sampling by the ISCO refrigerated sampling unit once the water level exceeds a specified level above the weir crest elevation. Samples are collected every 8 minutes for the first 2 hours to capture the rising limb of the storm hydrograph and "first-flush" nutrient effect, succeeded by sampling in equal time intervals for the remainder of the first day of the storm, and then every 3 hours for the next 6 days (refer to Figure 9).

Hydrologic monitoring by the District includes a combination of stage and flow measurements for calculating a water budget. Two stage recorders measure water levels at the outflow structure of the wetland. One recorder is placed upstream of the outflow structure and the second recorder is located downstream of the outflow structure of the wetland for measuring headwater and tail water levels, respectively. Flow volumes exiting the wetland will be calculated using stage level and a weir crest equation.

The following Operational Decision Tree (Figure 9) is provided to concisely display the matrix of all possible courses of action the wetland outflow system must recognize and act upon. Additional information regarding the design and monitoring of the wetland is included in Appendix C.

Figure 9. Operational Decision Tree – Wetland Outflow System



5.2 Exotic and Invasive Vegetation Monitoring

5.2.1 Pond Perimeter Invasive Vegetation Survey

District Environmental Sciences staff will monitor vegetation around the perimeter of the pond to identify invasive exotic plants for land management purposes. The District will monitor invasive exotic plants quarterly, and the pond perimeter will be traversed by foot. The location of all plants considered exotic and invasive is collected via GPS, and the species names and locations are plotted in an ArcMap project for quarterly and/or annual evaluation by the District.

5.2.2 Pond Hydrilla Survey

In addition to the invasive plant survey, the District's Division of Environmental Sciences began a quarterly *Hydrilla* survey in January 2007 to ensure that *Hydrilla* densities do not obstruct flow through the pond. Initial monitoring consisted of five transects across the pond, and bottom samples were collected every 10m with a Petite Ponar to assess presence/absence of *Hydrilla*, along with associated density. After one year of data collection, results indicated that while *Hydrilla* may become established in the littoral zone of the pond, at approximately 1.5m depth, the combination of dark water (average color 60 cpu, range of 20-200 cpu) and an anoxic flocculent substrate prevents the plant from expanding out from the littoral zone. As such, methods were altered so that only the littoral zone was monitored for *Hydrilla* presence at the ten points around the perimeter of the pond where the initial transects had occurred. For each quarterly survey performed by the District, near shore densities are estimated at each of the ten points and entered into an ArcMap project for quarterly and/or annual evaluation.

5.2.3 Wetland Vegetation Survey

The District's Environmental Sciences staff monitors the wetland vegetation twice per year in order to 1) evaluate species transition and equilibration, and 2) assess vegetation composition in order to verify wetland performance. The wetland was initially divided into a 45m x 45m grid (sixty points), and those points are sampled twice per year. Samplers navigate to the sample location with GPS, and identify all vegetation occurring within a 1m radius of the point, recording water depth and each species, with associated percent cover and average canopy height. Data are then entered into a database and loaded to ArcMap for temporal and spatial analysis.

5.3 Fish Kill Contingency Plan

The County and District staff are both responsible to immediately notify the other party in the event of a fish kill. The Biological Assessment (BA) submitted to the U.S. Fish and Wildlife Service (USFWS) requires that in the event of a fish kill, an attempt will be made to identify the cause of the kill. It is the responsibility of the District's Division of Environmental Sciences to identify the cause of the kill. A dichotomous key from the Field Manual for the Investigation of Fish Kills will be used to assist in identifying the cause of the event. Specific evidence of a possible acute hazard to birds may include timing of the fish kill (January-June, normal agricultural growing season), dead fish upstream, evidence of toxicity among other vertebrates, or pectoral fins of the fish thrust to an extreme forward position.

If such evidence is detected, USFWS will be notified of the kill within 24 hours. Any notification to USFWS is to occur through the District's Water Resource Department, Environmental Resource Coordinator. Since fish in this situation could pose an acutely toxic risk to birds, hazing will be instituted until dead fish have been removed. Hazing and clean-up will be the responsibility of the County. The clean-up effort in this situation will be focused on removing fish larger than 2 inches and those that are floating at or near the surface, or would otherwise be easy prey items. The method of removing the fish is at the discretion of the County. Collected fish will be disposed of at the County landfill where they will be covered to prevent scavenging. The District will collect samples of the dead fish to be analyzed by the District's Division of Environmental Sciences for Organochlorine and Organophosphate/Carbamate pesticides.

If there is no evidence of an acute hazard to birds or there is clear evidence that the fish kill is associated with low dissolved oxygen (DO) levels (such as DO data from immediately prior to the kill), USFWS will be notified by the District's Water Resource Department, Environmental Resource Coordinator. The District's Division of Environmental Sciences will collect and freeze a small, representative sample(s) of the fish to be analyzed should additional problems arise. If, after 30 days, consensus still indicates low DO as the cause of the kill, the sample(s) may be discarded. If the fish kill is a large-scale kill (over 15,000 dead fish), an attempt to remove as many fish as possible needs to be made, focusing on the largest fish. While not a requirement from USFWS, removal of these fish will contribute to nitrogen and phosphorus removal for the facility. Focusing on the larger fish allows for greater nutrient

removal, and fish removal should be ongoing for three days, as the fish will begin to sink after that time. Should a fish kill smaller than 15,000 occur, the District's Division of Environmental Sciences will return daily to the site for three days to ensure additional fish do not die, tripping the clean-up threshold.

6.0 Operation and Management

6.1 Pump and Forebay Management

6.1.1 Pump Station Maintenance

The County will routinely maintain the two 25-horsepower electrical pumps located at the inflow of the pond. Basic operation for non-storm event conditions has the pumps set to alternate pumping the base flow from HDD canals No. 1 and No. 2 into the wet detention pond. The County will check the pumps after every significant rainfall event or at a minimum monthly in addition to routine maintenance items. The pump and electrical standard maintenance requirements are presented in Appendix B, in addition to the complete pump station operation and maintenance manual. A maintenance log is located in the electrical cabinet at the pump station that should be completed after each maintenance check or repair. The County will be responsible for electrical repairs by a District approved electrician or contractor. District Engineering staff will be available upon request to provide input if necessary. If it is necessary to shut off electrical power to the pumps for maintenance purposes, the County should contact the District Environmental Sciences representative prior to the electrical outage, if possible. Water quality autosampling equipment at the canal inflow and pond outflow is powered by the main electrical power at the pump station.

If both pumps are manually activated to run concurrently during a routine maintenance event, please contact the District Environmental Sciences representative so that water quality samples that may be collected by the automated samplers are not analyzed as storm events. District staff will report any needed maintenance issues to the County who will have 24 hours to respond and address the issue.

6.1.2 Operation of Pond Inflow System and Pond Water Levels

The County will monitor operations on a regular basis with weekly on site observations. District staff will also monitor and operate the treatment pond inflow and outflow systems. This

is coordinated between the District's Division of Environmental Sciences, Division of Engineering, and the County. If the District observes problems with pump or other system components it will report them to the County who will respond within 24 hours.

Sump elevation inside the pump station activates operation of two pumps. The majority of flows will be base flow conditions where one lead pump will be activated to pump waters into the pond system, until the sump elevation drops to the pumps off level. Circuitry in the electrical control panel will then shift the lead pump status to the other pump such that the next pumping cycle will run that pump, thus keeping usage more or less even between both pumps. When the water level height and incoming flows from the drainage canals to the forebay area are such that one pump cannot lower the level to the pumps off elevation then a "storm event" is present. In this condition both pumps will be activated in an attempt to discharge all the forebay waters to the pond and bring the incoming flows down to the pumps-off level. Programmed water levels in the pump basin that activate operation of pump 1, pump 2, and deactivate pumps, should not be altered without first notifying the Division of Environmental Sciences.

6.1.3 Pump Intakes and Forebay Vegetation Removal

The County will control Hydrilla and other vegetative overgrowth with herbicidal treatment in the forebay (or by mechanical removal), pond emergency overflow structures, and around the pond outflow structure to prevent blockage of the structure and interruption of flow. The current stock of Hydrilla throughout the pond will not be controlled at this time by mechanical removal or herbicidal treatment; however, District's Environmental Sciences staff will continue to monitor Hydrilla growth. If the Hydrilla has the potential to negatively impact system functioning, or if it is determined Hydrilla is being released from the treatment facility outflow located at the wetland, the project team will discuss management options for controlling Hydrilla growth that will minimize release of stored nutrients in Hydrilla vegetative tissues.

6.2 Treatment Pond Management

6.2.1 Development Phase of Pond Inflow Pumping Schedule

District Environmental Sciences staff are responsible for water quality monitoring needed by the District Engineering staff to develop and verify the modeled maximum treatment performance of the pond independent of the treatment wetland, and the pond and treatment

wetland collectively. Modeling efforts are based on existing canal inflow water quality data and hydrologic data. Once these modeled maximum treatment performances are determined and verified by stormwater monitoring, a permanent pumping schedule for canal inflow into the treatment system will be implemented to achieve maximum treatment performance.

However, in the interim, a pond inflow pumping schedule for storm events will be implemented to target a 14-day residence time in the pond. This will be achieved by programming storm flow pumping (i.e., pumps 1 and 2 running simultaneously) to not exceed 72 hours of pumping or total volume pumped in a 14-day period not to exceed the permanent pool volume. After this condition is met, only base flow pumping will occur with pumps 1 and 2 alternating in pumping sequence. After a total of 14 days, the regular pumping schedule will resume until the next potential storm event.

Verification of the modeled maximum treatment performance results will be implemented by the District by collecting storm water quality data using refrigerated automated sampling units deployed at the canal inflow, pond outflow, and wetland outflow.

6.2.2 Vegetation Removal Near Pond Structures

The County will control Hydrilla and other vegetative overgrowth with herbicidal treatment (or by mechanical removal) around the pond emergency overflow structures and around the pond outflow structure to prevent blockage of the structure and interruption of flow. The current stock of Hydrilla throughout the pond will not be controlled at this time by mechanical removal or herbicidal treatment; however, District's Environmental Sciences staff will continue to monitor Hydrilla growth. If the Hydrilla has the potential to negatively impact system functioning, or if it is determined Hydrilla is being released from the treatment facility outflow located at the wetland, the project team will discuss management options for controlling Hydrilla growth that will minimize release of stored nutrients in Hydrilla vegetative tissues.

6.2.3 Exotic and Invasive Plant Management

District Environmental Sciences staff will report species observed during quarterly vegetation monitoring, that appear on the Florida Exotic Pest Plant Council Invasive Plant List, to the County and Division of Land Management. Vegetation species and locations will be provided to the County.

The County will be responsible for monitoring and implementing herbicidal treatment of specific exotic invasive vegetation species in and around the pond. Should herbicidal treatment of targeted species within or around the pond be necessary, the work may be done using a combination of off-road vehicles, spot spraying by foot travel, or by boat.

6.2.4 Inspection of Pond Outlet and Discharge Pipe System

The County will perform routine pump maintenance events on the pond outlet structure and discharge piping system, including the structure on the wetland side of George Miller Road. These will be visually checked for blockage or unanticipated structural damage. The County will inspect and make appropriate corrections as needed, such as cleaning of debris from the weir and/or skimmer and stabilization of the bank flanking the structure. District staff will report any needed maintenance issues to the County who will have 48 hours to respond with a plan for addressing the issue.

6.3 Treatment Wetland Management

6.3.1 Operation and Management of the Treatment Wetland

The 38-acre treatment wetland receives pond-treated water, gravity fed through culverts under George Miller Road. The flow into the wetland is determined by the volume of water pumped from the canal into the pond, and subsequent water level rise within the pond. Pond-treated water is discharged into the wetland through open discharge header ditches, approximately 5 feet wide and 2 feet deep with 3:1 side slopes, located along portions of the southern and western perimeter of the wetland. A concrete weir control structure equipped with a sluice gate at the northeast corner of the wetland is used to regulate water levels in the wetland and along perimeter berms by manually opening and closing the gate using a wheel apparatus. The weir crest elevation is 4.0 ft NGVD. Water is expected to saturate the soils through lateral surface and sub-surface flow from the header ditches. Surface flooding from the header ditches in lower elevations of the wetland will also occur.

Hydrologic monitoring at the wetland outflow structure will include a combination of stage and flow measurements, all connected via telemetry to District Environmental Sciences recording apparatus. Instantaneous water level data will allow District Environmental Sciences staff to make decisions on opening or closing of the outlet structure gate. Water table

observation wells were installed throughout the wetland to monitor subsurface hydrologic conditions.

6.3.2 Removal of Vegetation In Wetland Header Ditch

The County will conduct weekly inspections of the header ditch inflow grate for obstructions that have the potential to interrupt the flow of water into the header ditch. These inspections can be performed along with weekly cleaning of structures as required in other sections of this Plan. The south and west header ditches (Figure 3) may become heavily vegetated with *Typha latifolia* (i.e., cattail) and *Hydrilla verticillata* (i.e., Hydrilla). Cattail and Hydrilla will be removed by the County by mechanical means from these areas in December of each year. However, the County may elect to use herbicidal treatment on the Hydrilla approximately 8 days prior to the mechanical removal to maximize the mechanical removal benefit. Additionally, the County may elect to apply aggressive methods of herbicidal treatment in the header ditch to control Hydrilla if deemed necessary. If an increase in the frequency of mechanical removal is deemed necessary, a work order from the District's Environmental Sciences staff will be submitted to the County requesting the additional removal activity.

Complete removal of the vegetation from the ditch is necessary to avoid release of nutrients from decomposing vegetation. Removed vegetation will be deposited along the header ditch slopes allowing vegetation to dry. Dried vegetation will be spread on the adjacent District pastureland. The County will provide herbicidal maintenance control of Hydrilla between scheduled mechanical removals.

6.3.3 Wetland Outlet Structure Operation

The County will routinely inspect and maintain the concrete weir control structure, security fencing, and bank stabilization adjacent to the structure, so long as repairs are considered minor by not requiring the use of heavy equipment. The need for other repairs will be evaluated by the District's Departments of Water Resources and Operations and Land Resources. The concrete weir control structure equipped with a sluice gate at the northeast corner of the wetland is used to regulate water levels in the wetland and along perimeter berms by manually opening and closing the gate using a wheel apparatus. The weir crest elevation is 4.0 ft NGVD. District staff monitor hydrology at the wetland outflow structure with a combination of stage and flow measurements, all connected via telemetry to Environmental Sciences recording apparatus. Instantaneous water

level data will allow staff to make decisions on opening or closing of the outlet structure gate. Operation of the wetland outflow structure should be coordinated with the Division of Environmental Sciences.

6.3.4 Wetland Header Ditch Bypass Structure

The County will maintain the bypass structure located in the header ditch on the south edge of the wetland in operational condition and periodically inspected to ensure that significant amounts of water are not being discharged to the bypass canal (Figure 3). Bypass structure failure should be repaired as soon as possible and considered a priority. Large volumes of water released through the bypass structure can alter hydrologic conditions in the wetland and treatment efficiency. The purpose of the bypass structure is to aid in drying of the wetland if repairs or maintenance require dry conditions; otherwise, the bypass structure should remain closed at all times. District staff will report any noted issues related to the bypass structure to the County who will have 24 hours to respond and address the issue.

6.3.5 Wetland Header Ditch Drainage Pipe

District Engineering staff should be contacted if it is necessary to drain the wetland header ditch using the 12" PVC drainage pipe located below ground from the east end of the header ditch to the field perimeter ditch at the east end of the access road to the berm (Figure 3). The pipe has a gate valve that must be operated with a valve wrench. The valve is in a standard valve box with a cover at the top of the slope at the end of the header ditch. There are also two cleanouts in the line that are equally spaced and also have a cover for access. The pipe should remain closed at all times, but can be used to drain the header ditch if necessary.

6.3.6 Wetland Vegetation Harvesting

Over time, the wetland may reach a maximum assimilation of nutrients as vegetative nutrient uptake mechanisms diminish. In order to reinvigorate the nutrient uptake within the system, it may be desirable to remove the existing vegetation. While fire and mowing can reinvigorate the vegetation, both methods result in a release of the nutrients that have been stored over time; therefore, harvesting the vegetation from the site is preferred. However, harvesting the vegetation may be difficult because: 1) the soils retain moisture and will only support equipment during periods of extreme drying; however, sufficient drying could possibly be achieved by opening the wetland bypass structure and the sluice gate on the outlet control

structure; 2) harvesting equipment available today exists for logging trees or harvesting hay, but there is no equipment that can remove established communities of both herbaceous and woody vegetations; and 3) only 23 acres of the 38 acre wetland could be harvested to remain in compliance with the 15 acre mitigation plan. Included in the 23 acres that would be available for potential harvest are woody species of black gum, cypress and red maple trees that were planted to encourage habitat and long-term storage of nutrients.

In the future, tools and markets may be developed that simplify the harvest of the vegetation, especially in light of the interest in biofuels; therefore, specific harvesting details will not be presented at this time. If harvesting becomes a consideration in the future, staff from the District's Divisions of Environmental Sciences and Land Management and St. John's County will work cooperatively to determine the most effective method.

6.3.7 Wetland Exotic and Invasive Plant Management

District Environmental Sciences staff will report species observed during quarterly vegetation monitoring, that appear on the Florida Exotic Pest Plant Council Invasive Plant List, to the Division of Land Management. Vegetation species and locations will be provided to Division of Land Management.

District's Land Management staff will be responsible for monitoring and implementing herbicidal treatment of specific exotic invasive vegetation species at the wetland property. Should herbicidal treatment of targeted species within the wetland proper be necessary, the use of off-road vehicles used in treatment activities should be minimized. Spot spraying by foot travel is preferred inside the wetland proper. The use of off-road vehicles should be discussed with District Environmental Sciences prior to mobilization.

6.3.8 Wetland Soil Amendments

Future soil amendment applications are not likely to be required; however, amendments may be considered by District Environmental Sciences staff if the wetland exceeds assimilative capacity for uptake of nutrients and soils begin to release nutrients. Aerial application of soil amendments, such as dry alum or ferric water treatment residuals or liquid alum injection may be considered, as these application methods would minimize disturbance of established vegetation.

6.4 General Maintenance

6.4.1 Ditch, Canal, and Wetland Structure Maintenance

The County will inspect and clean weekly, and following significant rainfall events, the intake grate in the canal, the pump station forebay and the intake grate located in the pond forebay of garbage and debris. A buildup of debris and/or leaf litter on the intake grate in the canal or the drainage ditch will decrease the volume of water entering the facility for treatment, and debris or leaf litter on the intake grate located in the pond forebay will cause erratic operation of the pumps, potentially resulting in damage to the system. During this cleaning procedure, the County will also monitor, and clean where needed, the wetland header ditch inflow grate for obstructions that have the potential to interrupt the flow of water into the header ditch.

6.4.2 Mowing

The County will be responsible for routine mowing. Routine mowing occurs monthly during the growing season, approximately April through December, and includes mowing levee tops and slopes surrounding the pond, pump station, and wetland treatment area. This also includes mowing and “weed eating” around water quality monitoring stations. Specifically, weed eating should occur at the canal inflow around the monitoring platform, inside the fenced monitoring stations at the pond inflow (base station) and the pond outflow, and around the gated wetland berm entrance located at the southeast end of the property. Mowing should never occur within the wetland boundaries or in the header ditch of the wetland.

6.4.3 Cleanup Along the East Wetland Berm

The County shall keep the east wetland berm cleared of fallen tree branches blocking access along the berm and will verify access is clear following significant storm events. Fallen branches should be cleared from the berm entrance at the southeast end of the property to the wetland outfall structure.

6.4.4 Fencing and Security

The County will be responsible for fencing and security. Fencing, gates and locks should be maintained at both the pond and wetland. Gates should be kept closed and locked. Locks will be lubricated as needed. The County will coordinate with District Engineering staff if locks need

to be replaced. The District will set the combination for appropriate locks and will notify the County prior to changing any combinations.

6.4.5 Parking and Roadways

The County will maintain the parking surface and roadways on both the pond and wetland properties. Pot holes in asphalt or excessive rutting in graded areas will be repaired by the County in a timely manner per typical County standards.

6.4.6 Public Access

The County shall monitor access to the site. Public access by foot is allowed around the pond and the perimeter of the treatment wetland. Public access is not allowed at the weir outflow structure located at the wetland. Access is controlled by winged fencing at the entrance to the east berm leading to the outflow structure. District and County staff may access the weir and monitoring equipment through a locked gate.

6.4.7 Information Kiosk

District Environmental Sciences staff will coordinate with the District Office of Communications for printing of the kiosk materials. Project information located at the pond kiosk will be updated annually to include a seasonal bird and wildlife checklist, and water quality improvements.

7.0 Summary of O & M Responsibilities

The individuals listed below are the direct contacts for information and/or guidance on operation and maintenance issues. However, all applicable team members listed below should be notified if an operation or management task has potential to affect other aspects of the treatment system.

Department	Contact	Email	Cell #
SJRWMD Water Resources			
• Division of Environmental Sciences	Pam Livingston Way	plivings@sjrwmd.com	386-227-0390
• Division of Engineering	John Richmond	jrichmon@sjrwmd.com	386-937-0541
SJRWMD Project Management			
• Environmental Resource Coordinator	Becky Trudeau	rtrudeau@sjrwmd.com	386-937-0292
• Lower St. Johns Basin Manager	Derek Busby	dbusby@sjrwmd.com	386-336-3895
SJRWMD Department of Operations and Land Resources			
• Division of Public Works	James Skellion	jskellio@sjrwmd.com	352-427-0930
• Division of Land Management	Steve Miller	smiller@sjrwmd.com	386-329-4399
St. Johns County			
• Department of Public Works			

Table 1 - Summary of O & M Responsibilities

Component	Frequency of Activity	Lead	Other Involved Organizational Units	Page
Monitoring				
Water Quality and Hydrologic Monitoring	Continuous	Environmental Sciences	Engineering	8
Exotic and Invasive Vegetation Monitoring	Quarterly	Environmental Sciences	Land Mgmt	18
Wetland Vegetation Survey	Biannually	Environmental Sciences	N/A	18
Fish Kill Contingency Plan	As Needed	Environmental Sciences, County	Land Mgmt	19
Pumps and Forebay				
Pump Station Maintenance	After storm events or at least monthly	County	Engineering, Environmental Sciences	20
Operation of Pond Inflow System for Water Levels	Continuous	County, Engineering, Environmental Sciences	N/A	20
Pump Intake and Forebay Vegetation Removal	Weekly	County	N/A	21
Treatment Pond				
Development Phase of Pond Inflow Pumping Schedule	N/S	Engineering	Environmental Sciences	21

Component	Frequency of Activity	Lead	Other Involved Organizational Units	Page
Vegetation Removal Near Pond Structures	As needed	County	Environmental Sciences	22
Pond Exotic and Invasive Plant Management	Quarterly	Environmental Sciences, County	Land Mgmt	22
Inspection of Pond Outlet and Discharge System	In conjunction w/ pump maintenance	County	N/A	23
Treatment Wetland				
Operation and Management of Treatment Wetland	N/S	Environmental Sciences	Engineering	23
Removal of Vegetation In Header Ditch	Weekly	County	Environmental Sciences	24
Wetland Outlet Structure Operation	Routinely	County	Environmental Sciences; Operations and Land Resources	24
Wetland Header Ditch Bypass Structure	As needed	County, Environmental Sciences	Engineering	25
Wetland Header Ditch Drainage Pipe	As needed	Engineering	N/A	25
Wetland Vegetation Harvesting	If needed	Environmental Sciences, Land Mgmt, County	N/A	25
Wetland Exotic and Invasive Plant Management	Quarterly	Environmental Sciences	Land Mgmt	26
Wetland Soil Amendments	If needed	Environmental Sciences	N/S	26
General Maintenance				
Ditch, Canal, and Structure Maintenance	Weekly, as needed	County	N/A	27
Mowing	Periodically	County	Land Mgmt	27
Cleanup Along the East Wetland Berm	Weekly, as needed	County	N/A	27
Fencing and Security	Weekly	County	N/A	27
Parking and Roadways	Periodically	County	N/A	28
Public Access	Periodically	County	N/A	28
Information Kiosk	Annually	Environmental Sciences	Communications	28

N/S = Not Specified
N/A = Not Applicable