



Environmental Protection and Growth Management Department
ENVIRONMENTAL LICENSING and BUILDING PERMITTING DIVISION
1 North University Drive, Suite 201-A • Plantation, FL 33324
PHONE • 954-519-1483 Fax • 954-519-1412

December 18, 2015

City of Fort Lauderdale
Attention: Khant Myat
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

RE: River Oaks Stormwater Park and Preserve
City of Fort Lauderdale, S/T/R (16-50-42)

This is to notify you of the Environmental Protection and Growth Management Department's (EPGMD) action concerning your application received 07/02/2013. The application has been reviewed for compliance with the

ERP Review - GRANTED

EPGMD has the authority to review the project for compliance with the provisions of Chapter 373, Part IV, Florida Statutes pursuant to an agreement between EPGMD, DEP and the SFWMD. The agreement is outlined in a document entitled "DELEGATION AGREEMENT AMONG THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT, AND BROWARD COUNTY."

Based on the information submitted, Environmental Resource Permit No. 06-07241-P was issued on 12/18/2015.

Should you object to the conditions of the Environmental Resource Permit, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the attached "Notice of Rights", we will assume you concur with the action taken by EPGMD.

Broward County Surface Water Management Review - GRANTED

EPGMD has reviewed the project for compliance with the Surface Water Management requirements of Chapter 27, Article V Sec. 27-191 through 27-202 of the Broward County Code.

Based on the information submitted, Surface Water Management License No. SWM2015-091-0 was issued on 12/18/2015. The above named licensee is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents and specifications, as submitted by licensee, and made a part hereof.

Please be advised that no Certificate of Occupancy can be issued on this project until released, in writing, by all EPGMD divisions as required. Such release will be pending approval of any engineering certifications required by specific condition No. 15.

Broward County Environmental Resource License Review - GRANTED

EPGMD has reviewed the project, and the construction shall be in accordance with Application DEP form 62-343.900 (1), the EPGMD Addendum, and all associated information received on 07/02/2013. Based on the information submitted, the plans have been approved and stamped with Broward County Environmental Resource License (ERL) No. DF13-1113.

The above referenced approvals will remain in effect subject to the following:

1. Not receiving a filed request for a Chapter 120, Florida Statutes administrative hearing;
2. the attached SFWMD General Conditions;
3. the attached SFWMD Special Conditions;
4. the attached Broward County General Conditions;
5. the attached Broward County Specific Conditions;
6. the attached 16 exhibits.

Issuance of the above referenced Broward County license(s) constitutes a final agency determination. A person with a substantial interest may file a petition to request review of or to intervene in a review of a final administrative determination, subject to the provisions of Section 27-14, Broward County Code of Ordinance.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on 12/18/2015, in accordance with Section 120.60 (3), Florida Statutes.

By: _____

Ashley Resta

Ashley Resta, P.E.

Surface Water Management Program

Enclosed are the following:

- ☒ executed staff report;
- ☒ set(s) of stamped and approved plans;
- ☒ Notice of Rights; and
- ☒ Inspection Guidelines Brochure.



Surface Water Management Program

“What to Expect When We Are Inspecting Surface Water Management Systems”

A guideline for **engineers, contractors, and licensees** of surface water management systems when applying for the release of Certificate(s) of Occupancy.

The intent of this document is to establish some guidelines to achieve compliance with the Code while maximizing customer service needs to licensees and their agents and the local building departments by facilitating the Certificate(s) of Occupancy (CO) release procedure for building projects. It is also the intent of this document to encourage licensees and their agents and the local building departments to not put our inspection staff on the “critical path”. ***We recognize that the local building departments must adhere to the requirements of the Florida Building Code and the requirements of Article I of the Broward County Natural Resource Protection Code.***

The Environmental Licensing and Building Permitting Division (ELBPD) - Surface Water Management Licensing program has the responsibility of reviewing designs, licensing, and inspecting surface water management systems within portions of Broward County under the provisions of the Broward County Natural Resource Protection Code, Chapter 27, Section 27-191 through Section 27-201. This includes enforcement for the purpose of protecting our natural resources. This document contains specific information about the ELBPD’s surface water management inspection procedures, review of record/as-built drawings, and time required to complete the procedure successfully. Please be advised this document may be included with the approved license and may be modified on an as-needed basis.

The following certification package must be submitted at least two (2) weeks prior to the anticipated date of occupancy; exceptions may be made on a case by case basis.

Note: Item 1 is not applicable to plans stamped as General Licenses (GL##-###). Items 2 & 3 may apply to GL if plans are stamped for construction certification.

1. Final Record/As-built Drawings (hard copy and electronic) of the site, lake/canal slopes, control structure(s) or overflow structure(s) (where applicable), and Finished Floor Elevation(s); etc.
2. Signed and sealed letter from a Florida-Registered Professional Engineer certifying all components of the surface water management system were constructed in substantial conformance with the approved plans; and
3. When requesting a partial certification include a \$100 partial certification fee (fees are subject to change). The certifying engineer must indicate that a substantial amount of the water management system has been constructed to serve the partial phase to satisfy the water quality and water quantity requirements of the Code and exactly which lots/buildings are requested for release.

Staff will perform an inspection on a first-come first-served basis of the above items. A successful submittal of the required items will prevent unwanted delays in the inspection and CO release processes.

What we look for During the Record/As-Built Drawing Review and During the Inspection

1. The engineer's letter must contain the appropriate certification language. The suggested wording is located in the Code and in the specific conditions of the license. The letter must be signed and sealed. It is imperative that the engineer of record describe any minor modifications to the system that were made during the construction of the project. However, substantial modifications must have received prior approval by the Surface Water Licensing Program.
2. The as-built/record drawing must document the Finished Floor Elevation(s) showing substantial conformance with approved plans.
3. In addition to rim, manhole, and pipe invert elevations, the plans should contain a sufficient amount of survey information to show that the site grades and perimeter grades were constructed in substantial conformance with the approved plans.
4. If part of the approved system, lake and canal slope as-built plans should contain a substantial number of cross sections (a minimum of 1 section per 50 linear feet is preferred) to show compliance with the Department's slope criteria. The staff reserves the right to require additional slope cross sections as necessary as well as slope regrading. Surface area calculations at the control elevation should be submitted for lakes.
5. Control structure or overflow structure information must show all (as-built) dimensions and elevations.
6. All catch basin and manhole structures must have appropriate mudwork to prevent seepage that could lead to structure/asphalt failures and subsequent turbidity violations.
7. All catch basins, manholes, and pipes must be relatively free of sediment and debris and must be accessible to staff. Arrangements should be made with staff for inspecting basins that are covered with fabric materials for sediment control purposes. Fabric must be removed by the licensee or other appropriate personnel prior to the inspection.
8. Lake, canal, swale, dry detention/retention area slopes must be stabilized through appropriate measures, i.e., no evidence of erosion or sedimentation should be encountered during the inspection. Arrangements should be made with staff with regards to timeliness of sodding or seeding slopes and bottoms of dry detention/retention areas.
9. All baffle mechanisms must be made water tight at all contact surfaces of basin walls by a durable gasket device.

Successful compliance with the above items will insure a timely release of the Certificate(s) of Occupancy from division staff.

Upon completion of the field inspection, arrangements with inspection staff will be made to correct all observed field deficiencies. With your cooperation, the Operation Letter will be released upon correction of all field deficiencies.

Environmental Licensing and Building Permitting Division

Surface Water Management Program

1 North University Drive, Suite 201-A • Plantation, Florida 33324

Phone 954-519-1483 FAX 954-519-1412

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the Broward County Environmental Protection and Growth Management Department's (EPGMD, formerly known as Department of Planning and Environmental Protection or DPEP) action under the "Delegation Agreement Among the Florida Department of Environmental Protection, The South Florida Water Management District and Broward County" has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on an EPGMD decision which does or may determine their substantial interests shall file a petition for hearing with the EPGMD Environmental Compliance Administrator, within 21 days of receipt of written notice of the decision, unless the following shorter time period applies: within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the EPGMD has or intends to take final agency action, or publication of notice that the EPGMD has or intends to take final agency action. Any person who receives written notice of an EPGMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the EPGMD Enforcement Administration Section's Environmental Compliance Administrator. Filings with the Environmental Compliance Administrator may be made by mail, hand-delivery or facsimile. **Filings by facsimile will not be accepted after October 1, 2014.** A petition for administrative hearing is deemed filed upon receipt during normal business hours by the Environmental Compliance Administrator, at the Broward County government offices in Plantation, Florida. Any document received by the EPGMD Enforcement Administration after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Environmental Compliance Administrator, Enforcement Administration Section, 1 N University Drive, Suite 307, Plantation, FL 33324.
- Filings by hand-delivery must be delivered to the EPGMD Enforcement Administration Section. **Delivery of a petition to the Broward County security desk does not constitute filing. To ensure proper filing, it will be necessary to request the Broward County security officer to contact the Environmental Compliance Administrator's office.** An employee of the Environmental Compliance Administrator's office will receive and file the petition.
- Filings by e-mail must be transmitted to the EPGMD Enforcement Administration Section at **epdhotline@broward.org**. The filing date for a document transmitted by electronic mail shall be the date the EPGMD Enforcement Administration Section receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the EPGMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, EPGMD file number or any other EPGMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the EPGMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the EPGMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the EPGMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the EPGMD to take with respect to the EPGMD's proposed action.

A person may file a request for an extension of time for filing a petition. The EPGMD may, for good cause, grant the request. Requests for extension of time must be filed with the EPGMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the EPGMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the EPGMD takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The EPGMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final EPGMD action may seek judicial review of the EPGMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the Environmental Compliance Administrator within 30 days of rendering of the final EPGMD action.

SFWMD General Conditions

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.
4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), 'Construction Commencement Notice,' indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
 - a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - 'Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit' [Form 62-330.310(3)]; or
 - b. For all other activities - 'As-Built Certification and Request for Conversion to Operational Phase' [Form 62-330.310(1)].
 - c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.
7. If the final operation and maintenance entity is a third party:
 - a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
 - b. Within 30 days of submittal of the as- built certification, the permittee shall submit 'Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity' [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.
8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
 - a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
 - b. Convey to the permittee or create in the permittee any interest in real property;
 - c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
 - d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.
10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.
11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.
12. The permittee shall notify the Agency in writing:
 - a. Immediately if any previously submitted information is discovered to be inaccurate; and
 - b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.
13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.
14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.
17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.
18. Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

SFWMD Special Conditions

1. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
2. Measures shall be taken during construction to insure that sedimentation and/or turbidity problems are not created in the receiving water.
3. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
4. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
5. The conditions outlined in the Broward County Specific Conditions section, except where language specifically relates to Broward County Code, are incorporated into these SFWMD Special Conditions.
6. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
7. Operation of the surface water management system shall be the responsibility of permittee.
8. All terms, conditions, and exhibits previously stipulated by SFWMD Permit # 06-XXXXX-S/P will apply to this license unless specifically modified.
9. This permit expires on December 18, 2020.
10. If prehistoric or historic artifacts such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The Permittee or other designee should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at 850-245-6333 or 800-847-7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources.

In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, Florida Statutes.

Broward County General Conditions:

1. The terms, conditions, requirements, limitations and restrictions set forth herein are accepted by the licensee and enforceable by EPGMD pursuant to this chapter. EPGMD will review this license periodically and may revoke the license, initiate administrative and/or judicial action for any violation of the conditions by the licensee, its agents, employees, servants or representatives or principals.
2. This license is valid only for the specific uses set forth in the license application, and any deviation from the approved uses may constitute grounds for revocation and enforcement action by EPGMD.
3. In the event the licensee is temporarily unable to comply with any of the conditions of the license, the licensee shall notify EPGMD within twelve (12) hours. Within five (5) working days of the event, the licensee shall submit a written report to EPGMD that describes the incident, its cause, the measures being taken to correct the problem and prevent its reoccurrence, the owner's intention toward repair, replacement, and reconstruction of destroyed facilities, and a schedule of action leading toward operation within the license conditions.
4. The issuance of this license does not convey any vested rights or exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, or any violations of federal, state or local laws or regulations.
5. This license must be available for inspection on the licensee's premises during the entire life of the license.
6. By accepting this license, the licensee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, that are submitted to EPGMD, may be used by EPGMD as evidence in any enforcement proceeding arising under Chapter 27, except where such use is prohibited by § 403.111, F.S.
7. The licensee agrees to comply with Chapter 27, as amended.
8. Any new owner of a licensed facility shall apply by letter for a transfer of license within thirty (30) days after sale or legal transfer. The transferor shall remain liable for performance in accordance with the license until the transferee applies for, and is granted the transfer of license. The transferee shall also be liable for performance in accordance with the license.
9. The licensee, by acceptance of this license, specifically agrees to allow access to the licensed source at reasonable times by EPGMD personnel for the purposes of inspection and testing to determine compliance with this license and this Chapter 27.
10. This license does not constitute a waiver or approval of any other license that may be required for other aspects of the total project.
11. If the licensee wishes to renew a license or extend its term, the licensee shall make application sixty (60) days prior to its expiration. Expired licenses are not renewable.
12. In addition to the general conditions set forth above, each license issued by EPGMD shall contain specific conditions determined by site conditions and requirements pursuant to the regulations as determined by the director of EPGMD. The licensee agrees that specific conditions are enforceable by EPGMD for any violation thereof.
13. Enforcement of the terms and provisions of this license shall be at the reasonable discretion of EPD, and any forbearance on behalf of EPD to exercise its rights hereunder in the event of any breach by the licensee, shall not be deemed or construed to be a waiver of EPD's rights hereunder.

Broward County Specific Conditions

1. The licensee shall allow authorized personnel of the Environmental Licensing and Building Permitting Division (ELBPD), municipality or local water control district to conduct such inspections at reasonable hours, as are necessary to determine compliance with the requirements of the license and the approved plans and specifications.
2. The responsible entity shall agree to maintain the operating efficiency of the water management works. Except in cases where the responsible entity is a governmental agency, the agreement shall further require that if the water management works is not adequately maintained, the County may undertake the required work and bill all associated costs to the responsible entity. If the payment for such obligations is not satisfied within 30 days, said obligation shall become a lien against the property associated with the water management works. Where ownership of the water management works is separate from property ownership, the ELBPD shall require these agreements to be recorded.
3. The licensee shall prosecute the work authorized in a manner so as to minimize any adverse impact of the works on fish, wildlife, natural environmental values, and water quality. The licensee shall institute necessary measures during the construction period, including fill compaction of any fill material placed around newly installed structures, to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving waters. Any erosion, shoaling or deleterious discharges due to permitted actions will be corrected promptly at no expense to the County.
4. The licensee shall comply with all applicable local land use and subdivision regulations and other local requirements. In addition, the licensee shall obtain all necessary Federal, State, local and special district authorizations prior to the start of any construction alteration of works authorized by this license.
5. Offsite discharges during construction and development shall be made only through the facilities authorized by this license. Water discharged from the project shall be through structures having a mechanism for regulating upstream water stages. Stages may be subject to operating schedules satisfactory to the appropriate regulatory agency.
6. The licensee shall hold and save the County harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance or use of any facility authorized by the license.
7. The license does not convey property rights nor any rights or privileges other than those specified therein.
8. No construction authorized by the license shall commence until a responsible entity acceptable to the ELBPD has been established and has agreed to operate and maintain the efficiency of the system. The entity must be provided with sufficient ownership so that it has control over all water management facilities authorized therein. Upon receipt of written evidence of the satisfaction of this condition, the ELBPD will issue authorization to commence the construction.
9. No beautification, or erection of any structure that will prohibit or limit access of maintenance equipment or vehicles in the right-of-way or easements will be allowed.
10. Any license which grants any entity the permission to place a structure on property which is owned by Broward County or upon which Broward County has an easement shall be construed to create a revocable license for that structure to remain on the property. Broward County may require removal of such a structure at no cost to the County.
11. The area under license will be maintained in a safe and operating condition at all times. Equipment will be promptly removed from the right-of-way or easement and the right-of-way or easement will be restored to its original or better condition within a reasonable time on termination of the authorized use.

12. The ELBPD will be notified, as required in the license or as indicated on the approved plans, to coordinate and schedule inspections.

13. The operation or construction will be in accordance with the approved details and plans submitted with the application. Any modification must be submitted to the ELBPD in writing and receive prior approval.

14. Monitoring may be required for sites with high pollutant generating potential, such as industrial sites, Class I and II solid waste disposal sites, and projects discharging to areas identified in Section 27-200 (b) (1) (o). Such monitoring will be under the cognizance of the ELBPD.

15. Upon completion of the construction of a surface water management system or phase thereof licensed by the ELBPD, it is a requirement of the issuance of the license, and hence transfer of operation and maintenance responsibility, that a Florida Registered Professional Engineer certify that the surface water management system was indeed constructed as licensed. Certified record drawings shall accompany the certification. Suggested wording for this is as follows:

I HEREBY CERTIFY TO THE CONSTRUCTION COMPLETION OF ALL THE COMPONENTS OF THE SURFACE WATER MANAGEMENT FACILITIES FOR THE ABOVE REFERENCES PROJECT AND THAT THEY HAVE BEEN CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY THE BROWARD COUNTY ELBPD, AND HEREBY AFFIX MY SEAL THIS _____ DAY OF _____, 20____.

(SEAL)

16. Water management areas shall be legally reserved to the operation entity and for that purpose by dedication on the plat, deed restrictions, easements, etc., so that subsequent owners or others may not remove such areas from their intended use. Management areas, including maintenance easements, shall be connected to a public road or other location from which operation and maintenance access is legally and physically available.

17. The licensee shall notify the ELBPD in writing within twenty-four (24) hours of the start, finish, suspension, and/or abandonment of any construction or alteration of works authorized by this license.

18. A prorated share of surface water management retention/detention areas, sufficient to provide the required flood protection and water quality treatment, must be provided prior to occupancy of any building or residence.

19. The operation license shall be valid for a specific period of time not to exceed five (5) years from the date the license is transferred to the operation phase. The operation license shall be renewed in accordance with Section 27 - 198 (d) (2) of the Article.

20. The ELBPD reserves the right to require additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

21. This permit does not constitute the approval required by Section 27-353(i), Broward County Code, to conduct dewatering operations at or within one-quarter mile radius of a contaminated site. Please contact the Pollution Prevention Division at (954) 519-1260 for further information.

22. The licensee shall keep a log of the operation and maintenance schedule for all components of the surface water management system.

23. The surface water management system must be inspected by the Surface Water Management Section to verify compliance with Specific Condition No. 15 of the license. In accordance with the Broward County Natural Resource Protection Code, Article I, Sec. 27-66 (f), the County agency or municipal agency charged with issuing a certificate of occupancy (CO) shall not issue a CO until notified of the Broward County ELBPD approval. Partial certifications will be handled in accordance with Specific Condition No. 18.

24. The licensee is advised that he/she is required to submit a Storm Water Notice of Intent (NOI) application at least 48 hours prior to the commencement of construction to the Florida Department of Environmental Protection, NPDES Stormwater Notices Center, MS #3585 at 2600 Blair Stone Road - Tallahassee, Florida 32399-2400.

25. Prior to the commencement of construction of a future phase(s), a license modification will be required.

***SPECIFIC CONDITIONS from the
AQUATIC AND WETLAND RESOURCES PROGRAM:***

A. STANDARD CONDITIONS

1. Any project caused environmental problem(s) shall be immediately reported to the Department's Environmental Response Line at 954-519-1499.
2. **All project generated solid waste and/or spoil material must be disposed of in a suitable approved manner at an upland location and shall not be left in the water.**
3. Spoil generated from the excavation authorized by this license must be placed on an upland site and contained in such a manner as to prevent erosion into wetlands or other surface waters.
4. This license does not authorize mangrove trimming, alteration or removal, as defined in the 1996 Mangrove Trimming and Preservation Act, nor does it authorize any mangrove impacts due to construction activities. Unauthorized activities will result in enforcement action.
5. The maximum over-water area of the new boardwalk shall be 6' x 3117' (108,493 square feet) and shall be set at elevation 5.5 NGVD.
6. The licensee shall ensure that turbidity curtains surround all project areas, including all active work sites, and any previously worked sites that could continue to emit a turbid discharge.
7. Turbidity screens or equivalent shall be properly employed and maintained as necessary during construction activities so that turbidity levels do not exceed 29 NTU's above natural background 50 feet downstream of point of discharge. If turbidity levels exceed these limits, project activities shall immediately cease, and work shall not resume until turbidity levels drop to within these limits [62-302.530(69) FAC].
8. Turbidity levels shall be monitored and recorded if a visible turbidity plume is observed leaving the site during construction activities. If monitoring reveals that turbidity levels exceed 29 NTU's above natural background 50 feet downstream of the point of discharge, project activities shall immediately cease, and work shall not resume until turbidity levels drop to within these limits [62-302.530(69) FAC].
9. If an observable turbidity plume is visible leaving the site, the licensee shall:
 - a. Immediately cease all work contributing to the water quality violation. Operations may not resume until the Department gives authorization to do so.
 - b. Notify the Development and Environmental Regulation Division (954) 519-1230 within 24 hours of the time the first violation is detected.
 - c. Stabilize all exposed material contributing to the water quality violation. Modify the work procedures that were responsible for the violation, and install more turbidity containment devices and/or repair any non-functioning turbidity containment devices. If required by the Department, a turbidity monitoring program shall be initiated.
10. Any water bodies or wetlands to be filled pursuant to this license must be filled only with rock, soil or muck, as appropriate and depicted on the attached drawings. Fill material which includes clean debris as defined in Section 27-214 is not authorized by this license. **Use as fill of any materials other than rock, soil or muck shall constitute a violation of this license.**

11. All construction related equipment and materials shall be stored or stockpiled outside the wetland boundary.
12. If the approved license drawings and/or license attachments/plans conflict with the specific conditions, then the specific conditions shall prevail.
13. **This license does not eliminate the necessity to obtain any required federal, state, local or special district authorizations prior to the start of any activity approved by this license.**

B. CONSTRUCTION CONDITIONS

1. If the approved license drawings and/or license attachments/plans conflict with the specific conditions, then the specific conditions shall prevail.
2. **Demolition and construction related debris must be disposed of at an approved upland location and may not be left in the water or wetland areas.**
3. Any wetland areas or water bodies which are adjacent to the specific limits of construction authorized by this license shall be protected from erosion, sedimentation, siltation, scouring, excess turbidity or dewatering.
4. This license does not eliminate the necessity to obtain any required federal, state, local or special district authorizations prior to the start of any activity approved by this license.
5. Please be advised that applicants with projects 1 acre or greater in size are required to submit a Storm Water Notice of Intent application 48 hours prior to the commencement of construction to the Florida Department of Environmental Protection, NPDES Stormwater Notices Center, MS #2510, Florida Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. In addition, please submit a Stormwater Pollution Prevention Plan to the appropriate local jurisdiction (Broward County Water
6. Resources Division, Drainage District, or municipality) showing all Best Management Practices to be implemented during the construction of the project. The plan must be on a 24" X 36" drawing.

C. MITIGATION CONDITIONS

1. Impacts to 0.16 acres of herbaceous wetlands (UMAM Functional Loss = 0.08) is offset by the creation of 4.18 acres of herbaceous wetlands (Functional Gain value = 1.56), 0.84 acre of forested wetland enhancement (Functional Gain value = 0.07), 0.08 acre of transitional wetland creation (Functional Gain value = 0.03) and 2.44 acres of herbaceous wetlands restoration (Functional Gain value = 0.20). Total proposed functional loss = 0.08 UMAM units and total proposed mitigation functional value – 1.78 functional units.
2. Long-term management and maintenance of the Stormwater Park mitigation shall be the perpetual responsibility of the City of Fort Lauderdale. The conservation areas shall be the perpetual responsibility of the City of Fort Lauderdale and may in no way be altered from their natural or licensed state as documented in this license, with the exception of restoration activities. Activities prohibited within the conservation area(s) include, but are not limited to: construction or placement of soil or other substances such as trash; removal or destruction of trees, shrubs or other vegetation (with the exception of exotic/nuisance vegetation) removal; excavation, dredging, or removal of soil material; diking or fencing; and any other activities detrimental to drainage, flood control, water conservation, erosion control or fish and wildlife habitat conservation or preservation.

3. A maintenance program shall be implemented in accordance with Exhibit No. _____ for the preserved/restored/enhanced/created wetland/upland areas on a regular basis to ensure the integrity and viability of those areas as licensed. Maintenance shall be conducted in perpetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of license issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed [2%] of total cover between maintenance activities. In addition, the licensee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.
4. Construction and installation of the Areas shall be in accordance with plans dated 06/30/15 (attached) and associated information.
5. Upon completion of the Areas, the following documentation shall be submitted to the Department: (1) certification of elevations in relation to design; (2) verification of actual acreage' and (3) the time-zero monitoring report. This documentation is required **within 30 days of completion** of the Areas and **prior** to any Certificate of Occupancy being issued for any structure on the site/phase.
6. All exotic and nuisance vegetation shall be treated or removed from the Areas. Less than **2 %** coverage will be allowed if dispersed throughout the Areas and not concentrated in any particular location. Exotic and nuisance species include but are not limited to: melaleuca, Australian pine, Brazilian pepper, bischofia, torpedo grass, primrose willow, cattail, air potato, and Syngonium.
7. In order to assure that the Area(s) become self-sustaining, the following criteria shall be met:
 - a) A minimum of 80% coverage by desirable wetland species after a two (2) year period and demonstration of persistence for three (3) additional years.
 - b) Less than **2%** coverage by invasive exotic and undesirable species is allowable if plants are dispersed and not concentrated in any particular area. Exotic and undesirable species include, but are not limited to, melaleuca, Australian pine, Brazilian pepper, bischofia, torpedo grass, primrose willow, cattail, air potato, and Syngonium. Treatment efforts should be tailored to prevent these species from becoming reproductively mature.
 - c) A minimum of 80% survival of each planted species shall be maintained each quarter. An exception to this condition may be allowed where species composition, density of planted and recruitment species, the overall wetland condition, as characterized by the growth rates and viability of the Areas are of higher quality, as determined by the Department.
 - d) Hydrologic conditions and soil characteristics are in general conformity to those specified in plans. Data from the permanent surveyed staff gauges must be collected every two weeks and submitted with the quarterly monitoring reports.
 - e) Any preserved or planted species shall be maintained as to exhibit new growth and/or propagation, viability, and overall health. Existing desirable wetland plant species shall not be injured or killed. Any plants that are severely damaged or killed will be replaced on a plant-for-plant basis for shrubs and groundcovers and on an inch-for-inch basis for trees.
8. The Area(s) shall be monitored and reports submitted quarterly for five (5) years describing in detail the condition of the Areas relative to the reference wetland and the criteria listed above (C. 7.a-f).
9. Should the Department determine that the Areas are not achieving the listed criteria during some portion of the monitoring period, the licensee shall determine the reasons for failure and prepare plans that demonstrate clearly how the problem(s) will be corrected and submit such plans

immediately to the Department for approval. Those plans shall be implemented within 30 days from the Departments written approval.

10. The Department must be notified of any change of consultant/contractor during the construction and mitigation monitoring phases of this project.

D. A COPY OF THIS LICENSE SHALL BE KEPT ON SITE DURING ALL PHASES OF LICENSED CONSTRUCTION.

STAFF REPORT

Project Name: River Oaks Stormwater Park and Preserve

Permit Number: 06-07241-P **License Number:** SWM2015-091-0, DF13-1113

Application Number: 130702-19 **Concurrent Application:** L2013-109

Application Type: New Environmental Resource

Location: Broward County **Section-Township-Range:** 16-50-42

Permittee's Name: City of Fort Lauderdale

Project Area: 8.41 acres **Drainage Area:** 29.27 acres

Project Land Use: Recreational

Drainage Basin: Coastal

Receiving Body: North New River Canal

Purpose:

The construction and operation of a surface water management system to serve a proposed 8.41 acre passive stormwater park and wetlands preserve to serve the River Oaks neighborhood and alleviate flooding within the neighborhood.

Project Evaluation:

Project Site Description:

The site is presently undeveloped and is located on the west side of SW 19 Ave south of SW 21 St in Ft. Lauderdale.

Proposed Project Design:

The proposed construction will include a wetland-marsh area, a boardwalk, and the proposed drainage system. Runoff from the surrounding existing neighborhood will be directed into the wetland preserve area for water quality treatment and storm runoff attenuation. The discharge from the wetland preserve will be directed into the North New River via a proposed control structure which ties into a series of existing FDOT culverts and existing swales that lead to the canal. The proposed onsite control structure consists of a raised inlet at elevation 3.40' NAVD and two vertical 18" x 6" rectangular bleeders with invert elevations at 0.50' NAVD. The wetland area has a minimum perimeter berm elevation of 4' NAVD.

The applicant's consultant has demonstrated through plans and calculations that no adverse water quality or water quantity impacts will occur as a result of the proposed project and that it meets the requirements of the Cod

Control Elevation:

Control Elevation = 0.5 ft, NAVD WSWT Control Elevation = 0.5 ft, NAVD

Method of Determination = BC Avg. Wet Season Water Table Map

Exhibit 2A

Environmental Summary:**Description of Work:**

This license authorizes a project which is designed to alleviate flooding in the River Oaks neighborhood by creating a passive park which includes stormwater ponds and wetland features by conducting the following activities: 1) impacting 0.16 acre of the existing 3.51 acres of on-site wetlands, 2) excavating 19,682 cubic yards to create a 6.1 acre pond, 3) creating 4.18 acres of new marsh habitat within the pond 4) preserving and enhancing the remaining 0.85 acre forested wetland, 5) installing an 6' x 3117' (108,493 square feet) boardwalk at elevation +5.5 NGVD for public access and 6) installation of a historic CSX railroad bridge which shall be incorporated into the boardwalk.

Turbidity barriers shall be placed around the project area prior to initiation of earthwork and shall remain in place until construction is complete.

Location of Work: This project is located on a 9.1 acre site located at 2101 - 2271 SW 19th Avenue, Township 50 South, Range 42 East, Section 12, in the City of Fort Lauderdale. Folio Number 504216000141 and 5 other adjacent parcels as shown on the attachments.

Construction shall be in accordance with the submitted ERL Application, received on 7/2/13, and all additional information submitted; plans stamped by the Department on 12/7/15 (attached); and with all General and Specific Conditions of this license.

The proposed activities have been evaluated for potential secondary and cumulative impacts and to determine if the project is contrary to the public interest. Based upon the proposed project design, EPD has determined that the project will not cause adverse secondary or cumulative impacts to the water resources and is not contrary to the public interest.

Exhibit 2B

Special Concerns:

Operating Entity: City of Fort Lauderdale
Attention: Hrdeep Anand, P.ublic Works Director
949 NW 38 ST
Fort Lauderdale, FL 33309

Waste Water System/Supplier: G.T. Lohmeyer

Exhibit 2C

STAFF RECOMMENDATION:

South Florida Water Management District and Broward County rules have been adhered to and an Individual Permit should be granted.

06-07241-P; SWM2015-091-0; DF13-1113; STAFF REVIEW:

Surface Water Management Program:



Ashley Resta



Ashley Resta, P.E.

Aquatic and Wetland Resources Program:



for Linda Sunderland



for Linda Sunderland, Manager

Exhibit 2D

STAFF REPORT DISTRIBUTION LIST
ADDRESSES

Owner:

City of Fort Lauderdale
Attention: Khant Myat
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

Applicant:

City of Fort Lauderdale
Attention: Khant Myat
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

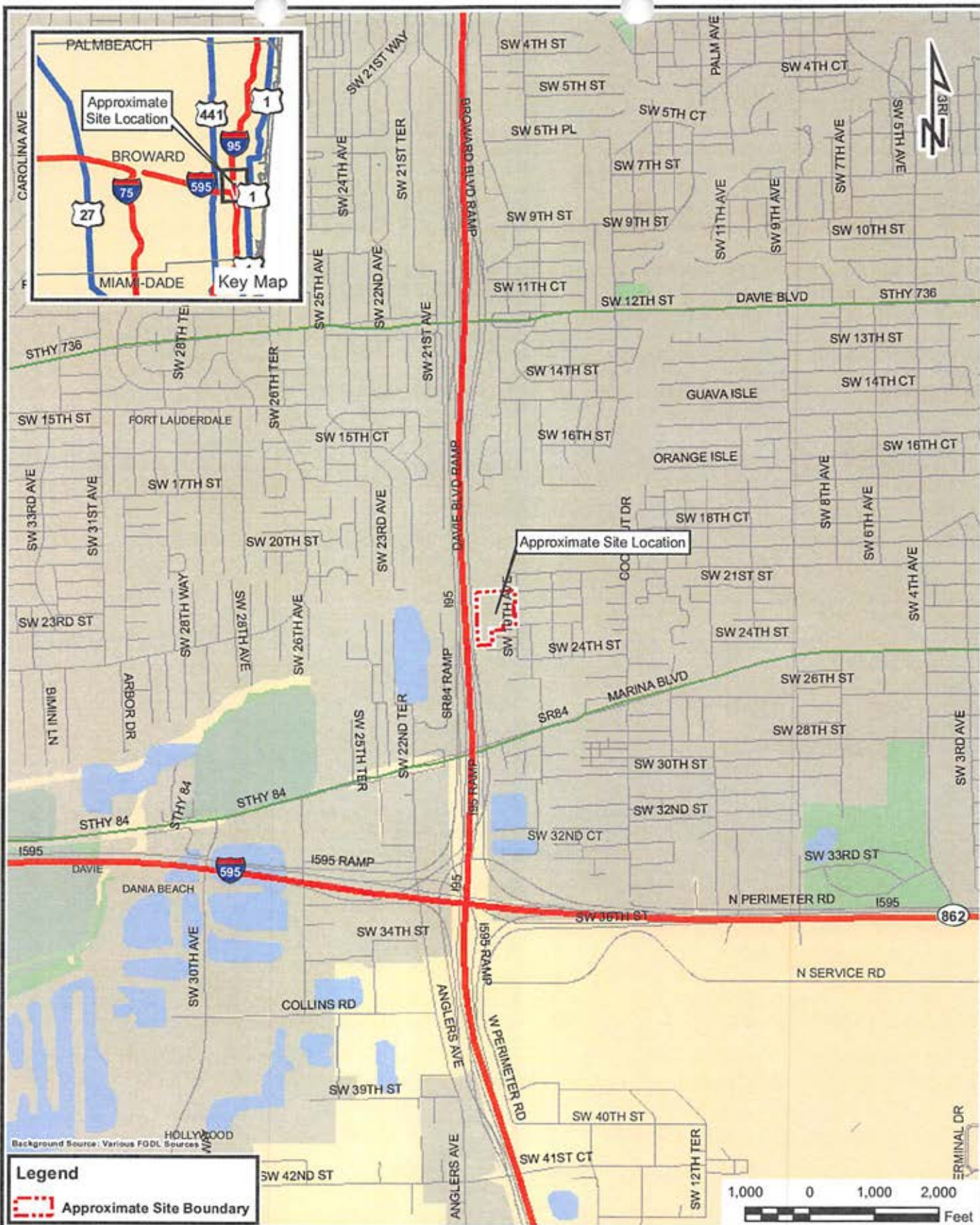
**Engineering
Consultant:**

CSA CENTRAL, INC.
Attention: Juan M. Villar
6100 Blue Lagoon Drive, Suite 300
Miami, FL 33126

Other:

City of Fort Lauderdale Building Official
Army Corps of Engineers

Exhibit 3



Legend

 Approximate Site Boundary



E Sciences

E Sciences, Incorporated
 FL Engineering Lic. #8691
 5310 N.W. 33rd Ave, Ste 201
 Fort Lauderdale, FL 33309
www.esciencesinc.com
 Phone: 954-484-8500
 Fax: 954-484-5146

DRAWN BY: TH	CHECKED BY: GS	PROJECT NUMBER: 2-0667-001
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**River Oaks
Stormwater Preserve**

Section 16, Township 50S, Range 42E
 City of Fort Lauderdale
 Broward County, Florida

Location Map

SCALE: 1"=2,000'	DATE: 4/20/2012
------------------	-----------------

FIGURE
1

P:\Projects\10-000-0002-0001\Map_Images and Drawings\10-000-0002.mxd



Exhibit 4C

FIGURE
4

**River Oaks
Stormwater Preserve**
Section 16, Township 50S, Range 42E
City of Fort Lauderdale
Broward County, Florida

Landuse Map

SCALE: 1"=200' DATE: 4/20/2012

E Sciences
E Sciences, Incorporated
FL Engineering Lic. #8691
5310 N.W. 33rd Ave, Ste 201
Fort Lauderdale, FL 33309
www.esciencesinc.com
Phone: 954-484-8500
Fax: 954-484-5146

DRAWN BY: TH	CHECKED BY: GS	PROJECT NUMBER: 2-0667-001
-----------------	-------------------	-------------------------------

P:\Project\10-400-4992-0001\10-400-4992-0001.dwg and drawings\10-400-4992-0001.dwg



Exhibit 4D

Legend

Approximate Site Boundary

Soils

Source: U.S. Dept of Agriculture, NRCS, 1990

11:DADE-URBAN LAND COMPLEX

20:MATLASHA, LIMESTONE SUBSTRATUM-URBAN LAND COMPLEX

3:ARENTS, ORGANIC SUBSTRATUM-URBAN LAND COMPLEX



E Sciences, Incorporated
FL Engineering, Inc. #0091
5310 N.W. 33rd Ave., Ste 201
Fort Lauderdale, FL 33309
www.esciencesinc.com
Phone: 954-484-0500
Fax: 954-484-5140

DRAWN
BY: LG

CHECKED
BY: GS

PROJECT NUMBER:
2-0667-001

**River Oaks
Stormwater Preserve**
Section 16, Township 50S, Range 42E
City of Fort Lauderdale
Broward County, Florida

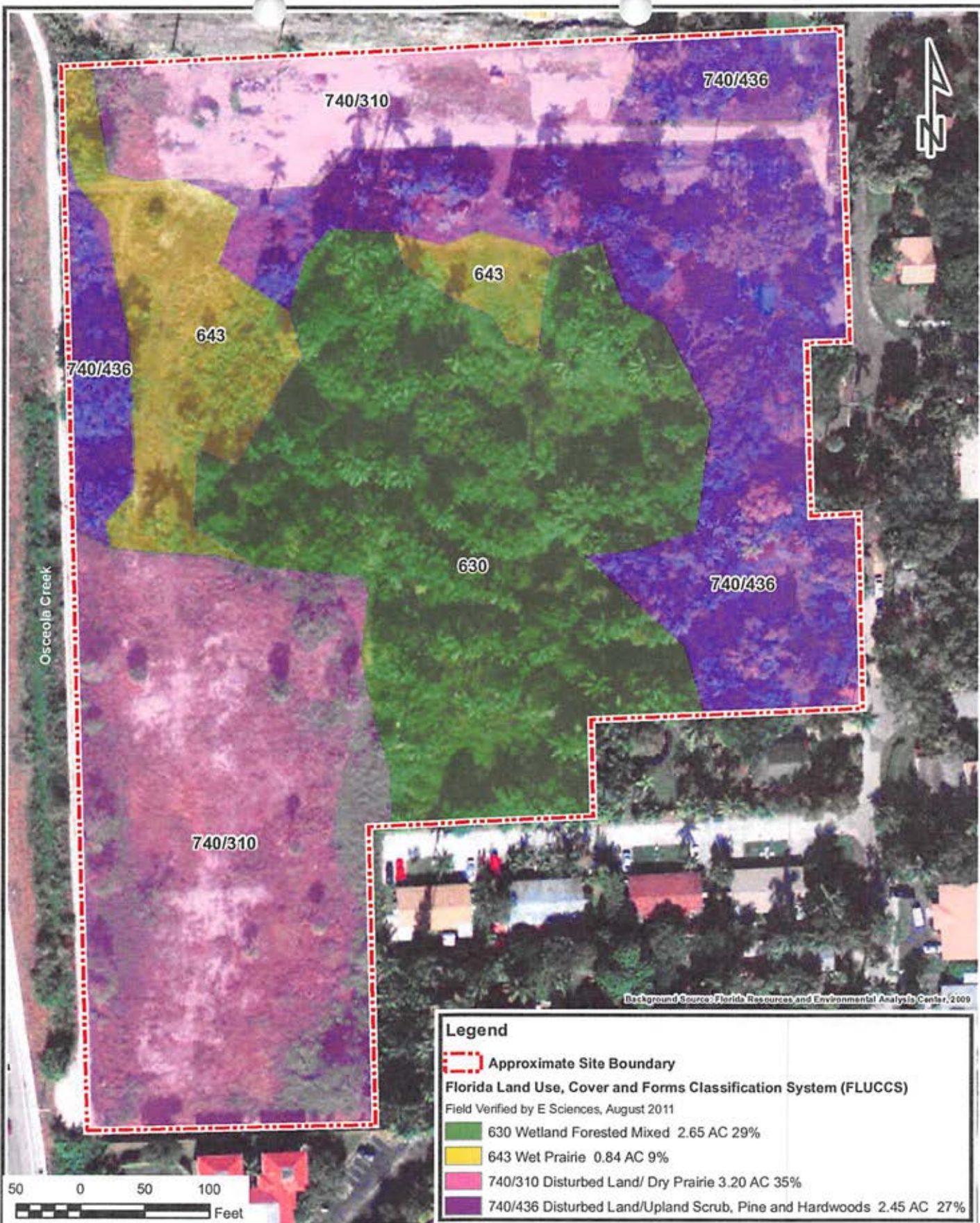
Soils Map

SCALE: 1"=200'
DATE: 4/20/2012

FIGURE

5





E Sciences

E Sciences, Incorporated
 FL Engineering Lic. #8691
 5310 N.W. 33rd Ave, Ste 201
 Fort Lauderdale, FL 33309
 www.esciencesinc.com
 Phone: 954-484-8500
 Fax: 954-484-5146

DRAWN BY: JJ/TH
 CHECKED BY: GS
 PROJECT NUMBER: 2-0667-001

River Oaks Preserve

Exhibit 4E

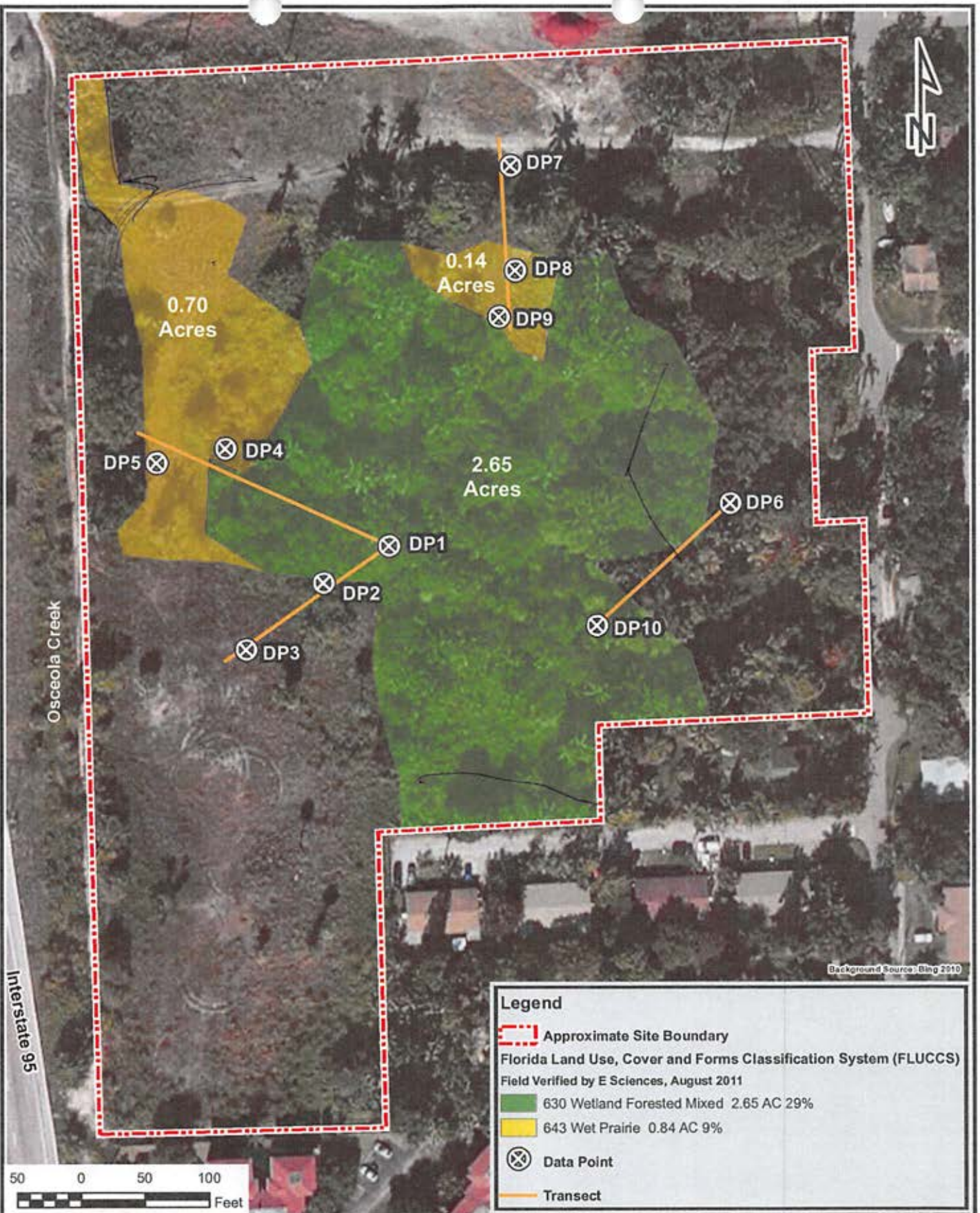
Section 16, Township 30S, Range 42E
 Fort Lauderdale, Broward County, Florida

Existing FLUCCS Map

SCALE: 1"=100'
 DATE: 4/19/2012

FIGURE

6



E Sciences, Incorporated
 FL Engineering Lic. #8691
 5310 N.W. 33rd Ave, Ste 201
 Fort Lauderdale, FL 33309
 www.esciencesinc.com
 Phone: 954-484-8500
 Fax: 954-484-5146

River Oaks Preserve

Exhibit 4F

Section 16, Township 50S, Range 42E
 Fort Lauderdale, Broward County, Florida

Wetland Delineation

FIGURE

7

DRAWN
 BY: LG

CHECKED
 BY: GS

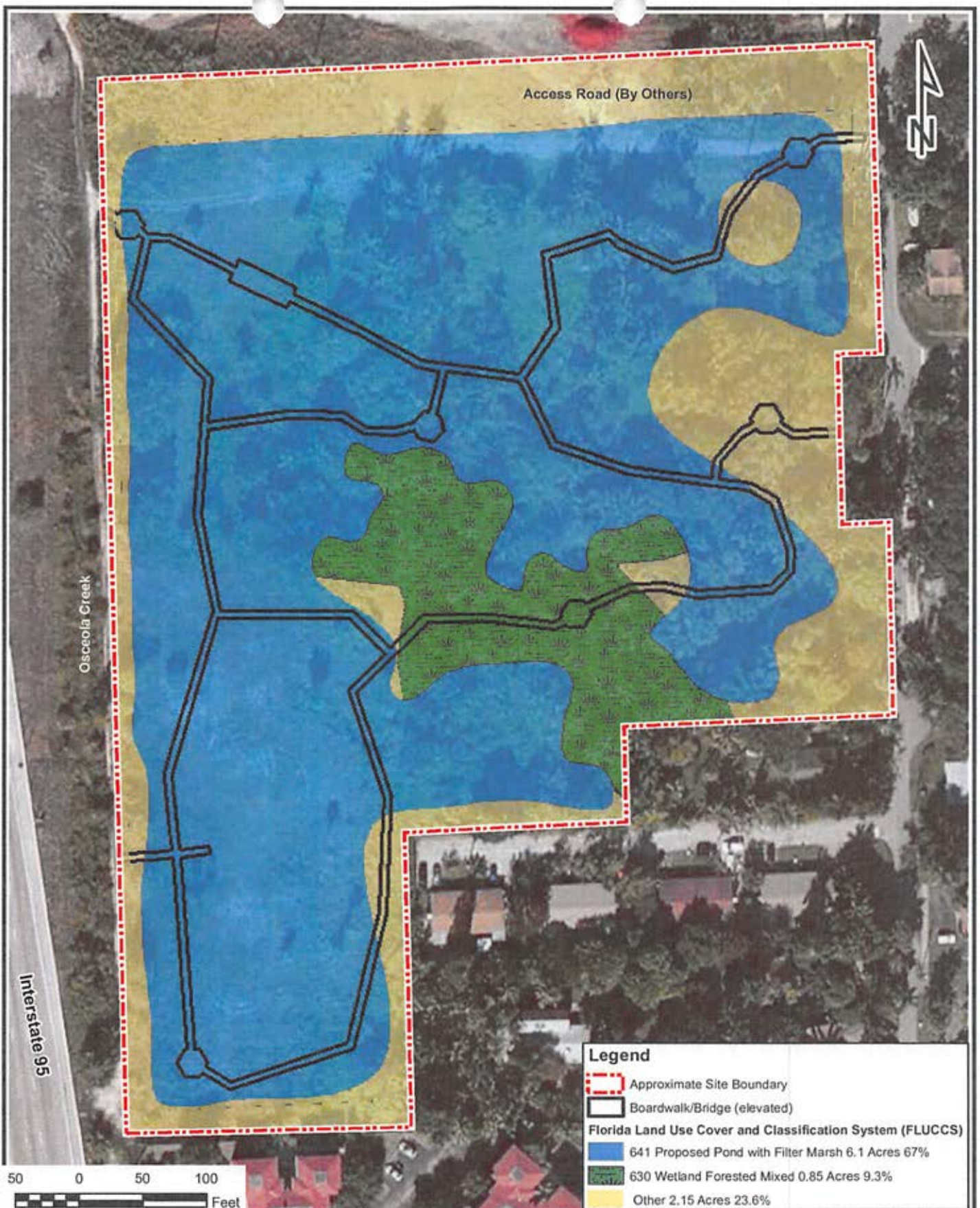
PROJECT NUMBER:
 2-0667-001

SCALE:

1"=100'

DATE:

4/20/2012



River Oaks Preserve

Section 16, Township 50S, Range 42E
Fort Lauderdale, Broward County, Florida

8

DRAWN
BY: JG

SCALE:

DATE: _____

[Search By Folio](#)[Search By Name](#)[Search By Address](#)[Help](#)[About](#)

Lori Parrish CFA Broward County Property Appraiser Florida

100m
400ft

BROWARD COUNTY
ENVIRONMENTAL PROTECTION AND
GROWTH MANAGEMENT DEPARTMENT
ENVIRONMENTAL RESOURCE LICENSE
BROWARD COUNTY CODE 27-331 TO 27-341
EXHIBIT
ATTACHED TO LICENSE NO. **DP-13-113**

Exhibit 4H

[illegible]

001	COVER SHEET
002	TOPOGRAPHIC SURVEY 1 OF 3
003	TOPOGRAPHIC SURVEY 2 OF 3
004	TOPOGRAPHIC SURVEY 3 OF 3
005	NOTES, LEGEND & QUANTITIES
006	DRAINAGE MAP EXISTING
007	DRAINAGE MAP PROPOSED
008	IMPROVEMENTS PLAN
009	PROPOSED DRAINAGE IMPROVEMENTS
010	CONSTRUCTION DETAILS
011	CONSTRUCTION DETAILS
012	CROSS SECTIONS
013	CROSS SECTIONS
014	WETLANDS DELINEATION
015	TREE SURVEY
016	TREE SURVEY DATA
017	TREE SURVEY DATA

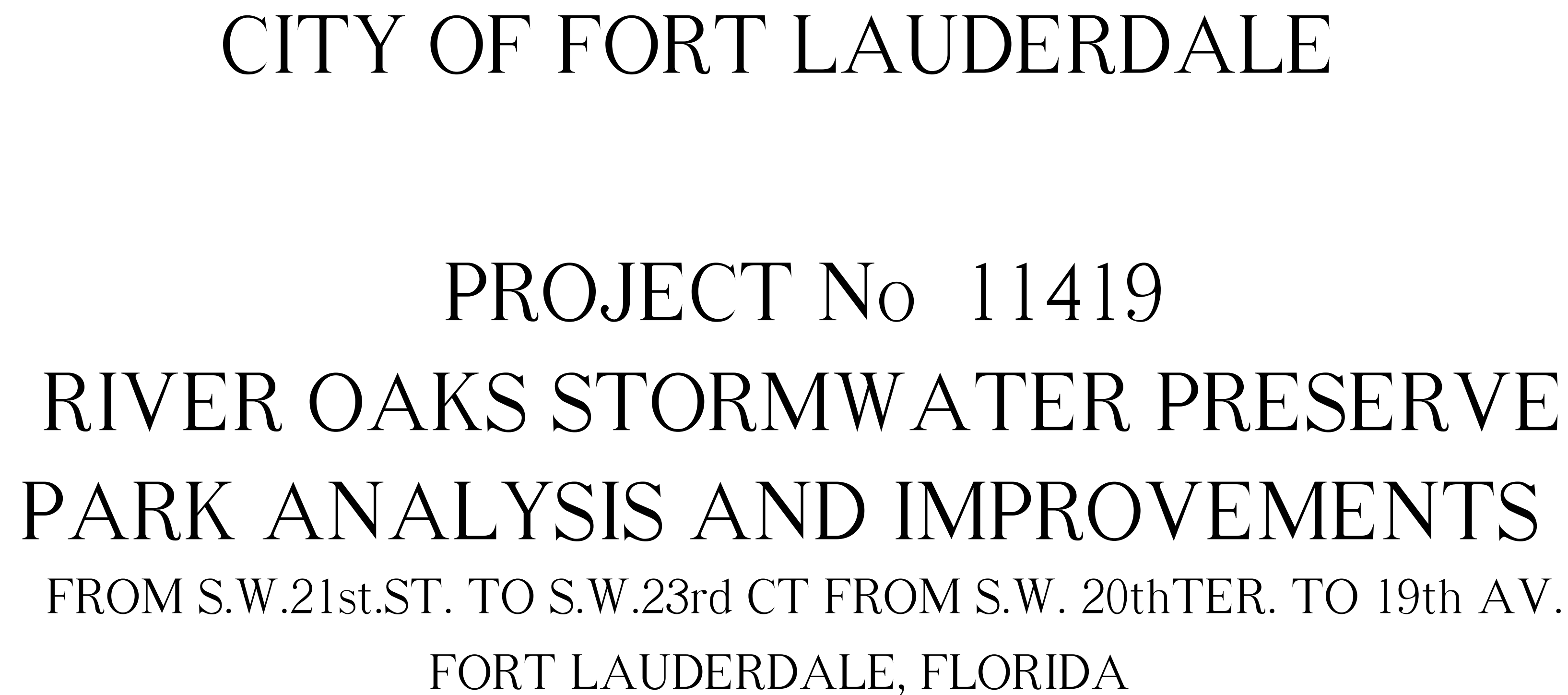
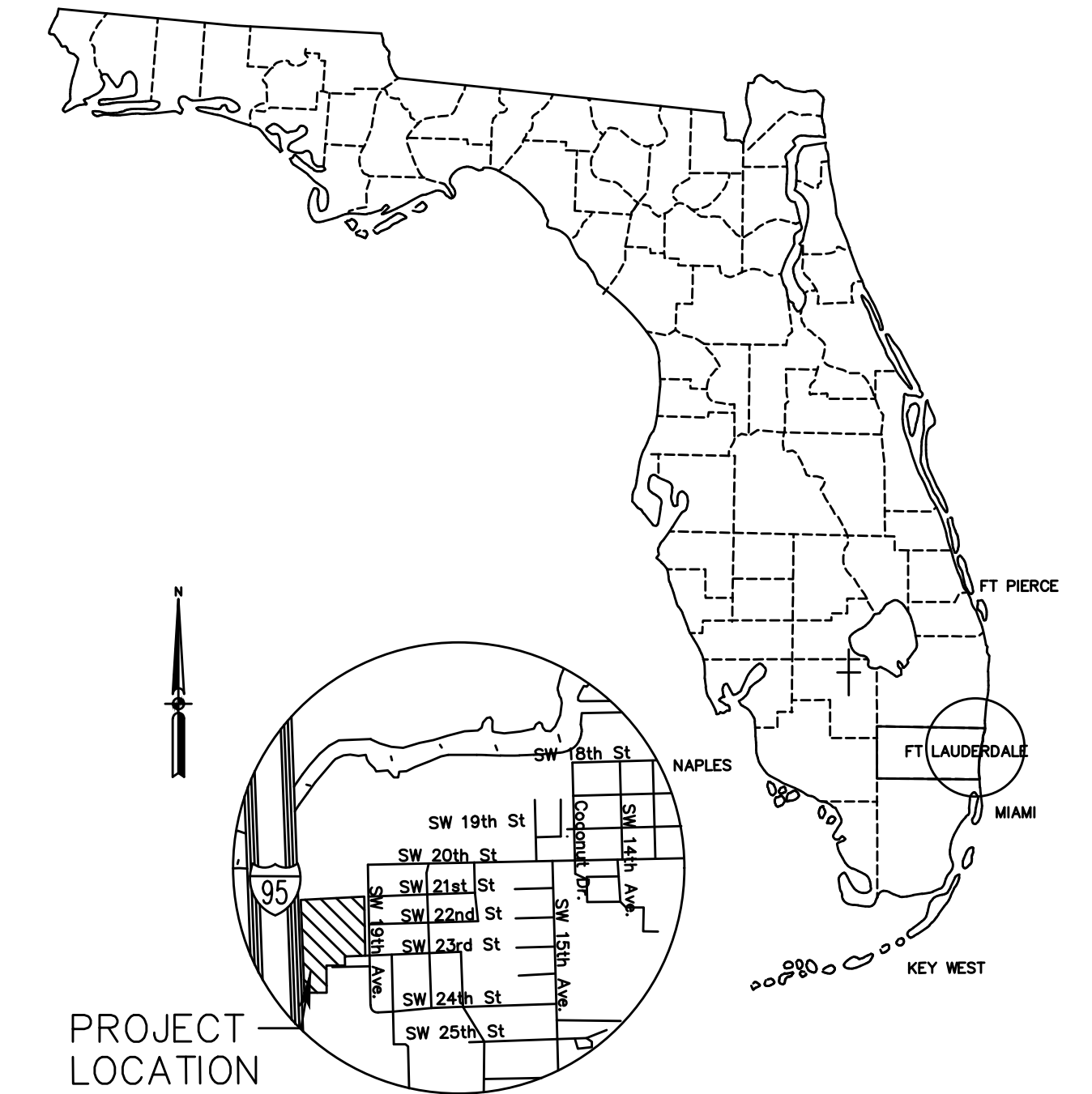


Exhibit 5




CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ELKIN DIAZ, P.E.	PROJECT MANAGER
MEHRAD FAYYAZ, P.E.	ASSISTANT CITY ENGINEER
LARRY TEICH	ENVIRONMENTAL SUP. FEDERAL GRANT ADMIN.

FINAL PLANS

GENERAL NOTES:

1.

PROPOSED GRADING AND DRAINAGE IN THE ORIGINAL WETLAND IS TO PROMOTE SHEET FLOW TOWARDS THE EXISTING OUTFALLS. THERE MAY BE THE NEED OF SOME EARTHWORK ACTIVITY IN THE AREA WHERE THE OUTFALL IS LOCATED TO ACHIEVE POSITIVE FLOW INTO THE STRUCTURES. NONE OF THE EXISTING STRUCTURES INSTALLED BY FDOT WILL BE MODIFIED.
2.

ALL WORK WITHIN BROWARD COUNTY RIGHT-OF-WAYS SHALL BE IN CONFORMANCE WITH THE BROWARD COUNTY MINIMUM STANDARDS AND/OR REQUIREMENTS.
3.

IN GENERAL, EXISTING STRUCTURES AND UTILITIES ARE NOTED AS EXISTING AND/OR SHOWN IN THIN LINES. NEW CONSTRUCTION IS IN HEAVY LINES AND/OR UNDERLINED.
4.

DRAINAGE PIPE SHALL BE REINFORCED CONCRETE (RCP).
5.

ALL ELEVATIONS SHOWN ARE IN NAVD 88 DATUM.

LEGEND

ABBREVIATIONS

- C.L.F.

= CHAIN LINK FENCE
- CMP

= CORRUGATED METAL PIPE
- CONC.

= CONCRETE
- F.H.

= FIRE HYDRANT
- GAS

= GAS MAIN
- INV.

= PIPE INVERT
- OHW

= OVERHEAD WIRES
- R/W

= RIGHT-OF-WAY LINE
- RCP

= REINFORCED CONCRETE PIPE
- SAN

= SANITARY SEWER PIPE
- SMH

= SANITARY MANHOLE
- S.V.

= SEWER VALVE
- T.O.P.

= TOP OF PIPE
- UNK.

= UNKNOWN TREE TYPE
- U.T.O.

= UNABLE TO OBTAIN DATA
- U.V.

= UNKNOWN VALVE
- W.V.


= WATER VALVE
- B.C.H.C.E.D.


= BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DEPARTMENT.


LEGEND:


SYMBOL


DESCRIPTION


- 


WATER METER BOX
- 


EXISTING VALVE
- 


PROPOSED VALVE
- 


FIRE HYDRANT
- 

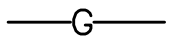
BENCH MARK
- 

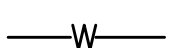
TREE
- 


NAIL IN BOTTLE CAP
- 


NAIL IN ASPHALT
- 

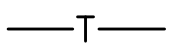
EXISTING GAS LINE
- 


EXISTING WATER MAIN
- 


EXISTING BURIED TELEPHONE
- 


EXISTING TELEPHONE
- 

EXISTING UNDERGROUND ELECTRIC
- 

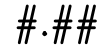
EXISTING FORCE MAIN
- 


EXISTING OVERHEAD WIRES
- 


EXISTING CABLE TELEVISION
- 

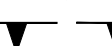
EXISTING CHAIN LINK FENCE
- 

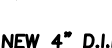
EXISTING WOOD FENCE


- 


EXISTING ELEVATION
- 


SOIL BORING LOCATION MARK
- 

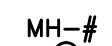
SOIL TYPE SEPARATION MARK
- 


PROPOSED FORCE MAIN
- 

PUMP STATION
- 

MANHOLE NUMBER
- 

CONFLICT MANHOLE NUMBER
- 

PROPOSED SANITARY SEWER
- 

SAN. SEWER LATERAL (DOUBLE)
- 

SAN. SEWER LATERAL (SINGLE)

NOTE: THIS LEGEND IS INTENDED FOR MOST SANITARY SEWER AND STORM SEWER PROJECTS, HOWEVER, THERE ARE PROJECTS USING ADDITIONAL SYMBOLS. THESE SYMBOLS WILL BE LOCATED ON OTHER SHEETS.

SUMMARY OF PRELIMINARY QUANTITIES

ITEM No.	ITEM	UNIT	
	MOBILIZATION	LS	1
	INLET, DITCH BOTTOM, TYPE K, <10'	EA	1
	U TYPE CONCRETE ENDWALL	EA	2
	CONCRETE CLASS I, ENDWALLS	CY	2.64
	REGULAR EXCAVATION	CY	24043
	EMBANKMENT - FILL	CY	202
	FENCING, TYPE B, 7.1-8.0', STANDARD	LF	2800
	TREES TO REMOVE	EA	135

Exhibit 6



REVISED 10-15-15

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
NOTES, LEGEND & QUANTITIES
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV.

SHEET NO.	OF
5	17
TOTAL:	17
CAD FILE:	11419-005-NOTE
DRAWING FILE NO.	4-135-81

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	RESPONSE TO COMMENTS
NO.	DATE		
1	6/30/15		FROM BCEPMD

DRAWN BY:	DATE:	DESIGNED BY:	CHECKED BY:	FIELD BOOK:
L.C./M.N.	JAN. 2012	SCALE:	N.T.S.	N/A
W.R./M.N.				
A.G.				

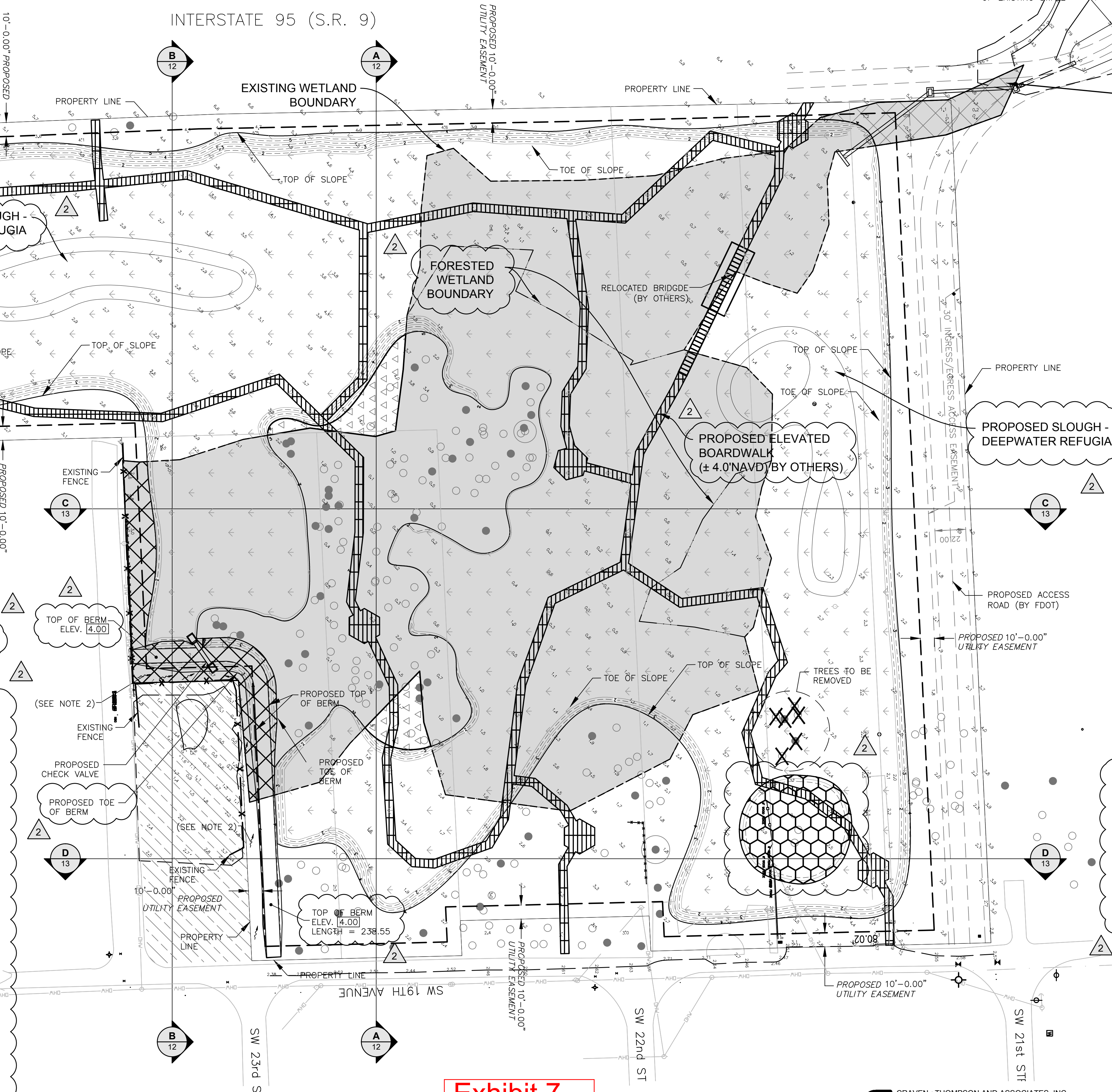
ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

N/A

NOTES:

- 1 ALL TREES INSIDE THE POND AREA MUST BE REMOVED.
- 2 CONTRACTOR MUST GRADE GROUND TO PROVIDE POSITIVE FLOW TOWARDS PROPOSED DRAINAGE STRUCTURES.
- 3 ACCES ROAD HAS BEEN CONSTRUCTED BY FDOT.
- 4 ALL ELEVATIONS ON THE PLANS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

TYPICAL PLANTS (D.W.E. = 0.5' NAVD)	
FILTER MARSH & DEEPWATER REFUGIA, ELEVATION RANGE (-) 4.0' - 1.0' NAVD	SPACING (feet on center)
Sawgrass (<i>Cladium jamaicense</i>) - (± 0.5' - 1.0' NAVD)	1
Fire Flag (<i>Thalia geniculata</i>) - (± (-) 3.0' - (-) 0.5' NAVD)	3
Pickelweed (<i>Pontederia cordata</i>) - (± (-) 0.5' - 0.5' NAVD)	3
Soft-stem Bulrush (<i>Scirpus validus</i>) - (± (-) 3.0' - (-) 0.5' NAVD)	3
Lance-leaf Arrowhead (<i>Sagittaria latifolia</i>) - (± (-) 0.5' - 0.5' NAVD)	3
Duck Potato (<i>Sagittaria lancifolia</i>) - (± (-) 0.5' - 0.5' NAVD)	3
Swamp Lily (<i>Crinum americanum</i>) - (± 0.0' - 0.75' NAVD)	3
TRANSITIONAL SLOPE, ELEVATION RANGE 0.5' - 3.0' NAVD	
Swamp Fern (<i>Blechnum serrulatum</i>) - (± 0.5' - 1.5' NAVD)	3
Blue-flag iris (<i>Iris virginicus</i>) - (± 0.5' - 1.0' NAVD)	3
Golden canna (<i>Canna flaccida</i>) - (± 0.5' - 1.0' NAVD)	3
Giant Leather Fern (<i>Achrostichum danaeifolium</i>) - (± 0.5' - 1.5' NAVD)	3
Cocoplum (<i>Chrysobalanus icaco</i>) - (± 1.5' - 3.0' NAVD)	3
Firebush (<i>Hamelia patens</i>) - (± 1.5' - 3.0' NAVD)	3
BERM, ELEVATION ≥ 2.5' NAVD	
TREES	
Gumbo Limbo (<i>Bursera simaruba</i>) (≥ 2.5' NAVD)	10
Jamaican Caper (<i>Capparis cynophallophora</i>) (≥ 2.5' NAVD)	10
Pigeon Plum (<i>Coccoloba diversifolia</i>) (≥ 2.5' NAVD)	10
Sabal Palm (<i>Sabal palmetto</i>) (≥ 2.5' NAVD)	10
SHRUBS	
Beautyberry (<i>Callicarpa americana</i>) (≥ 2.5' NAVD)	5
Simpson Stopper (<i>Myrcianthes fragrans</i>) (≥ 2.5' NAVD)	5
Cocoplum (<i>Chrysobalanus icaco</i>) (≥ 2.5' NAVD)	5
Wild coffee (<i>Psychotria nervosa</i>) (≥ 2.5' NAVD)	5



LEGEND

- BOARDWALK (±108,439ft²)
- BRIDGE
- EXISTING JURISDICTIONAL WETLAND (±3.51ac)
- EXISTING FORESTED WETLAND TO REMAIN (±0.84ac)
- PROPOSED HERBACEOUS MARSH (±4.18ac)
- PROPOSED WETLAND RESTORATION - HERBACEOUS MARSH (±2.44ac)
- PROPOSED WETLAND IMPACT (±0.16ac)
- PROPOSED TRANSITIONAL WETLAND (±0.08ac)
- NATIVE TREE TO REMAIN
- PRIVATE PROPERTY (NO WORK ON THIS AREA)
- PROPOSED TREE ISLAND (±0.14 AC)
- 4.00 EXISTING ELEVATION
- 4.00 PROPOSED ELEVATION
- XX TREES TO BE REMOVED

Exhibit 7



Craven • Thompson and Associates, Inc.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
TEL: (954) 739-6409
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. 0000114

CSA GROUP
CSA CENTRAL
6100 BLUE LAGOON DRIVE, SUITE 300
MIAMI, FL 33126 tel. (305) 461-5484
www.csagroup.com



REVISED 10-15-15

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
IMPROVEMENTS PLAN
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV

SHEET NO.	OF
8	17
TOTAL:	17
CAD FILE:	11419-008-SITE
DRAWING FILE NO.	4-135-81

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DATE:	JAN. 2012
DESIGNED BY:	SCALE: 1" = 40'
CHECKED BY:	A.G.
FIELD BOOK:	N/A

ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

PREVIOUSLY FILLED FOR
FDOT ACCESS ROADWAY
AND CULVERT CONNECTION
(±3,060ft²)-NOT INCL. IN
IMPACT CALCULATIONS

N/A

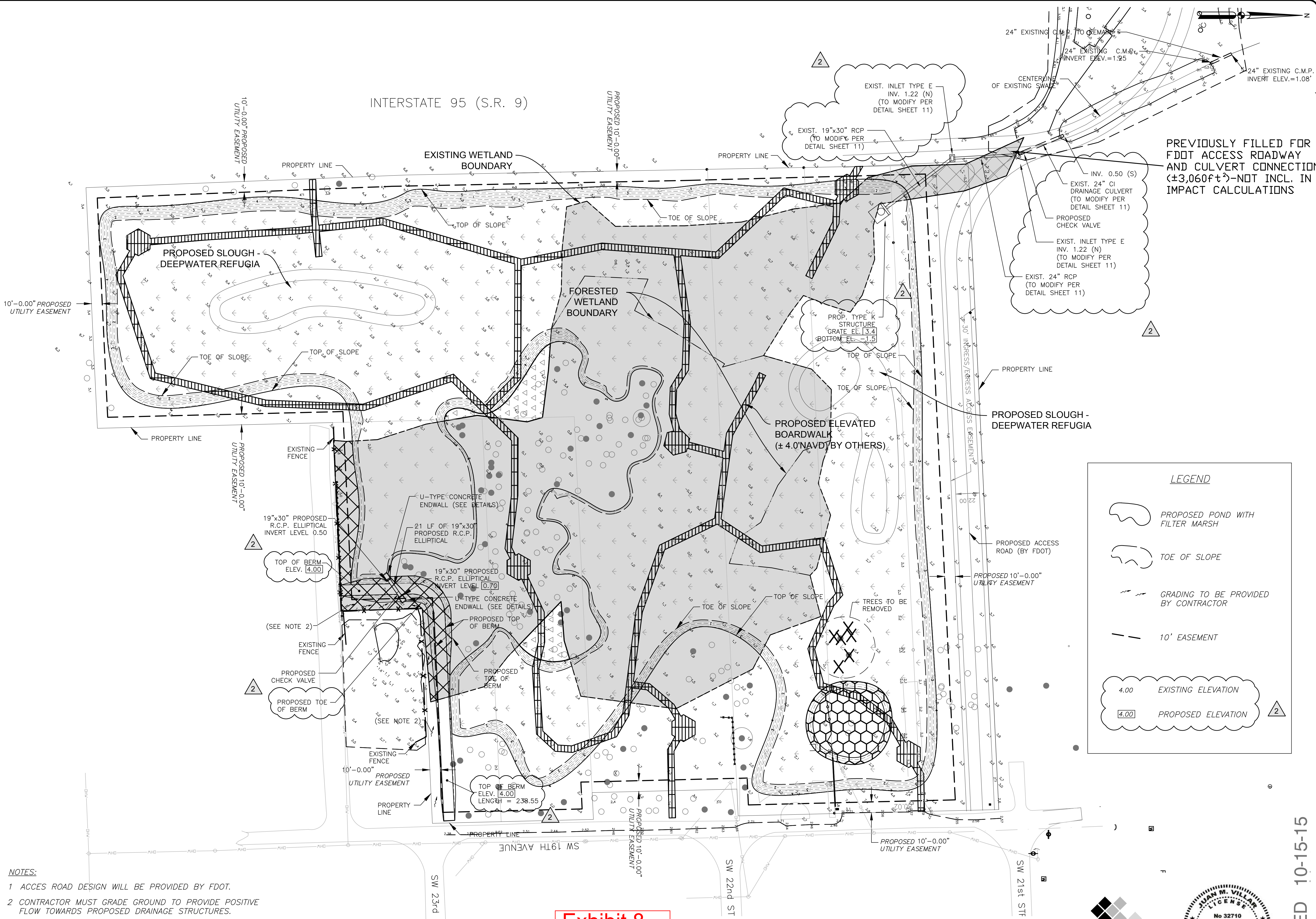
- NOTES:
- 1 ACCES ROAD DESIGN WILL BE PROVIDED BY FDOT.
 - 2 CONTRACTOR MUST GRADE GROUND TO PROVIDE POSITIVE FLOW TOWARDS PROPOSED DRAINAGE STRUCTURES.
 - 3 EXISTING GROUND ELEVATIONS PROVIDED BY THE CITY OF FORT LAUDERDALE.
 - 4 ALL ELEVATIONS ON THE PLANS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

Exhibit 8

CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
TEL: (954) 738-6400 FAX: (954) 738-6400
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FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

CSA GROUP
CSA CENTRAL
6100 BLUE LAGOON DRIVE,
SUITE 300
MIAMI, FL 33126 TEL: (305) 461-5484
www.csagroup.com

JUAN M. VILLAR
LICENSE
No 32710
STATE OF
FLORIDA
PROFESSIONAL ENGINEER



LEGEND

- PROPOSED POND WITH FILTER MARSH
- TOE OF SLOPE
- GRADING TO BE PROVIDED BY CONTRACTOR
- 10' EASEMENT

4.00 EXISTING ELEVATION
4.00 PROPOSED ELEVATION

PREVIOUSLY FILLED FOR FDOT ACCESS ROADWAY AND CULVERT CONNECTION (±3,060ft²)-NOT INCL. IN IMPACT CALCULATIONS

ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

DATE: JAN. 2012
DESIGNED BY: SCALE: 1" = 40'
DRAWN BY: L.C./M.N. W.R./M.N.
CHECKED BY: A.G.
FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

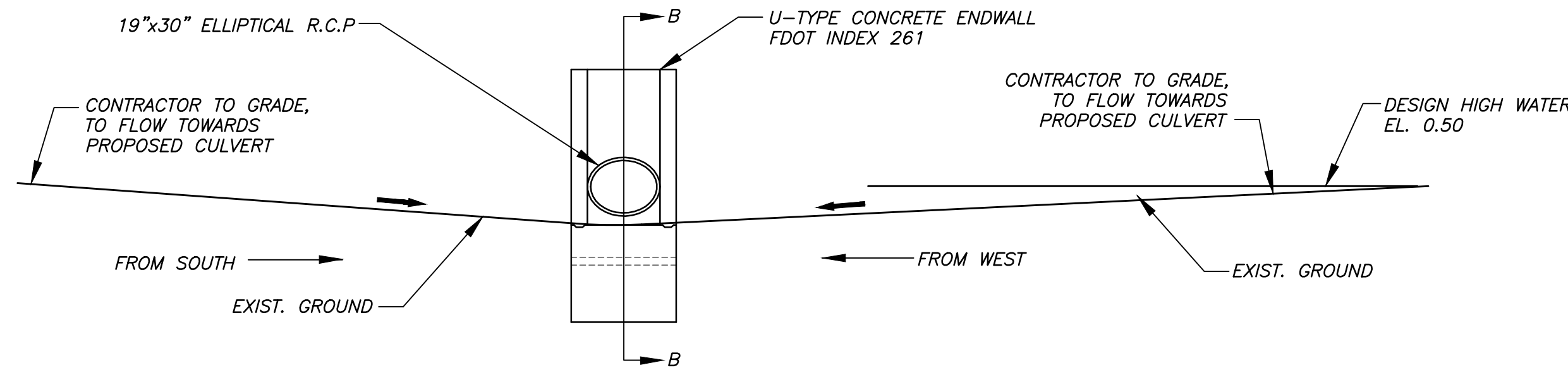
REVISIONS	
NO.	DESCRIPTION
1	RESPONSE TO COMMENTS FROM BCGPMD
2	RESPONSE TO COMMENTS FROM BCGPMD

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
PROPOSED DRAINAGE IMPROVEMENTS
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV

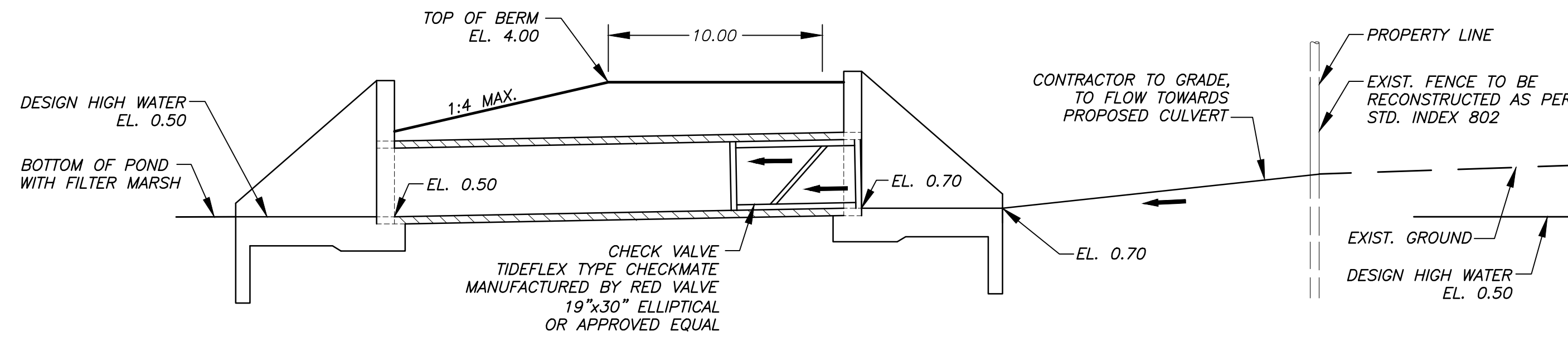
REVISION 10-15-15

SHEET NO.	OF
9	17
TOTAL: 17	
CAD FILE: 11419-009-SITE	
DRAWING FILE NO. 4-135-81	

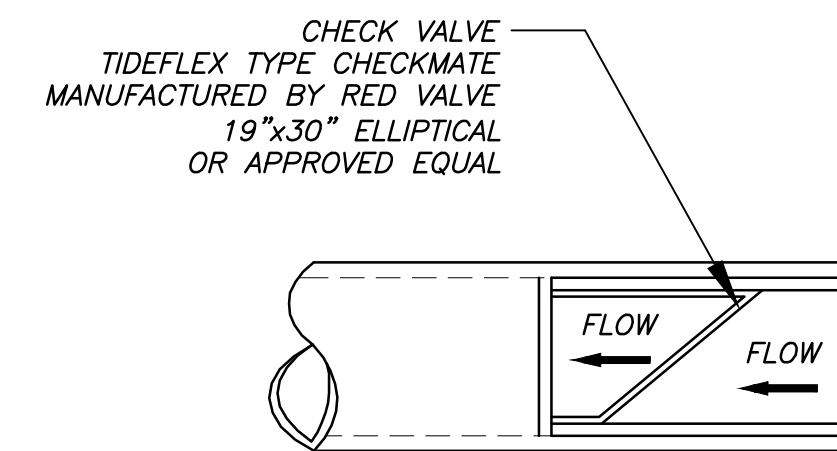
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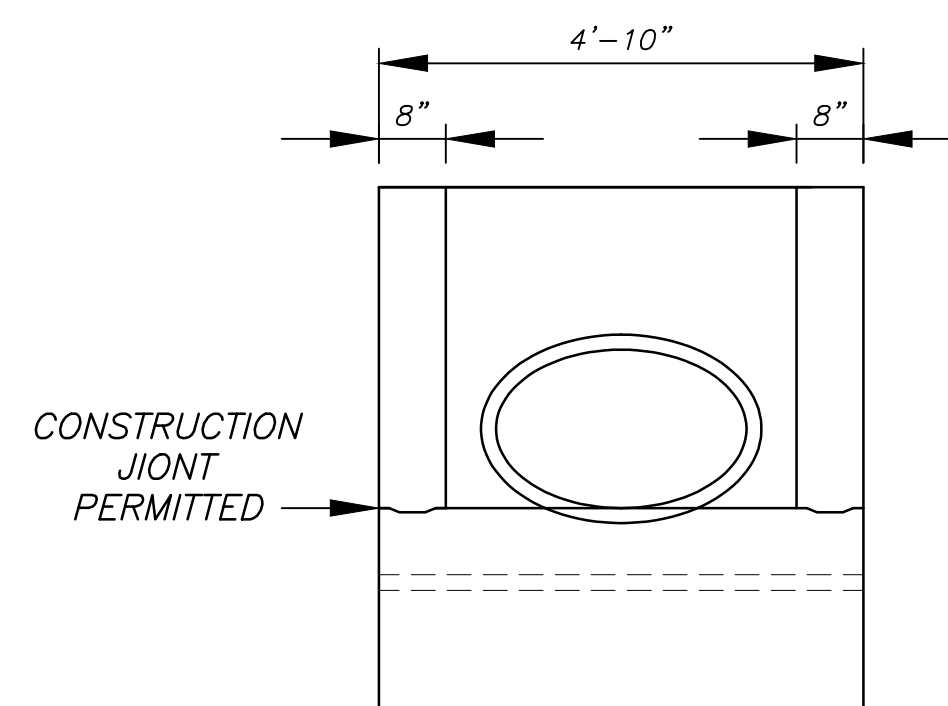
OUTFALL DETAIL - OFFSITE PROPERTY



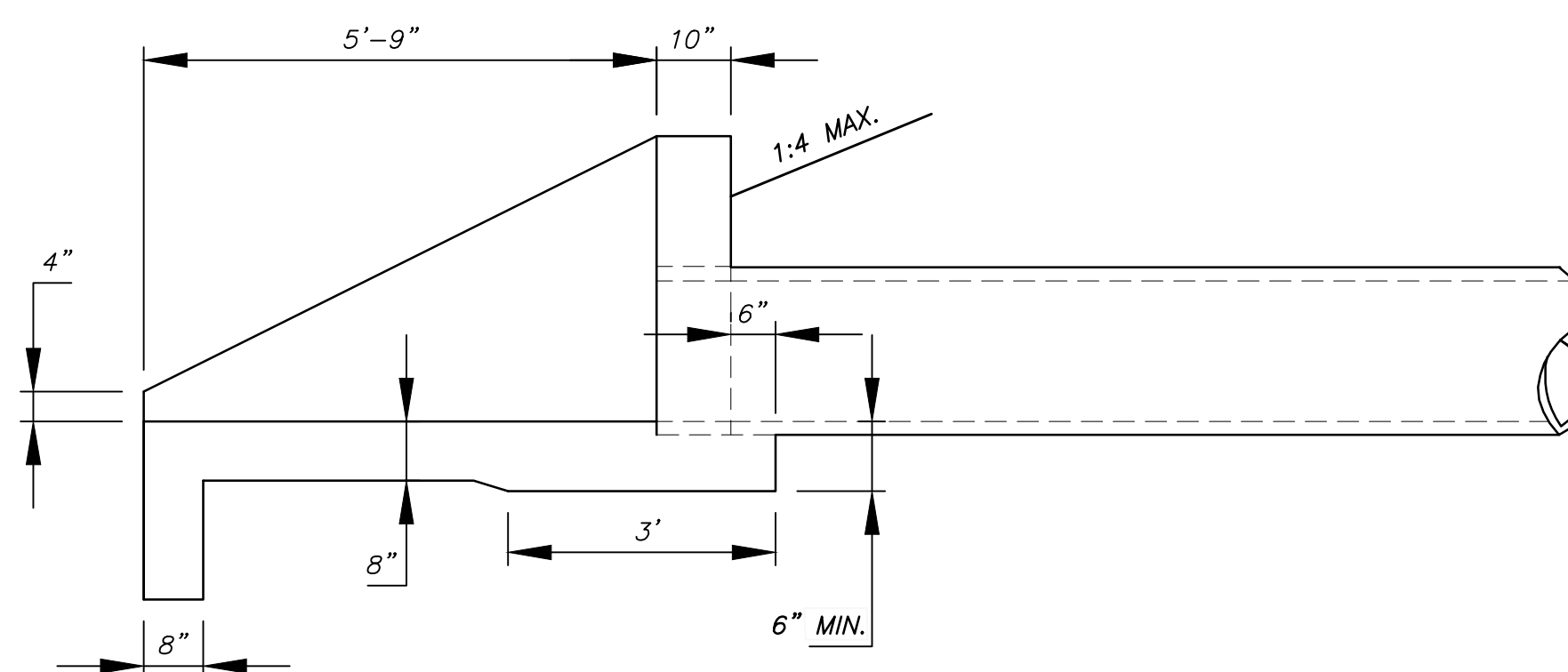
SECTION B-B



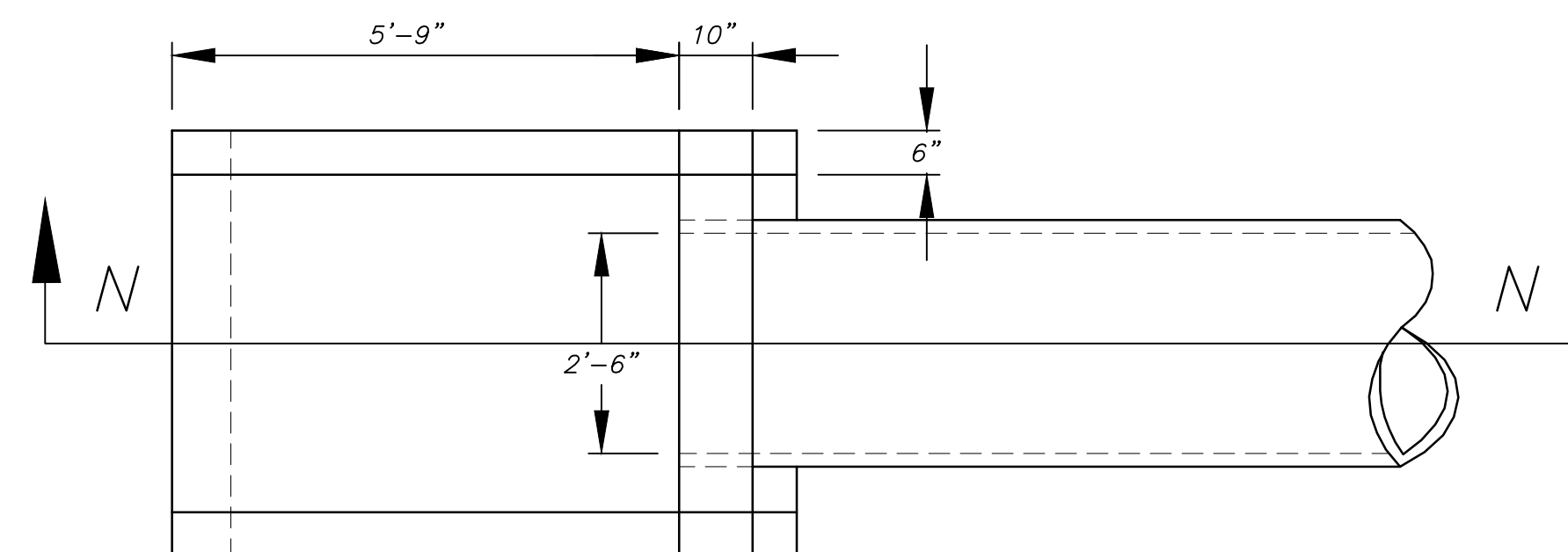
CHECK VALVE
DETAIL



END VIEW



SECTION N-N



PLAN

NOTE:

1 ALL ELEVATIONS ON THE PLANS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

Exhibit 9

THE Chappell GROUP

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ENGINEERS • PLANNERS • SURVEYORS
3583 N.W. 63RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

CSA Group
CSA CENTRAL
6100 BLUE LAGOON DRIVE,
SUITE 300
MIAMI, FL 33126 Tel.: (305) 461-5484
www.csagroup.com



REVISED 10-15-15

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
CONSTRUCTION DETAILS
S.W. 21st ST - S.W. 23rd CT / S.W. 20th TER - 19th AV.

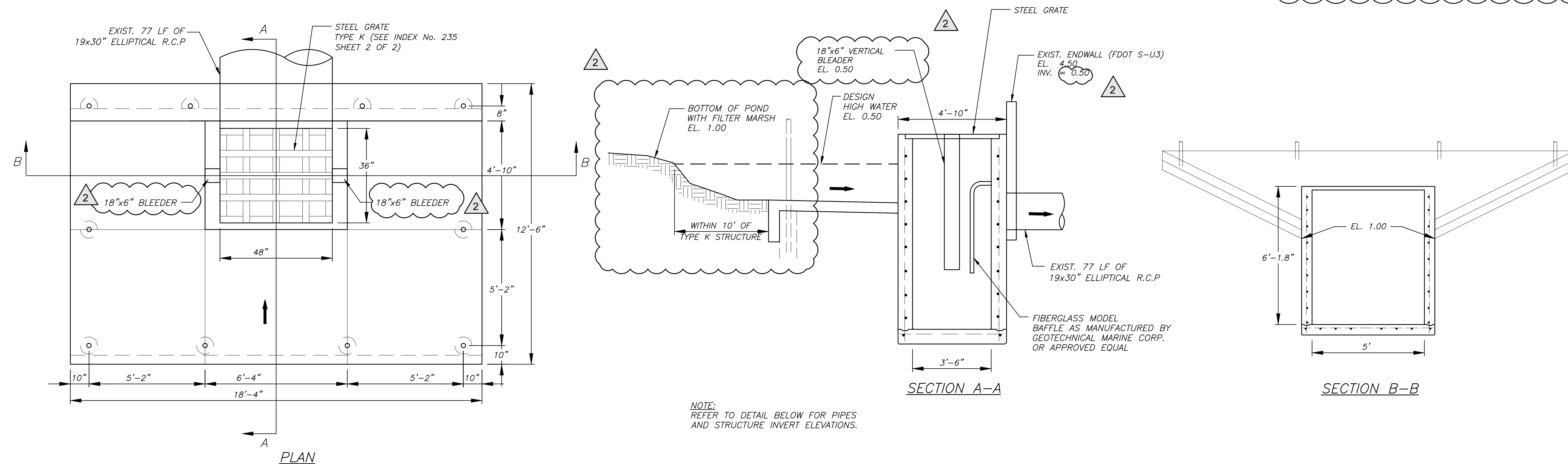
SHEET NO. 10 OF 17
TOTAL: 17
CAD FILE: 11419-010-DET1
DRAWING FILE NO. 4-135-81

ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

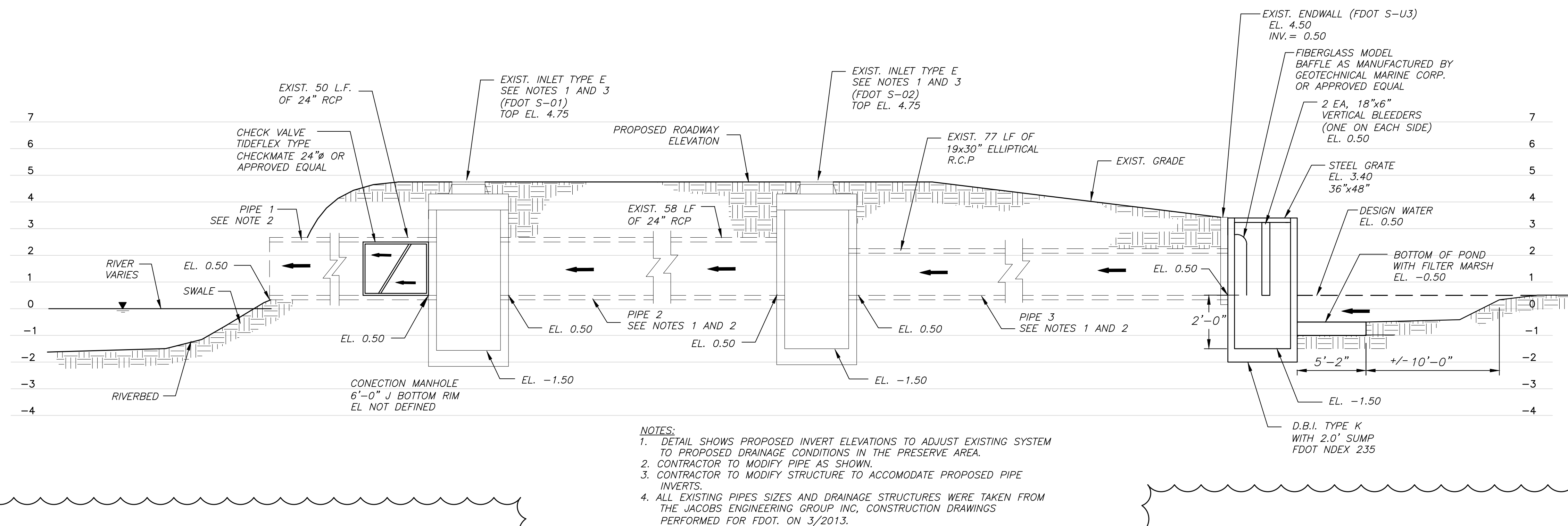
DRAWN BY: L.C./M.N. DATE: JAN. 2012
DESIGNED BY: W.R./M.N. SCALE: N.T.S.
CHECKED BY: A.G.
FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	CHECKED	REVISIONS DESCRIPTION
1	6/30/15			RESPONSE TO COMMENTS FROM BCEPMD
2	9/14/15			RESPONSE TO COMMENTS FROM BCEPMD



DITCH BOTTOM INLET TYPE K
FDOT INDEX 235



POND WITH FILTER AND MARSH - OUTFALL DETAIL

Exhibit 10



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3583 N.W. 63RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114



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MIAMI, FL 33126 Tel.: (305) 461-5484
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ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

DRAWN BY:	DATE:	DESIGNED BY:	SCALE:
L.C./M.N.	JAN. 2012	W.R./M.N.	N.T.S.
CHECKED BY:		A.G.	
FIELD BOOK:		N/A	

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

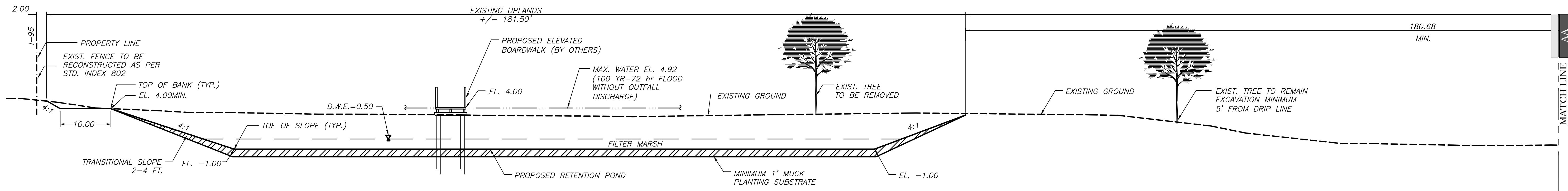
NO.	DATE	BY	DESCRIPTION
1	6/30/15		RESPONSE TO COMMENTS FROM BCEPMD
2	9/14/15		RESPONSE TO COMMENTS FROM BCEPMD

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
CONSTRUCTION DETAILS
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV

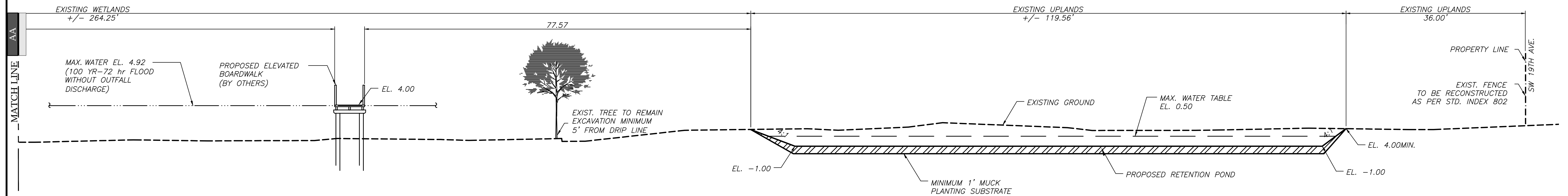
SHEET NO.	OF
11	17
TOTAL:	17
CAD FILE:	11419-011-DET1
DRAWING FILE NO.	4-135-81

REVISED 10-15-15

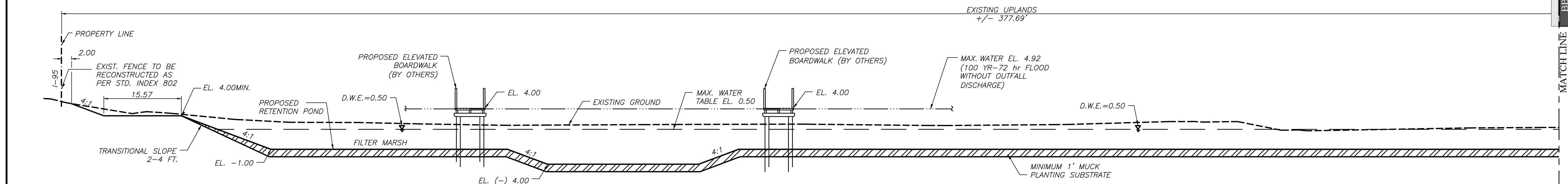
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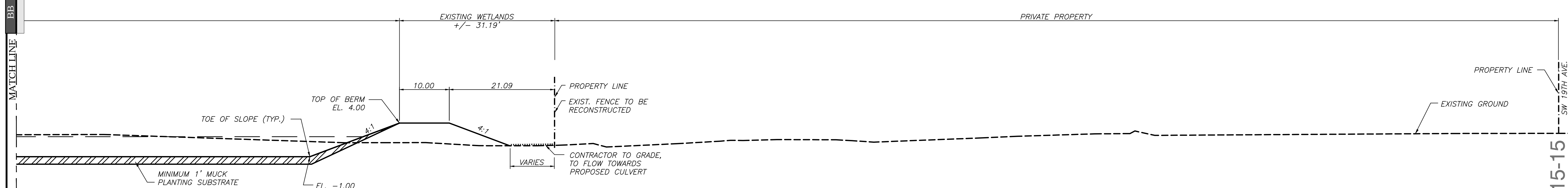
POND DETAIL
SECTION A-A



POND DETAIL
SECTION A-A (CONT.)



POND DETAIL
SECTION B-B



POND DETAIL
SECTION B-B (CONT.)

CONCEPTUAL WETLAND CROSS SECTION

NOTES:

- ALL TREES INSIDE THE POND AREA MUST BE REMOVED
- FOR TREE LOCATION SEE TREE SURVEY PLAN, SHEET No. 12
- FOR BOARDWALK DETAILS SEE C.O.F.L.'S BOARDWALK PLANS
- ALL ELEVATIONS ON THE PLANS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

2

Exhibit 11

THE Chappell GROUP

GRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
TEL: (954) 739-6400 FAX: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

CSA Group
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6100 BLUE LAGOON DRIVE,
SUITE 300
MIAMI, FL 33126 tel: (305) 461-5484
www.csagroup.com



REVISED 10-15-15

ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

DATE: JAN. 2012
DESIGNED BY: SCALE: N.T.S.
CHECKED BY: A.G.
FIELD BOOK: N/A

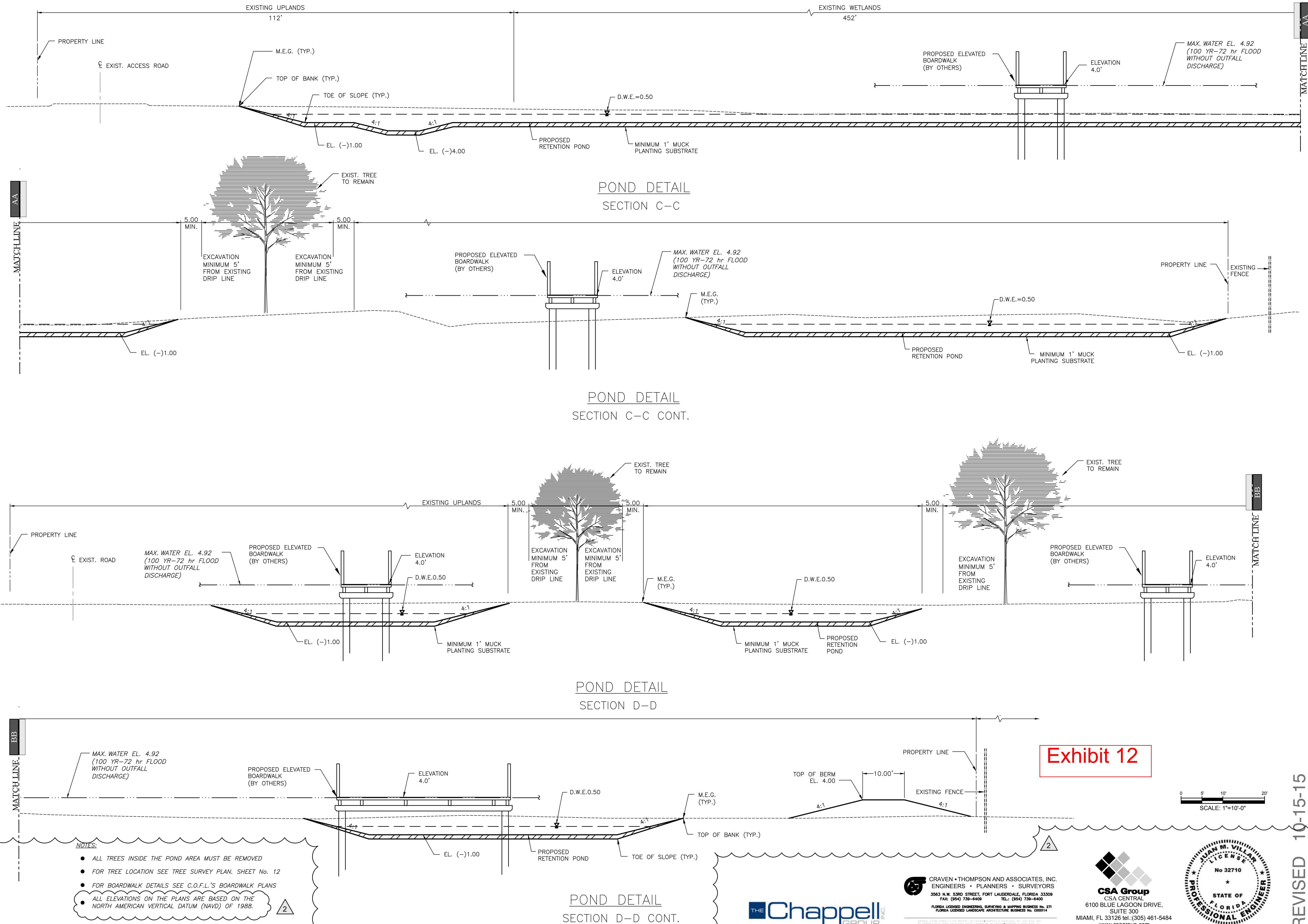
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	DESCRIPTION
1	6/30/15		RESPONSE TO COMMENTS FROM BCEPQMD
2	9/14/15		RESPONSE TO COMMENTS FROM BCEPQMD

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
CROSS SECTION
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV.

SHEET NO. 12 OF 17
TOTAL: 17
CAD FILE: 11419-012-SECT
DRAWING FILE NO. 4-135-81

N/A



ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

DATE: JAN. 2012
SCALE: N.T.S.
DESIGNED BY: N.T.S.
CHECKED BY: A.G.
FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	CHKD	DESCRIPTION
1	6/30/15			RESPONSE TO COMMENTS FROM BCEPMD
2	9/14/15			RESPONSE TO COMMENTS FROM BCEPMD

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
CROSS SECTION
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV

SHEET NO. 13 OF 17
TOTAL: 17
CAD FILE: 11419-013-SECT2
DRAWING FILE NO. 4-135-81

REVISED 10-15-15

PREVIOUSLY FILLED FOR
FDOT ACCESS ROADWAY
AND CULVERT CONNECTION
(±3,060ft²)—NOT INCL. IN
IMPACT CALCULATIONS

LEGEND

-  PREVIOUSLY FILLED
WETLAND-FDOT (0.07 ACRES)
-  EXISTING HERBACEOUS
WETLAND (0.77 ACRES)
-  EXISTING FORESTED
WETLAND (2.65 ACRES)

Exhibit 13

INTERSTATE 95 (S.R. 9)



Craven + Thompson and Associates, Inc.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 33RD STREET, FORT LAUDERDALE, FLORIDA 33309
TEL: (954) 738-8400 FAX: (954) 738-8409
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. 0000114

THE Chappell GROUP



CSA CENTRAL
6100 BLUE LAGOON DRIVE,
SUITE 300
MIAMI, FL 33126 tel: (305) 461-5484
www.csagroup.com



ENGINEER OF RECORD:
JUAN M. VILLAR
P.E. No. 32710

DRAWN BY: DATE: MAY 2013
D.R./L.G. DESIGNED BY: SCALE: 1" = 40'
G.S. CHECKED BY: G.S.
FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO.	DATE	BY	CHKD
1	6/30/15		
		RESPONSE TO COMMENTS FROM BCEP/GMD	

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
EXISTING WETLAND DELINEATION
100N. ANDREWS AVE., FORT LAUDERDALE

SHEET NO. 14 OF 17
TOTAL: 17
CAD FILE: 11419-014-SITE TCG
DRAWING FILE NO. 4-135-81





REVISED 10-15-15



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CSA CENTRAL
100 BLUE LAGOON DRIVE,
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**NOTE: ALL TREES WITHIN PROPOSED
POND AREA SHALL BE REMOVED
BY CONTRACTOR**


LEGEND

-  PROPOSED TOP OF
BERM WITH FILTER
MARSH
-  NON-EXEMPT
SPECIMEN TREES
-  NON-EXEMPT
TREES
-  TREE NUMBER

SHEET NO.	OF
15	17
TOTAL: 17	
CAD FILE: 11419-015-TSRV	
DRAWING FILE NO. 4-135-81	

PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
TREE SURVEY
S.W. 21st ST-S.W. 23rd CT/S. W. 20th TER-19th AV.

REVISIONS				
NO.	DATE	BY	CHK'D	DESCRIPTION
1	6/30/15			RESPONSE TO COMMENTS
				FROM BCEPGMD
2	9/14/15			RESPONSE TO COMMENTS
				FROM BCEPGMD



CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: D.R./L.G.	DATE: JAN. 2012
DESIGNED BY: G.S.	SCALE: 1"=40'
CHECKED BY: G.S.	
FIELD BOOK:	
N/A	

River Oaks Tree Survey							
Tree #	Common Name	Scientific Name	Height (ft)	Diameter (in)	Canopy (SqFt)	Disposition	Health
1	Almond	Terminalia catappa	20	5.7	452.4	Outside of Parcels	Fair
2	Almond	Terminalia catappa	25	11.4	1256.6	Outside of Parcels	Fair
3	Royal Palm	Roystonea regia	40	18.0	78.5	Outside of Parcels	Good
4	Coconut Palm	Cocos nucifera	35	11.0	50.3	Outside of Parcels	Good
5	Sabal Palm	Sabal palmetto	25	14.8	78.5	Outside of Parcels	Fair
6	Sabal Palm	Sabal palmetto	30	17.0	28.3	Outside of Parcels	Good
7	Almond	Terminalia catappa	20	6.5	113.1	Outside of Parcels	Good
8	Live Oak	Quercus virginiana	40	11.1	706.9	Outside of Parcels	Good
9	Live Oak	Quercus virginiana	20	11.0	12.6	Outside of Parcels	Good
10	Pink Tabebuia	Tabebuia heterophylla	35	32.3	5026.5	Outside of Parcels	Good
11	Live Oak	Quercus virginiana	25	32.5	452.4	Outside of Parcels	Good
12	Mango	Mangifera indica	30	8.7	201.1	Remove	Good
13	Royal Palm	Roystonea regia	50	13.6	314.2	Remove	Good
14	Royal Palm	Roystonea regia	40	3.8	113.1	Remove	Good
15	Royal Palm	Roystonea regia	50	44.0	706.9	Remove	Good
16	Sabal Palm	Sabal palmetto	30	9.0	28.3	Remove	Good
17	Sabal Palm	Sabal palmetto	30	13.5	78.5	Remove	Good
18	Sabal Palm	Sabal palmetto	35	11.0	314.2	Remove	Good
19	Royal Palm	Roystonea regia	35	14.8	314.2	Remove	Good
20	Traveler's Palm	Ravenala madagascariensis	20	9.0	78.5	Remove	Good
21	Live Oak	Quercus virginiana	40	17.1	1256.6	Remove	Good
22	Almond	Terminalia catappa	15	6.0	314.2	Remove	Good
23	Royal Palm	Roystonea regia	30	11.3	113.1	Remove	Good
24	Live Oak	Quercus virginiana	20	9.3	201.1	Remove	Fair
25	Sabal Palm	Sabal palmetto	20	10.5	50.3	Remove	Good
26	Sabal Palm	Sabal palmetto	23	13.0	78.5	Remove	Good
27	Sabal Palm	Sabal palmetto	25	12.8	78.5	Remove	Good
28	Sabal Palm	Sabal palmetto	30	14.0	78.5	Remove	Good
29	Sabal Palm	Sabal palmetto	28	10.9	50.3	Remove	Good
30	Royal Palm	Roystonea regia	50	18.0	201.1	Remove	Good
31	Royal Palm	Roystonea regia	50	18.2	113.1	Remove	Good
32	Sabal Palm	Sabal palmetto	20	12.8	113.1	Remove	Good
33	Areca Palm	Dypsis lutescens	13	8.0	12.6	Remove	Good
34	Almond	Terminalia catappa	30	9.5	113.1	Remove	Good
35	Areca Palm	Dypsis lutescens	15	12.0	113.1	Remove	Good
36	Live Oak	Quercus virginiana	60	42.0	2827.4	Remain	Good
37	ScrewPine	Pandanus utilis	20	8.0	50.3	Remain	Good
38	Areca Palm	Dypsis lutescens	15	6.0	50.3	Remove	Good
39	Areca Palm	Dypsis lutescens	25	19.0	113.1	Remove	Good
40	Bald-Cypress	Taxodium distichum	60	27.0	2827.4	Remove	Good
41	Sabal Palm	Sabal palmetto	35	17.0	113.1	Remove	Good
42	Sabal Palm	Sabal palmetto	35	10.0	201.1	Remove	Good
43	Areca Palm	Dypsis lutescens	30	NA	475.8	Remove	Good
44	Live Oak	Quercus virginiana	40	10.0	452.4	Remove	Good
45	Royal Palm	Roystonea regia	30	12.7	201.1	Remove	Good
46	Areca Palm	Dypsis lutescens	15	9.0	28.3	Remove	Good
47	Areca Palm	Dypsis lutescens	18	10.5	50.3	Remove	Good
48	Royal Palm	Roystonea regia	30	9.5	113.1	Remove	Good
49	Areca Palm	Dypsis lutescens	20	20.0	314.2	Remove	Good
50	Areca Palm	Dypsis lutescens	15	10.0	113.1	Remove	Good
51	Royal Palm	Roystonea regia	30	11.0	78.5	Remove	Good
52	Coconut Palm	Cocos nucifera	40	12.0	113.1	Remove	Good
53	Royal Palm	Roystonea regia	50	11.3	78.5	Remove	Good
54	Royal Palm	Roystonea regia	45	12.0	113.1	Remove	Good
55	Coconut Palm	Cocos nucifera	30	18.5	78.5	Remove	Good
56	Royal Palm	Roystonea regia	25	14.5	113.1	Remove	Good
57	Coconut Palm	Cocos nucifera	35	10.8	113.1	Remove	Good
58	Royal Palm	Roystonea regia	30	10.2	113.1	Remove	Good
59	Royal Palm	Roystonea regia	45	15.1	113.1	Remove	Good
60	Royal Palm	Roystonea regia	45	18.5	113.1	Remove	Good
61	Royal Palm	Roystonea regia	45	16.3	201.1	Remove	Good
62	Almond	Terminalia catappa	35	12.0	314.2	Remove	Good
63	Sabal Palm	Sabal palmetto	15	15.0	78.5	Remove	Good
64	Royal Palm	Roystonea regia	30	10.0	78.5	Remove	Good
65	Live Oak	Quercus virginiana	30	15.0	113.1	Remove	Good
66	Royal Palm	Roystonea regia	50	15.0	113.1	Remove	Good
67	Strangler Fig	Ficus aurea	30	12.0	201.1	Remove	Good
68	Live Oak	Quercus virginiana	35	12.0	314.2	Remove	Good
69	Areca Palm	Dypsis lutescens	15	15.0	50.3	Remove	Good
70	Areca Palm	Dypsis lutescens	20	10.0	78.5	Remove	Good
71	Royal Palm	Roystonea regia	35	10.0	78.5	Remove	Good
72	Sabal Palm	Sabal palmetto	25	8.0	78.5	Remove	Good
73	Sabal Palm	Sabal palmetto	15	12.0	113.1	Remain	Good
74	Sabal Palm	Sabal palmetto	20	15.0	113.1	Remain	Good
75	Areca Palm	Dypsis lutescens	20	NA	220.9	Remain	Good
76	Royal Palm	Roystonea regia	25	15.0	314.2	Remove	Good
77	Almond	Terminalia catappa	35	10.0	706.9	Remove	Good
78	Royal Palm	Roystonea regia	40	18.0	113.1	Remove	Good
79	Kigelia	Kigelia africana	25	56.0	1256.6	Remove	Good
80	Royal Palm	Roystonea regia	40	22.0	452.4	Remove	Good
81	Royal Palm	Roystonea regia	50	20.0	113.1	Remove	Good
82	Areca Palm	Dypsis lutescens	15	7.0	12.6	Remove	Fair
83	Royal Palm	Roystonea regia	50	18.0	201.1	Remove	Good

River Oaks Tree Survey							
Tree #	Common Name	Scientific Name	Height (ft)	Diameter (in)	Canopy (SqFt)	Disposition	Health
84	Royal Palm	Roystonea regia	50	18.0	201.1	Remove	Good
85	Areca Palm	Dypsis lutescens	20	12.0	78.5	Remove	Good
86	SeaGrape	Coccoloba uvifera	15	5.0	78.5	Remove	Fair
87	Strangler Fig	Ficus aurea	35	25.0	1256.6	Remove	Good
88	Areca Palm	Dypsis lutescens	15	8.0	12.6	Remove	Good
89	Areca Palm	Dypsis lutescens	15	8.0	28.3	Remove	Good
90	Strangler Fig	Ficus aurea	25	12.0	113.1	Remove	Good
91	Royal Palm	Roystonea regia	40	12.0	113.1	Remove	Good
92	Royal Palm	Roystonea regia	50	18.0	153.9	Remain	Good
93	Strangler Fig	Ficus aurea	50	30.0	706.9	Remain	Good
94	Live Oak	Quercus virginiana	40	25.0	314.2	Remain	Good
95	Coconut Palm	Cocos nucifera	25	10.0	201.1	Remain	Good
96	Almond	Terminalia catappa	20	5.5	314.2	Remain	Good
97	Live Oak	Quercus virginiana	30	30.0	1256.6	Remain	Good
98	Coconut Palm	Cocos nucifera	30	12.5	706.9	Remain	Good
99	Live Oak	Quercus virginiana	40	12.0	201.1	Remain	Fair
100	Live Oak	Quercus virginiana	35	36.0	2827.4	Remain	Good
101	Almond	Terminalia catappa	25	4.0	113.1	Remain	Good
102	Almond	Terminalia catappa	20	8.0	201.1	Remove	Good
103	Almond	Terminalia catappa	20	4.5	201.1	Remain	Good
104	Live Oak	Quercus virginiana	40	35.0	1256.6	Remain	Good
105	ScrewPine	Pandanus utilis	12	12.0	113.1	Outside of Parcels	Fair
106	Screwpine	Pandanus utilis	12	20.0	78.5	Outside of Parcels	Good
107	Screwpine	Pandanus utilis	20	36.0	78.5	Outside of Parcels	Good
108	Queen Palm	Syagrus romanzoffiana	25	8.3	201.1	Outside of Parcels	Good
109	Queen Palm	Syagrus romanzoffiana	20	6.0	78.5	Outside of Parcels	Good
110	Queen Palm	Syagrus romanzoffiana	25	5.5	28.3	Outside of Parcels	Good
111	Sabal Palm	Sabal palmetto	20	13.1	78.5	Outside of Parcels	Good
112	Sabal Palm	Sabal palmetto	25	13.0	50.3	Outside of Parcels	Good
113	Sabal Palm	Sabal palmetto	25	11.5	113.1	Outside of Parcels	Good
114	Alexander Palm	Ptychosperma elegans	25	5.0	28.3	Outside of Parcels	Good
115	Sabal Palm	Sabal palmetto	20	9.8	78.5	Remain	Good
116	Live Oak	Quercus virginiana	35	70.0	706.9	Outside of Parcels	Good
117	Sabal Palm	Sabal palmetto	30	20.0	78.5	Remain	Fair
118	Alexander Palm	Ptychosperma elegans	35	6.0	78.5	Remain	Good
119	Alexander Palm	Ptychosperma elegans	30	6.0	113.1	Remain	Good
120	Sabal Palm	Sabal palmetto	25	18.0	50.3	Remain	Good
121	Sabal Palm	Sabal palmetto	30	11.0	78.5	Remain	Good
122	Sabal Palm	Sabal palmetto	30	12.0	113.1	Remain	Good
123	Almond	Terminalia catappa	15	4.0	113.1	Remain	Good
124	Almond	Terminalia catappa	20	6.0	113.1	Remain	Good
125	Java Plum	Syzygium cumini	40	40.0	113.1	Remain	Good
126	Almond	Terminalia catappa	15	9.0	314.2	Remain	Good
127	Areca Palm	Dypsis lutescens	25	11.0	314.2	Remain	Good
128	Java Plum	Syzygium cumini	40	18.0	1256.6	Remove	Good
129	Live Oak	Quercus virginiana	50	25.0	706.9	Remain	Good
130	Coconut Palm	Cocos nucifera	30	17.5	201.1	Remain	Good
131	Mango	Mangifera indica	15	8.0	78.5	Remain	Good
132	Almond	Terminalia catappa	35	6.0	314.2	Remain	Good
133	Traveler's Palm	Ravenala madagascariensis	40	60.0	452.4	Remove	Good
134	Mango	Mangifera indica	30	5.0	201.1	Remove	Fair
135	Alexander Palm	Ptychosperma elegans	30	3.0	50.3	Remove	Good
136	Royal Palm	Roystonea regia	45	16.0	201.1	Remove	Good
137	Areca Palm	Dypsis lutescens	25	10.0	12.6	Remove	Good
138	Areca Palm	Dypsis lutescens	25	10.0	78.5	Remain	Good
139	Royal Palm	Roystonea regia	25	13.0	314.2	Remain	Good
140	Areca Palm	Dypsis lutescens	20	3.5	12.6	Remain	Good
141	Royal Palm	Roystonea regia	45	23.0	314.2	Remain	Good
142	Royal Palm	Roystonea regia	40	20.0	113.1	Remain	Good
143	Royal Palm	Roystonea regia	30	15.0	314.2	Remain	Good
144	Royal Palm	Roystonea regia	30	18.0	113.1	Remain	Good
145	Royal Palm	Roystonea regia	45	19.0	314.2	Remain	Good
146	Unknown		30	16.0	452.4	Remain	Good
147	Royal Palm	Roystonea regia	45	12.0	153.9	Remain	Good
148	ScrewPine	Pandanus utilis	15	NA	740.6	Remain	Good
149	Bald-Cypress	Taxodium distichum	40	18.0	201.1	Remain	Good
150	Bald-Cypress	Taxodium distichum	40	16.0	201.1	Remain	Good
151	Pond Apple	Annona glabra	15	3.0	314.2	Remain	Good
152	Bald-Cypress	Taxodium distichum	40	16.0	452.4	Remain	Good
153	Bald-Cypress	Taxodium distichum	40	15.0	314.2	Remain	Good
154	Royal Palm	Roystonea regia	50	16.0	113.1	Remain	Good
155	Bald-Cypress	Taxodium distichum	35	5.0	78.5	Remain	Good
156	Pond Apple	Annona glabra	20	5.0	314.2	Remain	Good
157	Royal Palm	Roystonea regia	50	16.0	201.1	Remain	Good
158	Bald-Cypress	Taxodium distichum	30	6.0	314.2	Remain	Good
159	Pond Apple	Annona glabra	20	7.0	153.9	Remain	Good
160	Royal Palm	Roystonea regia	40	17.0	201.1	Remain	Good
161	Pond Apple	Annona glabra	15	10.0	314.2	Remain	Good
162	Royal Palm	Roystonea regia	25	11.0	113.1	Remain	Good
163	Red Maple	Acer rubrum	30	10.0	314.2	Remain	Good
164	Pond Apple	Annona glabra	25	12.4	314.2	Remain	Good
165	Royal Palm	Roystonea regia	50	18.0	113.1	Remain	Good
166	Pond Apple	Annona glabra	25	7.0	452.4	Remain	Good

Exhibit 15



Craven • Thompson and Associates, Inc.
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FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. 0200114



REVISED 10-15-15

DATE: APRIL 2012

DESIGNED BY: LG

CHECKED BY: CS

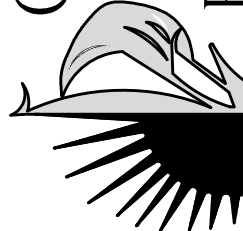
SCALE: N.T.S.

FIELD BOOK: N/A

CITY OF FORT LAUDERDALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISONS		DESCRIPTION	
NO.	DATE	BY	CHKD
1	6/30/15		
2	9/14/15		

RESPONSE TO COMMENTS FROM BCEPGMD	RESPONSE TO COMMENTS FROM BCEPGMD
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PROJECT # 11419
RIVER OAKS STORMWATER PRESERVE
PARK ANALYSIS AND IMPROVEMENTS
TREE SURVEY DATA
S.W.21stST-S.W.23rdCT/S.W.20thTER-19thAV

SHEET NO.	OR
16	17
TOTAL: 17	
CAD FILE: 11419-016-LEGN	
DRAWING FILE NO. 4-135-81	

N/A

River Oaks Tree Survey							
Tree #	Common Name	Scientific Name	Height (ft)	Diameter (in)	Canopy (SqFt)	Disposition	Health
167	Royal Palm	Roystonea regia	50	15.0	113.1	Remove	Good
168	Bald-Cypress	Taxodium distichum	35	6.0	50.3	Remove	Good
169	Bald-Cypress	Taxodium distichum	35	8.0	50.3	Remain	Fair
170	Sabal Palm	Sabal palmetto	15	16.0	113.1	Remain	Good
171	Pond Apple	Annona glabra	15	8.0	201.1	Remain	Good
172	Pond Apple	Annona glabra	15	5.0	153.9	Remain	Good
173	Red Maple	Acer rubrum	40	16.0	706.9	Remain	Good
174	Mango	Mangifera indica	30	55.0	2827.4	Remain	Good
175	Coconut Palm	Cocos nucifera	35	10.0	201.1	Remain	Good
176	Royal Palm	Roystonea regia	35	20.0	201.1	Remain	Good
177	Sweet Acacia	Acacia farnesiana	30	14.0	113.1	Remain	Good
178	Sabal Palm	Sabal palmetto	20	18.0	50.3	Remain	Good
179	Gumbo Limbo	Bursera simaruba	40	17.0	113.1	Remain	Good
180	Strangler Fig	Ficus aurea	20	16.0	113.1	Remain	Good
181	Royal Palm	Roystonea regia	40	13.0	50.3	Remain	Fair
182	Pond Apple	Annona glabra	20	13.0	201.1	Remain	Good
183	Red Maple	Acer rubrum	30	20.0	452.4	Remain	Good
184	Live Oak	Quercus virginiana	25	8.0	201.1	Remain	Fair
185	Royal Palm	Roystonea regia	45	13.0	50.3	Remove	Good
186	Ruffle Palm	Alphones horrida	30	5.0	50.3	Remove	Good
187	Royal Palm	Roystonea regia	40	15.0	113.1	Remain	Good
188	Royal Palm	Roystonea regia	25	13.0	113.1	Remain	Good
189	Royal Palm	Roystonea regia	45	19.0	113.1	Remain	Good
190	Red Maple	Acer rubrum	20	10.0	1256.6	Remain	Fair
191	Pond Apple	Annona glabra	25	8.0	201.1	Remain	Good
192	Strangler Fig	Ficus aurea	20	8.0	314.2	Remain	Good
193	Bald-Cypress	Taxodium distichum	30	7.0	28.3	Remain	Good
194	Pond Apple	Annona glabra	15	10.0	314.2	Remain	Good
195	Royal Palm	Roystonea regia	20	9.0	50.3	Remain	Good
196	Live Oak	Quercus virginiana	35	15.0	153.9	Remain	Good
197	Royal Palm	Roystonea regia	45	20.0	314.2	Remain	Good
198	Bald-Cypress	Taxodium distichum	40	12.0	201.1	Remain	Good
199	Pond Apple	Annona glabra	30	30.0	452.4	Remain	Good
200	Royal Palm	Roystonea regia	30	9.0	314.2	Remain	Good
201	Kigelia	Kigelia africana	25	16.0	452.4	Remove	Good
202	Kigelia	Kigelia africana	25	16.0	314.2	Remove	Good
203	Areca Palm	Dypsis lutescens	15	8.0	50.3	Remove	Good
204	Royal Palm	Roystonea regia	50	21.0	201.1	Remove	Good
205	Royal Palm	Roystonea regia	50	16.0	113.1	Remove	Good
206	Strangler Fig	Ficus aurea	30	15.0	314.2	Remove	Good
207	Royal Palm	Roystonea regia	45	22.0	314.2	Remove	Good
208	Royal Palm	Roystonea regia	40	14.0	201.1	Remove	Good
209	Red Maple	Acer rubrum	30	17.0	452.4	Remove	Good
210	Red Maple	Acer rubrum	25	13.0	314.2	Remove	Good
211	Bald-Cypress	Taxodium distichum	35	18.0	314.2	Remain	Fair
212	Bald-Cypress	Taxodium distichum	35	19.0	452.4	Remain	Fair
213	Bald-Cypress	Taxodium distichum	40	16.0	201.1	Remain	Good
214	Bald-Cypress	Taxodium distichum	35	17.0	201.1	Remain	Good
215	Royal Palm	Roystonea regia	50	18.0	314.2	Remove	Good
216	Areca Palm	Dypsis lutescens	20	30.0	78.5	Remove	Good
217	Royal Palm	Roystonea regia	50	12.0	113.1	Remain	Good
218	Areca Palm	Dypsis lutescens	15	15.0	113.1	Remain	Good
219	Red Maple	Acer rubrum	30	18.0	314.2	Remain	Good
220	Royal Plam	Roystonea regia	20	13.0	201.1	Remain	Good
221	Royal Palm	Roystonea regia	55	15.0	78.5	Remain	Good
222	Royal Palm	Roystonea regia	45	15.0	314.2	Remain	Good
223	Royal Palm	Roystonea regia	30	18.0	254.5	Remain	Good
224	Royal Palm	Roystonea regia	50	18.0	314.2	Remain	Good
225	Pond Apple	Annona glabra	35	18.0	706.9	Remain	Good
226	Royal Palm	Roystonea regia	50	15.0	314.2	Remain	Good
227	Royal Palm	Roystonea regia	55	12.0	201.1	Remain	Good
228	Royal Palm	Roystonea regia	55	15.0	113.1	Remain	Good
229	Red Maple	Acer rubrum	25	21.0	706.9	Remain	Poor
230	Royal Palm	Roystonea regia	45	17.0	201.1	Remain	Good
231	Royal Palm	Roystonea regia	45	20.0	201.1	Remain	Good
232	Royal Palm	Roystonea regia	40	18.0	314.2	Remain	Good
233	Royal Palm	Roystonea regia	40	18.0	314.2	Remain	Good
234	Royal Palm	Roystonea regia	50	17.0	201.1	Remain	Good
235	Bald-Cypress	Taxodium distichum	35	15.0	452.4	Remain	Good
236	Coconut Palm	Cocos nucifera	30	11.0	314.2	Remain	Good
237	Royal Palm	Roystonea regia	30	21.0	201.1	Remain	Good
238	Sabal Palm	Sabal palmetto	30	18.0	113.1	Remain	Good
239	Royal Palm	Roystonea regia	50	16.0	201.1	Remove	Good
240	Bald-Cypress	Taxodium distichum	30	12.0	314.2	Remove	Good
241	Pond Apple	Annona glabra	30	11.0	452.4	Remain	Good
242	Pond Apple	Annona glabra	30	19.0	706.9	Remain	Good
243	Pond Apple	Annona glabra	30	22.0	314.2	Remain	Good
244	Royal Palm	Roystonea regia	50	19.0	153.9	Remain	Good
245	Sabal Palm	Sabal palmetto	15	13.0	113.1	Remain	Good
246	Royal Palm	Roystonea regia	35	13.0	78.5	Remove	Good
247	Royal Palm	Roystonea regia	45	16.0	201.1	Remove	Good

River Oaks Tree Survey							
Tree #	Common Name	Scientific Name	Height (ft)	Diameter (in)	Canopy (SqFt)	Disposition	Health
248	Royal Palm	Roystonea regia	20	11.0	113.1	Remain	Good
249	Royal Palm	Roystonea regia	50	13.0	201.1	Remain	Good
250	Royal Palm	Roystonea regia	30	8.0	113.1	Remain	Good
251	Royal Palm	Roystonea regia	55	20.0	314.2	Remain	Good
252	Red Maple	Acer rubrum	40	23.0	12.6	Remain	Poor
253	Royal Palm	Roystonea regia	55	46.0	452.4	Remain	Good
254	Royal Palm	Roystonea regia	40	18.0	78.5	Remain	Good
255	Royal Palm	Roystonea regia	40	11.0	113.1	Remain	Good
256	Pond Apple	Annona glabra	15	4.5	452.4	Remain	Good
257	Royal Palm	Roystonea regia	45	18.0	314.2	Remain	Good
258	Royal Palm	Roystonea regia	40	19.0	201.1	Remain	Good
259	Royal Palm	Roystonea regia	40	16.0	201.1	Remain	Good
260	Sabal Palm	Sabal palmetto	30	9.0	50.3	Remain	Poor
261	Pond Apple	Annona glabra	20	5.0	706.9	Remain	Good
262	Royal Palm	Roystonea regia	50	20.0	314.2	Remain	Good
263	Royal Palm	Roystonea regia	45	18.0	201.1	Remain	Good
264	Royal Palm	Roystonea regia	50	20.0	201.1	Remain	Good
265	Pond Apple	Annona glabra	20	13.0	452.4	Remove	Good
266	Sabal Palm	Sabal palmetto	30	12.0	50.3	Remove	Good
267	SeaGrape	Coccoloba uvifera	25	NA	1344.8	Remove	Good
268	Live Oak	Quercus virginiana	35	17.0	706.9	Remain	Good
269	SeaGrape	Coccoloba uvifera	20	8.0	50.3	Remain	Good
270	Banyan	Ficus benghalensis	30	80.0	1256.6	Remain	Good
271	Live Oak	Quercus virginiana	15	15.0	1256.6	Remain	Fair
272	Live Oak	Quercus virginiana	40	12.0	706.9	Remain	Fair
273	Royal Palm	Roystonea regia	50	18.0	201.1	Remain	Good
274	Bald-Cypress	Taxodium distichum	15	3.0	201.1	Remain	Good
275	Almond	Terminalia catappa	25	11	706.9	Remove	Good
276	Strangler Fig	Ficus aurea	30	80	706.9	Remove	Good
277	Almond	Terminalia catappa	30	7.5	113.1	Remove	Good
278	Royal Palm	Roystonea regia	45	38	201.1	Remove	Good
279	Royal Palm	Roystonea regia	25	10.5	153.9	Remain	Good
280	Strangler Fig	Ficus aurea	50	60	706.9	Remove	Good
281	Royal Palm	Roystonea regia	40	25	113.1	Remove	Good
282	Laurel Oak	Quercus laurifolia	50	22	1256.6	Remove	Good
283	Laurel Oak	Quercus laurifolia	50	16	452.4	Remove	Good
284	Pond Apple	Annona glabra	50	23	1017.9	Remove	Good
285	Royal Palm	Roystonea regia	35	15.5	153.9	Remove	Good
286	Royal Palm	Roystonea regia	50	18	201.1	Remove	Good
287	Royal Palm	Roystonea regia	25	11	50.3	Remove	Good
288	Pond Apple	Annona glabra	40	24	201.1	Remain	Good
289	Royal Palm	Roystonea regia	55	20	314.2	Remain	Good
290	Royal Palm	Roystonea regia	25	12	153.9	Remain	Good
291	Royal Palm	Roystonea regia	35	19	201.1	Remain	Good
292	Royal Palm	Roystonea regia	25	16	153.9	Remain	Good
293	Royal Palm	Roystonea regia	20	13	201.1	Remain	Good
294	Red Maple	Acer rubrum	30	15	200.0	Remain	Good
295	Royal Palm	Roystonea regia	30	12	153.9	Remain	Good
296	Red Maple	Acer rubrum	40	30	314.2	Remain	Good
297	Royal Palm	Roystonea regia	30	16	201.1	Remain	Good
298	Pond Cypress	Taxodium ascendens	25	8	113.1	Remain	Good
299	Royal Palm	Roystonea regia	40	15	113.1	Remain	Good
300	Royal Palm	Roystonea regia	40	16	113.1	Remain	Good
301	Pond Apple	Annona glabra	30	18	452.4	Remain	Good
302	Royal Palm	Roystonea regia	50	12	314.2	Remain	Good
303	Royal Palm	Roystonea regia	30	11	113.1	Remain	Good
304	Royal Palm	Roystonea regia	40	12	113.1	Remain	Good
305	Pond Apple	Annona glabra	30	18	706.9	Remain	Good
306	Pond Apple	Annona glabra	25	16	201.1	Remain	Good
307	Pond Apple	Annona glabra	18	6	153.9	Remain	Good
308	Pond Apple	Annona glabra	15	8	153.9	Remain	Good
309	Royal Palm	Roystonea regia	50	18.5	153.9	Remain	Good
310	Royal Palm	Roystonea regia	50	16	153.9	Remain	Good
311	Royal Palm	Roystonea regia	40	13	201.1	Remain	Good
312	Royal Palm	Roystonea regia	45	15	153.9	Remain	Good
313	Royal Palm	Roystonea regia	45	15	153.9	Remain	Good
314	Royal Palm	Roystonea regia	40	18	153.9	Remove	Good
315	Sabal Palm	Sabal palmetto	15	16	78.5	Remove	Good
316	Weeping Fig	Ficus benjamina	20	25	78.5	Remove	Good
317	Strangler Fig	Ficus aurea	20	18	201.1	Remove	Good
318	Almond	Terminalia catappa	15	6	28.3	Remove	Good
319	Weeping Fig	Ficus benjamina	18	27	201.1	Remove	Good
320	Almond	Terminalia catappa	12	5	75.0	Remove	Good
321	Weeping Fig	Ficus benjamina	20	15	254.5	Remove	Good
322	Live Oak	Quercus virginiana	25	11	113.1	Remove	Good
323	Weeping Fig	Ficus benjamina	20	10	113.1	Remove	Fair
324	Mahogany	Swietenia mahagoni	18	5.5	19.6	Remove	Good
325	Mahogany	Swietenia mahagoni	13	4	12.6	Remove	Fair
326	Coconut Palm	Cocos nucifera	25	10	452.4	Remove	Good
327	Coconut Palm	Cocos nucifera	20	10	314.2	Remove	Good
328	Almond	Terminalia catappa	20	8	706.9	Remove	Good
329	Sabal Palm	Sabal palmetto	15	12	28.3	Remove	Good
330	Sabal Palm	Sabal palmetto	25	8	78.5	Remove	Good
331	Sabal Palm	Sabal palmetto	25	12	50.3	Remove	Good
309	=Total Number of Trees on Site		Total Canopy (Sqft) =		90987.9		

Exhibit 16



CRAVEN • THOMPSON AND ASSOCIATES, INC.
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REVISED 10-15-15

DATE: JAN. 2012

DESIGNED BY: SCALE: N.T.S.

CHECKED BY: G.S.

DRAWN BY: L.G.

FIELD BOOK: N/A

CITY OF FORT LAUDERDALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISONS		DESCRIPTION	
NO.	DATE	BY	CHKD
1	6/30/15		
2	9/14/15		

PROJECT # 11419

RIVER OAKS STORMWATER PRESERVE

PARK ANALYSIS AND IMPROVEMENTS

TREE SURVEY DATA

S.W.21stSt-S.W.23rdCT/S.W.20thTER-19thAV.

SHEET NO.	OR
17	17
TOTAL: 17	
CAD FILE: 11419-017-LEGN	
DRAWING FILE NO. 4-135-81	