



ADDENDUM NO. 1

Issue Date: June 25, 2020

Project Name: Moorhen Marsh Low Energy Aquatic Plant System

Bid Number: 2020030

Bid Opening Date: **July 14, 2020 @ 2:00 PM UPDATED**

This addendum is being released to extend the deadline for receipt of bids to July 14, 2020, to modify bid documents, to answer questions received to date, and to provide details of a scheduled site visit.

Bids will be opened and read publicly at 2 p.m. on July 14, however public access to that meeting will be via Zoom only, to facilitate required social distancing.

The link to the opening is: <https://ircgov.zoom.us/j/7837260776>

Or Telephone:

Dial:

USA 602 333 2017

USA 8882045987 (US Toll Free)

Conference code: 153949

Public members will be in listen only mode, but will be able to type questions in the chat after the responses have been opened.

The information and documents contained in this addendum are hereby incorporated in the invitation to bid. **This addendum must be acknowledged where indicated on the bid form, or the bid will be declared non-responsive.**

Modifications to Bid Documents:

1. The OWNER has obtained two additional permits (attached): (1) Indian River County Land Clearing Permit; and (2) Indian River County Tree Removal Permit. The CONTRACTOR shall be familiar with all permit requirements during construction and shall be responsible for complying with these requirements. The cost of this effort shall be included in the pay item in which the work is most closely associated with. The CONTRACTOR shall post copies of all permits at the Project site.
2. The length of the PVC fence along the eastern property line has been increased to a total of 700 LF (Bid Item 2.63) and the length of the chain link fence has been reduced to 2,863 LF (Bid Item 2.06). The Bid Form has been revised to reflect these changes and is attached. Also attached is Drawing C1c, Perimeter Fencing, showing the revisions.

Addendum 1 - 2020030

3. Delete the existing text in Section 02575 paragraph 3.4.G.3 (~~Midpoint of basin bottom~~) and replace it with: "Across basin bottom." A copy of the revised section is attached.
4. Only potable water purchased from Indian River County Utilities may be used in concrete operations, including wet curing of concrete.
5. A tour of existing County facilities (Osprey Acres Algal Turf Scrubber, Osprey Acres Floway and Nature Preserve, and Egret Marsh Stormwater Park's Lateral D Canal pump station) will be given on **Wednesday, July 8, 2020 at 10:00 AM**. Meet at Osprey Acres' parking lot at **925 5th Street SW, Vero Beach, FL 32962**. No questions regarding or related to the bid will be answered during the tour. All bid related questions shall be submitted in writing to the County Purchasing Division as set forth in the Bid Documents.
6. The non-mandatory Pre-Bid Meeting was held via Zoom on June 17, 2020 at 9:30 AM. Information shown at the meeting and the County's meeting notes are attached for reference.

Attachments:

Indian River County Land Clearing Permit
Indian River County Tree Removal Permit
Revised Section 00310-Addendum 1
Revised Drawing C1c – Perimeter Fencing
Revised Section 02575-Addendum 1
Prebid Meeting Agenda
Prebid Meeting Summary
Prebid PowerPoint

Questions and Answers

1. Can you provide the Geotech Report for the Moorhen Marsh project?
The report is attached for bidders' review.
2. REF: Section 11014, Par. 2.3.A – This paragraph says to furnish two (2) lifting devices for each stop log installation. Confirm how many lifting devices are required for this project.
Delete the specification's reference to two (2) lifting devices for each stop log installation and provide the following sets of lifting devices (two lifting devices per set):

<u>Stop Log Systems</u>	<u>Lifting Devices Required</u>
#1 and #2	1 set total for both systems
#5 and #6	1 set total for both systems
#3, #4, #7, and #8	1 set total for all of these systems
#9 and #10	1 set total for both systems
#11 and #12	1 set total for both systems
#13, #14, #15, and #16	1 set total for all of these systems

3. REF: Section 11014, Par. 2.5.C – Are the stop logs owner direct purchase?
No.

4. REF: S-023 – We are not able to find reinforcing steel requirements for the Water Lettuce Scrubber Slab (approx. 105,000sf each). Other than some of the thickened edges, does the slab not have reinforcing steel? If not, is fiber mesh required in the concrete mix?

The Water Lettuce Scrubber Slabs on the grade are unreinforced concrete slabs. There is reinforcement in the thickened edges and other areas as shown on sheets S-101. Fiber mesh is not required in the concrete mix.

5. REF: S-001, Slab on Grade Note #1 – We do not see geotechnical reports in the plans & specs. Can these be issued as soon as possible?
The referenced report is attached and may be used for the purpose inferred in the referenced note.

6. REF: Sheet E-1 – Will the FPL service be ready by the time this project starts? Will there be a cost to the contractor to bring power and service pole to the N & S ends of the project site?
The contractor is responsible for contacting FPL and scheduling all new and upgraded service to the project site with FPL and others. Any FPL impact fees or other costs to bring power and service poles to the N & S ends of the project will be paid by the County. The contractor shall coordinate FPL's billing with the County.

7. REF: Sheet E-1 – Will FPL furnish and set the new pad mounted transformer?
Yes

8. REF: Sheet E-1 – Will the contractor be charged for electricity used for construction purposes?
Yes

9. REF: Sheet C2a – Is a fire hydrant or water line located nearby that can be tapped into for construction water?
Indian River County Division of Utilities Services (IRCDUS) has a hydrant at the corner of 49th Street and 66th Avenue and another at the corner of 58th Avenue and 53rd Street, along with additional hydrants along 58th Avenue. The contractor may apply to IRCDUS for a fire hydrant meter to access the water at one of those locations.

10. How do I get specified on the Moorhen Marsh Low Energy Aquatic Plant project?
Specification Section 02572 paragraph 2.2.A lists Master Halco, Inc. "or equal" as manufacturer. If the "or equal" item meets the requirements of Section 00700 paragraph 6.05.A.1, it will be considered.

11. Can you please advise whether equivalent products are allowed for this project? We are looking to bid on the supply of the stainless-steel bollards.
No. Only the specified product can be provided.



INDIAN RIVER COUNTY
Environmental Planning & Code Enforcement Section
1801 27th Street, Vero Beach FL 32960
772-226-1249 / 772-978-1806 fax
www.ircgov.com

6/3/2020

APPLICANT:

KEITH MCCULLY, P.E.
STORMWATER ENGINEER
INDIAN RIVER COUNTY PUBLIC WORKS
1801 27TH ST
VERO BEACH, FL 32960

INDIAN RIVER COUNTY LAND CLEARING PERMIT

PROJECT NO./PERMIT NO. **2019100047 / 86255**
PROJECT NAME: **MOORHEN MARSH LEAPS (AQUATIC PLANT SYSTEM)**
PROJECT DESCRIPTION: **LAND CLEARING PERMIT APPLICATION**
PROPERTY OWNER'S NAME: **INDIAN RIVER COUNTY**
LOCATION OF ACTIVITY: **6520 53RD ST**
PARCEL NUMBER: **32-39-17-00001-0130-00002.1**

THIS LAND CLEARING PERMIT is issued in accordance with Chapter 927 of the Indian River County Land Development Code. The above named applicant is hereby authorized to perform the herein described activity in accordance with the specifications stated herein and provided for in Chapter 927. *This permit does not absolve the applicant and/or property owner from the responsibility to satisfy state or federal regulations that may apply to the activity.*

1. LAND CLEARING IS NOT ALLOWED TO COMMENCE UNTIL APPROVAL (OR EXEMPTION VERIFICATION) IS OBTAINED FROM THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (SJRWMD) OR THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), AS APPLICABLE. If you are not sure as to the status of SJRWMD or FDEP approval or exemption, contact the Palm Bay office of the SJRWMD at phone number (321) 984-4940 or the Southeast District office of the FDEP at (561) 681-6600.

2. LAND CLEARING ASSOCIATED WITH SITE PLAN DEVELOPMENT (per County Code Chapter 914) OR SUBDIVISION PLATTING (per County Code Chapter 913) IS NOT ALLOWED TO COMMENCE UNTIL THE SITE PLAN OR PRELIMINARY PLAT IS FORMALLY APPROVED AND, IF A LAND DEVELOPMENT PERMIT IS REQUIRED, UNTIL A LAND DEVELOPMENT PERMIT IS ISSUED BY THE COUNTY ENGINEERING DIVISION, UNLESS OTHERWISE AUTHORIZED HEREIN.

3. A copy of the permit shall be kept on-site during the land clearing activity.

4. The applicant shall notify county environmental planning staff upon completion of the activity, who shall inspect the property to confirm compliance with applicable county regulations.

5. Debris resulting from the land clearing activity shall be disposed of at an approved disposal facility within 60 days of clearing completion, or burned with an air curtain incinerator burn permit from the County Fire Division (or Florida Forest Service, as applicable), in accordance with County Code Chapter 925. Mulched land clearing material may be integrated with clean fill to augment berms and stormwater retention areas. Mulched material is not acceptable under roadways and at building site locations. Any mulched material deposited or buried must have at least 5 foot vertical separation from the natural groundwater table. If the applicant proposes to integrate mulched material with clean fill on-site, the applicant is advised to contact the County Environmental Health Department at (772) 794-7440 to ensure compliance with state and local requirements.

6. This land clearing permit requires that the subject property's pre-development stormwater run-off discharge rate not be exceeded after the clearing operation is completed. This may require construction of temporary detention ponds or berms, and installation of erosion control devices, such as silt screens, in order to maintain pre-development drainage flow characteristics and to protect against sedimentation and turbidity in discharge waters. All drainage and erosion control measures required on the approved project site plan, as applicable, are in effect for this permit. For Best Management Practices (BMPs), refer to the Florida Stormwater Erosion and Sediment Control Manual.

7. The person or company conducting the land clearing must be a licensed contractor registered in Indian River County to perform such work. The applicant is advised to contact the County Building Division at (772) 226-1260 to ensure that the land clearer has required licensing.

8. This permit does not authorize the demolition of structures, as applicable. Demolition of structure(s) requires a separate demolition permit through the County Building Division. For more information, contact the County Building Division at (772) 226-1260.

OTHER INFORMATION:

1. This permit authorizes land clearing for construction of the Moorhen Marsh LEAPS Administrative Permit Use and Major Site Plan project at 6520 53rd Street, in accordance with conditions and specifications of the approved site plan (SP-MA-20-04-11 / 2019100047-86254).
2. The area to be cleared is the minimum necessary for proposed scope of work.
3. All work is to be conducted in accordance with County Code Sections 927.07 and 929.08.
4. Best management practices must be used to eliminate or reduce soil erosion. This includes, but is not limited to, the use of silt screens, berms, and soil tracking prevention devices. These devices need to be properly installed prior to commencement of construction activities on the property, need to be maintained, and shall remain in place until the soil surface has stabilized. Refer to the Florida Stormwater Erosion and Sediment Control Manual for additional information on BMPs.
5. Prior to conducting any land clearing activities a preconstruction meeting shall be held with County Public Works Department staff. Please contact Public Works Department at 772-226-1283.
6. This permit does not authorize any land clearing activities within wetlands, surface waters, or drainage systems unless authorized by appropriate federal, state or county permits. This permit does not authorize any soil erosion or turbidity to wetlands, surface waters, or drainage systems, either on-site or off-site.
7. This permit does not authorize any earth moving, excavation or filling. Such activities may not commence until a County stormwater management permit has been issued. Failure to properly obtain the appropriate County permits prior to development/construction activities on the project site can result in enforcement action being taken.
8. The following nuisance exotic vegetation shall be removed from development project site property, as applicable: (a) Australian pine (*Casuarina* spp.); (b) Brazilian pepper (*Schinus terebinthifolius*); (c) Melaleuca (*Melaleuca quinquenervia*); (d) Ear-pod tree (*Enterolobium cyclocarpum*); (e) Chinaberry (*Melia azedarach*).

DATE OF PERMIT ISSUANCE: 6/3/2020

DATE OF PERMIT EXPIRATION: Expiration concurrent with approved site plan/L.D.P., as applicable.

SIGNATURE OF AUTHORIZATION:



Steven S. Hitt, M.S.
Senior Environmental Planner
Indian River County

cc: County Engineer
Current Development Staff
(site plan/plat related permits only)

Project No./Permit No.: 2019100047/86255
lclr.letter



INDIAN RIVER COUNTY
Environmental Planning & Code Enforcement Section
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6/3/2020

APPLICANT:

KEITH MCCULLY, P.E.
STORMWATER ENGINEER
INDIAN RIVER COUNTY PUBLIC WORKS
1801 27TH ST
VERO BEACH, FL 32960

INDIAN RIVER COUNTY TREE REMOVAL PERMIT

PROJECT/ APPLIC. NO.: **2019100047 / 86256**
PROJECT NAME: **MOORHEN MARSH LEAPS (AQUATIC PLANT SYSTEM)**
PROJECT DESCRIPTION: **TREE REMOVAL PERMIT APPLICATION**
PROPERTY OWNER'S NAME: **INDIAN RIVER COUNTY**
LOCATION OF ACTIVITY: **6520 53RD ST**
PARCEL NUMBER: **32-39-17-00001-0130-00002.1**

THIS TREE REMOVAL PERMIT is issued in accordance with Chapter 927 of the Indian River County Land Development Code. The above named applicant is hereby authorized to perform the herein described activity in accordance with the specifications stated herein and provided for in Chapter 927. This permit does not absolve the applicant and/or property owner from the responsibility to satisfy state or federal regulations that may apply to the activity.

GENERAL SPECIFICATIONS:

1. The applicant shall conduct the activity in strict accordance with the criteria set forth in Section 927.07 of the Indian River County Land Development Code; a copy of the permit shall be kept on-site while the activity is taking place.
2. The applicant shall notify county environmental planning staff upon completion of the activity, who shall inspect the property to confirm compliance with applicable county regulations.

OTHER INFORMATION:

1. This permit authorizes the removal of protected trees (diameter at breast height (DBH) of 4 inches or greater) and/or specimen trees (DBH of 12 inches or greater) for construction of the Moorhen Marsh LEAPS Administrative Permit Use and Major Site Plan project at 6520 53rd Street, in accordance with the conditions and specifications of the approved site plan and tree protection plan (SP-MA-20-04-11 / 2019100047-86254).
2. This permit does not authorize the removal of any protected or specimen tree within any wetland, surface water, or drainage system unless authorized by appropriate federal, state, and/or county permits.
3. Tree protection barriers shall be installed around trees to be preserved prior to initiation of land clearing and tree removal activities.

DATE OF PERMIT ISSUANCE: 6/3/2020
DATE OF PERMIT EXPIRATION: Expiration concurrent with the approved site plan/L.D.P., as applicable.

SIGNATURE OF AUTHORIZATION:



Steven S. Hitt, M.S.
Senior Environmental Planner
Indian River County

tree.letter
Proj./Appl. # 2019100047/86256

CONTRACTOR's NAME: _____

SECTION 00310 – BID FORM – ADDENDUM 1

PROJECT IDENTIFICATION:

Project Name: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**
Bid Number: 2020030
Project Address: 6520 53rd Street, Vero Beach, Florida 32967.
Project Summary: Construction of a regional stormwater treatment facility that will remove pollutants from North Relief Canal water.

THIS BID IS SUBMITTED TO: INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street, Building B
VERO BEACH, FLORIDA 32960

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with all other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which have been identified in the General

CONTRACTOR's NAME: _____

Conditions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder shall complete the Work in accordance with the Contract Documents for the price(s) contained in the Bid Schedule:

A. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

B. The OWNER reserves the right to omit or add to the construction of any portion or portions of the work heretofore enumerated or shown on the plans. Furthermore, the OWNER reserves the right to omit in its entirety, any one or more items of the Contract without forfeiture of Contract or claims for loss of anticipated profits or any claims by the Contractor on account of such omissions.

CONTRACTOR's NAME: _____

- C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided. The quantities actually required to complete the contract and work may be less or more than so estimated, and, if so, no action for damages or for loss of profits shall accrue to the CONTRACTOR by reason thereof.
- D. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions (and Supplementary Conditions if applicable).
- E. If Bidder believes that the cost of any item of the Work has not been established by the Bid Form, then Bidder shall include that cost in some other applicable bid item, so that Bidder's proposal for the project reflects Bidder's total price for completing the Work in its entirety.

6.01 Bidder agrees that the Work will be completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of _____;
- B. Section 00450– Bidder's Qualification Form and Questionnaire;
- C. Section 00452 - Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships;
- D. Section 00454 - Sworn Statement Under the Florida Trench Safety Act;
- E. Section 00458 - List of Subcontractors; and
- F. Section 00459 – Drug-Free Workplace Certification
- G. (List other documents as pertinent).

8.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders and Section 00700 General Conditions.

9.01 By signing this form, Bidder acknowledges that it has read and understood all information contained herein.

SUBMITTED on _____, 20____.

State Contractor License No. _____

CONTRACTOR's NAME: _____

REFER TO THE TABULAR BID FORM AT THE END OF THIS SECTION (3 PAGES)

If Bidder is:

An Individual:

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Partnership:

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Corporation:

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

CONTRACTOR's NAME: _____

A Joint Venture:

Joint Venture Name: _____ (SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venture Name: _____ (SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint venturor must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

* * END OF SECTION * *

CONTRACTOR'S NAME: _____

MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM BID FORM - ADDENDUM NO. 1

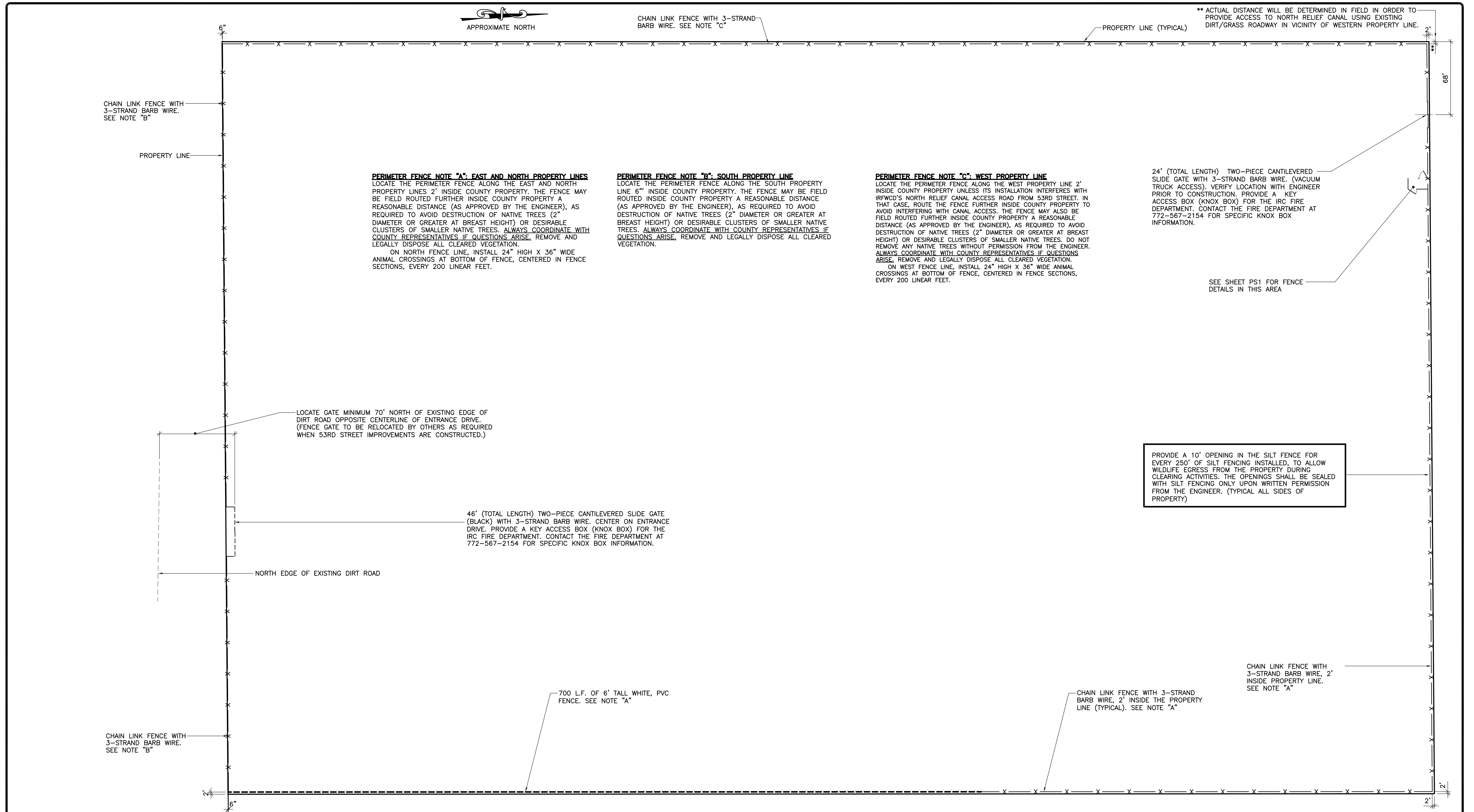
Item	Description	Quantity	Unit	Unit Price	Amount
PART A OF THE CONTRACT					
1.00	GENERAL ITEMS				
1.01	Mobilization/Demobilization	1	LS		
1.02	Maintenance of Traffic	1	LS		
1.03	Project Record Documents	1	LS		
1.04	Public Construction Bond	1	LS		
1.05	Construction Photographs	1	LS		
1.06	Insurance Coverage	1	LS		
1.07	Engineer's and Contractor's Field Office	1	LS		
SUBTOTAL PART 1 - GENERAL ITEMS					
2.00	SITE WORK				
2.01	Wildlife and Erosion Control Silt Fencing	1	LS		
2.02	Clear and Grub (including demolitions) including hauling material offsite for disposal	1	LS		
2.03	Monitoring existing structures per Section 02220, paragraph 3.15	1	LS		
2.04	Dewatering	1	LS		
2.05	Grade all areas not included in other pay items	1	LS		
2.06	Type B chain link perimeter fencing with 3-strand barb wire	2,863	LF		
2.07	46' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance	1	Each		
2.08	24' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance	1	Each		
2.09	Type B chain link perimeter fencing with no barb wire	22	LF		
2.10	8' wide single chain link fence gate with no barb wire	1	Each		
2.11	12" thick cemented coquina shell driving surface at 53rd Street entrance	291	SY		
2.12	12" thick Type B stabilized subgrade below cemented coquina shell driving surface at 53rd Street	306	SY		
2.13	2" thick Type SP-12.5 asphalt concrete pavement	4,788	SY		
2.14	8" thick cemented coquina shell base below asphalt pavement	5,027	SY		
2.15	12" thick Type B stabilized subgrade below asphalt pavement	5,279	SY		
2.16	Minimum 8" thick asphalt millings drives, including stabilized subgrade and filter fabric	1,638	SY		
2.17	Grass Surface Service Road (not including hydroseeding)	2,294	SY		
2.18	Stop sign at 53rd Street	1	Each		
2.19	Painting parking lot area stripes with thermoplastic paint, including all required handicap parking painting	1	LS		
2.20	Handicap Parking Sign	1	Each		
2.21	Concrete tire stops	3	Each		
2.22	Pole Barn	1	LS		
2.23	Pole Barn concrete slab	233.33	SY		
2.24	Pole Barn concrete driveway	116.67	SY		
2.25	Dumpster pad with fence and gate per details on Sheet C10	1	LS		
2.26	Minimum 8" thick asphalt millings drive for dumpster pad, including stabilized subgrade and filter fabric	31	SY		
2.27	Non-potable irrigation well, centrifugal pump, concrete pad, and piping as shown on Sheet C10 and as specified.	1	LS		
2.28	Influent pipe connection (North Relief Canal to Headworks Structure)	1	LS		
2.29	Effluent pipe connection (Structure S15 to North Relief Canal)	1	LS		
2.30	Headworks Structure	1	LS		
2.31	"L" shaped concrete Work Slab abutting Headworks Structure	1	LS		
2.32	Primary Influent Screen and Controls	1	LS		
2.33	Influent Pumps and Pump Controls	1	LS		
2.34	Slide Gate No. 7 (for Headworks Structure influent piping)	1	Each		
2.35	Headworks area discharge piping, valves, fittings, etc. from (and including) Bends #8 and #21 to (and including) Bend #19, as shown on Sheet PS1.	1	LS		

CONTRACTOR'S NAME: _____

2.36	Water Lettuce Scrubber force main and distribution header piping system	1	LS		
2.37	Flow Meter No. 1	1	LS		
2.38	Flow Meter No. 2	1	LS		
2.39	Structure S11	1	LS		
2.40	Structure S12	1	LS		
2.41	Structure S11 and S12 Sump Pumps	2	Each		
2.42	Structures S1 through S6	6	Each		
2.43	Primary Treatment Units including all associated grating, handrails, appurtenances, etc.				
a.	Water Lettuce Scrubbers 1 and 2	1	LS		
b.	Water Lettuce Scrubber 1A/1B Dewatering Flume	1	LS		
c.	Water Lettuce Scrubber 2A/2B Dewatering Flume	1	LS		
d.	Algal Reaeration Unit 1A	1	LS		
e.	Algal Reaeration Unit 1B	1	LS		
f.	Algal Reaeration Unit 2A	1	LS		
g.	Algal Reaeration Unit 2B	1	LS		
h.	Sludge Storage Area 1A and Composting Area 1A	1	LS		
i.	Sludge Storage Area 1B and Composting Area 1B	1	LS		
j.	Sludge Storage Area 2A and Composting Area 2A	1	LS		
k.	Sludge Storage Area 2B and Composting Area 2B	1	LS		
l.	Water Lettuce Scrubber Access Ramp	1	LS		
m.	Walls for Final Settling Basins 1 and 2	1	LS		
2.44	4" DIP water lettuce sludge supernatant force main from Sludge Storage Area #1A	168	LF		
2.45	4" DIP water lettuce sludge supernatant force main from Sludge Storage Area #2B	168	LF		
2.46	Final Settling Basin #1 and Wetland Polishing Marsh #1, including GCL.	1	LS		
2.47	Final Settling Basin #1 and Wetland Polishing Marsh #1, including GCL.	1	LS		
2.48	Rubble Riprap at southwest corner of Wetland Polishing Marsh #1	1	LS		
2.49	Structure S8	1	Each		
2.50	Structure S9	1	Each		
2.51	Structures S7 and S13	2	Each		
2.52	Structures S10 and S14	2	Each		
2.53	18" RCP between Structures S7 and S10	1	LS		
2.54	18" RCP between Structures S13 and S14	1	LS		
2.55	Tideflex inline check valve at Structure S9 discharge	1	Each		
2.56	24" RCP between Structures S8 and S9	248	LF		
2.57	36" PVC between Structures S9 and S15	220	LF		
2.58	Structure S15	1	Each		
2.59	Site Electric	1	LS		
2.60	Portable Water Lettuce Supernatant/Sludge Pump	1	Each		
2.61	Portable Eyewash Station	1	Each		
2.62	Safety Equipment	1	LS		
2.63	White solid PVC/Vinyl privacy perimeter fence	700	LF		
2.64	Nonpotable Water System	1	LS		
2.65	Clearing, grubbing, and final grading work within Indian River Farms Water Control District (IRFWCD) Lateral "A" Canal and North Relief Canal Right-of-Ways as described in the Special Conditions to the IRFWCD Permit to Connect to or Use District Facilities, No. 20-12, included herein in Appendix A.	1	LS		
SUBTOTAL PART 2 - SITE WORK					
3.00 LANDSCAPING					
<i>NOTE: BID ITEMS 3.01 THROUGH 3.18 ARE SHOWN ON DRAWING L1</i>					
3.01	Relocate and maintain until Final Acceptance, existing sable palms shown on Drawing C1a to be relocated	88	Each		
3.02	Live Oak (<i>Quercus virginiana</i>) 4" minimum diameter at 0.5' above grade, minimum 18' high	87	Each		
3.03	Live Oak (<i>Quercus virginiana</i>) 4" minimum DBH, minimum 18' high	148	Each		

CONTRACTOR'S NAME: _____

3.04	Slash Pine (<i>Pinus elliottii var densa</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	54	Each		
3.05	Scrub Hickory (<i>Carya floridana</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	36	Each		
3.06	Bald Cypress (<i>Taxodium distichum</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	3	Each		
3.07	Wax Myrtle (<i>Myrica cerifera</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	87	Each		
3.08	Southern Red Cedar (<i>Juniperus silicicola</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	152	Each		
3.09	Scrub Hickory (<i>Carya floridana</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	75	Each		
3.10	Rusty Lyonia (<i>Lyonia ferruginea</i>)	89	Each		
3.11	Wild Coffee (<i>Pyscotria nervosa</i>)	713	Each		
3.12	Cocoplum (<i>Chrysobalanus icaco</i>)	288	Each		
3.13	Firebush (<i>Hamelia patens</i>)	353	Each		
3.14	Marlberry (<i>Ardisia escalloniodes</i>)	240	Each		
3.15	Necklacepod (<i>Sophora tomentosa</i>)	319	Each		
3.16	Saltmarsh Cordgrass (<i>Spartina patens</i>)	60	Each		
3.17	Pink Muhly Grass (<i>Muhlenbergia capillaris</i>)	334	Each		
3.18	Silver Saw Palmettos (<i>Serenoa repens</i>)	36	Each		
NOTE: BID ITEMS 3.19 THROUGH 3.27 ARE SHOWN ON DRAWING L2					
3.19	"ROSE" color code Native Grass Hydroseed Mix	3.94	Acres		
3.20	"ORANGE" color code planting for Wetland Polishing Marsh #1	4,940	SF		
3.21	"ORANGE" color code planting for Wetland Polishing Marsh #2	7,300	SF		
3.22	"GREEN" color code planting for Wetland Polishing Marsh #1	9,140	SF		
3.23	"GREEN" color code planting for Wetland Polishing Marsh #2	10,100	SF		
3.24	"BRIGHT BLUE" color code planting on Sheet L2 (50% Mulhy Grass and 50% Sand Cordgrass) mix	4,900	SF		
3.25	"PURPLE" color code planting for Wetland Polishing Marsh #1	1	LS		
3.26	"PURPLE" color code planting for Wetland Polishing Marsh #2	1	LS		
3.27	"BLUE" color code planting in Sheet L2 for 15' wide berm/service road	0.49	Acres		
SUBTOTAL PART 3 - LANDSCAPING					
4.00 ALL OTHER WORK					
4.1	All other equipment, material, and Work required to complete the project not specifically listed in Parts 1, 2, or 3 above.	1	LS		
SUBTOTAL PART 4 - ALL OTHER WORK					
TOTAL PART A (PART 1 + PART 2 + PART 3 + PART 4)					
PART B OF THE CONTRACT					
5.0 LANDSCAPE MAINTENANCE AND WARRANTY PERIOD					
5.1	Twelve-Month Maintenance and Warranty Period	12	Month		
5.2	Twelve-Month Exotic and Invasive Vegetation Elimination Period	12	Month		
TOTAL PART B					
TOTAL PART A + PART B					



PERIMETER FENCE NOTE "A": EAST AND NORTH PROPERTY LINES
 LOCATE THE PERIMETER FENCE ALONG THE EAST AND NORTH PROPERTY LINES 2' INSIDE COUNTY PROPERTY. THE FENCE MAY BE FIELD ROUTED FURTHER INSIDE COUNTY PROPERTY A REASONABLE DISTANCE (AS APPROVED BY THE ENGINEER), AS REQUIRED TO AVOID DESTRUCTION OF NATIVE TREES (2" DIAMETER OR GREATER AT BREAST HEIGHT) OR DESIRABLE CLUSTERS OF SMALLER NATIVE TREES. ALWAYS COORDINATE WITH COUNTY REPRESENTATIVES IF QUESTIONS ARISE. REMOVE AND LEGALLY DISPOSE ALL CLEARED VEGETATION.
 ON NORTH FENCE LINE, INSTALL 24" HIGH X 36" WIDE ANIMAL CROSSINGS AT BOTTOM OF FENCE, CENTERED IN FENCE SECTIONS, EVERY 200 LINEAR FEET.

PERIMETER FENCE NOTE "B": SOUTH PROPERTY LINE
 LOCATE THE PERIMETER FENCE ALONG THE SOUTH PROPERTY LINE 6" INSIDE COUNTY PROPERTY. THE FENCE MAY BE FIELD ROUTED INSIDE COUNTY PROPERTY A REASONABLE DISTANCE (AS APPROVED BY THE ENGINEER), AS REQUIRED TO AVOID DESTRUCTION OF NATIVE TREES (2" DIAMETER OR GREATER AT BREAST HEIGHT) OR DESIRABLE CLUSTERS OF SMALLER NATIVE TREES. ALWAYS COORDINATE WITH COUNTY REPRESENTATIVES IF QUESTIONS ARISE. REMOVE AND LEGALLY DISPOSE ALL CLEARED VEGETATION.

PERIMETER FENCE NOTE "C": WEST PROPERTY LINE
 LOCATE THE PERIMETER FENCE ALONG THE WEST PROPERTY LINE 2' INSIDE COUNTY PROPERTY UNLESS ITS INSTALLATION INTERFERES WITH IRFWD'S NORTH RELIEF CANAL ACCESS ROAD FROM 53RD STREET. IN THAT CASE, ROUTE THE FENCE FURTHER INSIDE COUNTY PROPERTY TO AVOID INTERFERING WITH CANAL ACCESS. THE FENCE MAY ALSO BE FIELD ROUTED FURTHER INSIDE COUNTY PROPERTY A REASONABLE DISTANCE (AS APPROVED BY THE ENGINEER), AS REQUIRED TO AVOID DESTRUCTION OF NATIVE TREES (2" DIAMETER OR GREATER AT BREAST HEIGHT) OR DESIRABLE CLUSTERS OF SMALLER NATIVE TREES. DO NOT REMOVE ANY NATIVE TREES WITHOUT PERMISSION FROM THE ENGINEER. ALWAYS COORDINATE WITH COUNTY REPRESENTATIVES IF QUESTIONS ARISE. REMOVE AND LEGALLY DISPOSE ALL CLEARED VEGETATION.
 ON WEST FENCE LINE, INSTALL 24" HIGH X 36" WIDE ANIMAL CROSSINGS AT BOTTOM OF FENCE, CENTERED IN FENCE SECTIONS, EVERY 200 LINEAR FEET.

24' (TOTAL LENGTH) TWO-PIECE CANTILEVERED SLIDE GATE WITH 3-STRAND BARB WIRE. (VACUUM TRUCK ACCESS). VERIFY LOCATION WITH ENGINEER PRIOR TO CONSTRUCTION. PROVIDE A KEY ACCESS BOX (KNOX BOX) FOR THE IRC FIRE DEPARTMENT. CONTACT THE FIRE DEPARTMENT AT 772-567-2154 FOR SPECIFIC KNOX BOX INFORMATION.

SEE SHEET PS1 FOR FENCE DETAILS IN THIS AREA

LOCATE GATE MINIMUM 70' NORTH OF EXISTING EDGE OF DIRT ROAD OPPOSITE CENTERLINE OF ENTRANCE DRIVE. (FENCE GATE TO BE RELOCATED BY OTHERS AS REQUIRED WHEN 53RD STREET IMPROVEMENTS ARE CONSTRUCTED.)

46' (TOTAL LENGTH) TWO-PIECE CANTILEVERED SLIDE GATE (BLACK) WITH 3-STRAND BARB WIRE. CENTER ON ENTRANCE DRIVE. PROVIDE A KEY ACCESS BOX (KNOX BOX) FOR THE IRC FIRE DEPARTMENT. CONTACT THE FIRE DEPARTMENT AT 772-567-2154 FOR SPECIFIC KNOX BOX INFORMATION.

PROVIDE A 10' OPENING IN THE SILT FENCE FOR EVERY 250' OF SILT FENCING INSTALLED, TO ALLOW WILDLIFE EGRESS FROM THE PROPERTY DURING CLEARING ACTIVITIES. THE OPENINGS SHALL BE SEALED WITH SILT FENCING ONLY UPON WRITTEN PERMISSION FROM THE ENGINEER. (TYPICAL ALL SIDES OF PROPERTY)

PLAN VIEW: PERIMETER FENCING
 SCALE: 1" = 40'-0"

**NOT FOR CONSTRUCTION:
 BIDDING PURPOSES ONLY**

NUMBER	REVISIONS	REVISED BY	CHECKED BY

**INDIAN RIVER COUNTY
 STORMWATER DIVISION**
 1801 27TH STREET
 VERO BEACH, FLORIDA 32960
 (772) 226-1562

DESIGNED BY KM DRAWN BY KM CHECKED BY KM APPROVED BY KM

MOORHEN MARSH LEAPS™

NOT VALID FOR
 CONSTRUCTION
 UNLESS
 ORIGINALLY
 SIGNED AND
 SEALED

W. KEITH McCULLY, P.E.
 FLORIDA P.E. NO. 32007
 DATE:

PERIMETER FENCING

NAVD88 DATUM IS USED FOR ALL ELEVATIONS ON THIS PROJECT.

PROJECT NO.
DATE 5/29/2020
SCALE 1"=40'
SHEET C1c

SECTION 02575

GEOSYNTHETIC CLAY LINER – ADDENDUM 1

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish and install complete, a needlepunched Geosynthetic Clay Liner (GCL). The material(s) furnished and installation performed shall be in strict accordance with these requirements and the Contract Drawings.
- B. Definitions - For the purposes of this specification the following definitions apply:
1. Geosynthetic Clay Liner (GCL) - A factory manufactured hydraulic barrier consisting of granular sodium bentonite clay, sandwiched between, supported, and encapsulated by two geotextiles, held together by needlepunching.
 2. Geotextile - A semi-permeable woven or nonwoven fabric used to contain the bentonite used in a GCL.
 3. Sodium Bentonite - The high swelling clay component of GCLs consisting primarily of the mineral Montmorillonite.
 4. Needlepunching - A GCL manufacturing process whereby boards of barbed needles incorporate the staple fibers from a nonwoven geotextile, through a sodium bentonite clay layer, into the matrix of a second geotextile layer.
 5. Thermal Locking - A needlepunching enhancement process utilizing heat to bond the needlepunched fibers and more permanently lock them into the second geotextile to increase the internal shear strength characteristics.
 6. Minimum Average Roll Value (MARV) - The minimum average value of the material in a particular lot calculated as the mean of the tested values minus two standard deviations providing a 95% confidence level.

1.2 QUALITY ASSURANCE

- A. References - The following test methods shall be incorporated into this specification in their entirety, subject to the indicated test modifications:
1. ASTM D 4632, "Standard Test Method for Grab Breaking Load and Elongation of Geotextiles"
 2. ASTM D 4643, "Determination of Water (Moisture) Content of Soil by the Microwave Oven Method"
 3. ASTM D 5084, "Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter"

4. ASTM D 5261, "Standard Test Method for Measuring Mass Per Unit Area of Geotextiles"
5. ASTM D 5321, "Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method"
6. ASTM D 5887, "Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter"
7. ASTM D 5888, "Standard Guide for Storage and Handling of Geosynthetic Clay Liners"
8. ASTM D 5889, "Standard Practice for Quality Control of Geosynthetic Clay Liners"
9. ASTM D 5890, "Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners"
10. ASTM D 5891, "Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners"

B. QUALIFICATIONS - The GCL Manufacturer and Installer shall meet the following experience requirements:

1. GCL Manufacturer - The GCL manufacturer selected for use on this project shall have successfully produced at least 10,000,000 square feet of needlepunched GCL product.
2. GCL Installer - The CONTRACTOR'S GCL installer shall demonstrate a minimum of 1,000,000 square feet of GCL installation. The GCL installer shall not use "labor force" type employees on this project. All GCL installation shall be performed by the GCL installer's regular employees (excavation and backfilling may be performed by the CONTRACTOR or its qualified subcontractor). If it is discovered that labor force type employees are used by the GCL installer, GCL installation work shall immediately cease and at the OWNER's option, the CONTRACTOR shall replace the GCL installer with another GCL installer acceptable to the OWNER, at no additional cost to the OWNER. The Contract Clock shall not stop during any resulting delays.

1.3 SUBMITTALS

A. In accordance with Section 01340, submit the following:

1. Prior to Installation – Submit the following within 10 business days of the Contract Award to verify that the materials and parties selected for use on the project meet the requirements of this specification:
 - a. Samples of GCL proposed for use on the project.
 - b. Reference list supplied by GCL Manufacturer indicating the required experience level.
 - c. Reference list supplied by the GCL Installer indicating the required experience level.
2. Prior to Deployment – Submit the following information prior to deployment of any GCL material to ensure that the materials and subgrade preparation meet the requirements of this specification:

- a. GCL Manufacturer's Quality Control Certifications.
- b. Signed and sealed Engineering Certifications of subgrade acceptance from the OWNER'S testing laboratory.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. GLC Materials - The GCL product supplied to the project shall be in full accordance with the requirements of this Section. It shall be Terrafix Geosynthetics, Inc. "Bentofix CNSL" Thermal Lock Geosynthetic Clay Liner or equivalent. Specific specifications for the CNSL Thermal Lock Geosynthetic clay liner are presented at the end of this Section
- B. The GCL shall be manufactured by mechanically bonding the geotextiles using a needlepunching process to enhance frictional and internal shear strength characteristics. In order to maintain these characteristics, no glues, adhesives or other non-mechanical bonding processes shall be used in lieu of the needlepunch process. Their use to enhance the physical properties of the GCL is permitted.
- C. GCL Manufacturing - The GCL supplied in accordance with this project shall be manufactured by needlepunching as described in Section 1.1.B - Definitions.
 1. The needlepunched GCL shall be thermally locked. The thermal lock process must heat set the nonwoven fibers where they protrude from the second geotextile to more permanently secure the reinforcement in place. Other means may be used to lock the fibers in place if the process demonstrates similar performance to the thermal lock process.
 2. To demonstrate the uniformity of the manufacturing process, no delamination of the geotextile components from the bentonite core shall occur when the GCL is exposed to 80-degreeF tap water for one hour.
- D. No other manufacturing techniques shall be approved. Isolated sewn or stitched rows do not constitute uniform reinforcement for the purposes of this specification.
- E. Dimensions - The minimum acceptable dimensions for the GCL panels shall be 15 feet wide and 125 feet long. Short rolls (rolls less than 125 feet long) may be supplied, but at a rate not to exceed 5% of the total square footage produced for this project.
- F. Overlap Markings - A minimum overlap guide-line and a construction match-line delineating the overlap zone shall be imprinted with non-toxic ink on both edges of the GCL panel to ensure the accuracy of the seam. These lines shall be used during to verify the minimum overlap is achieved. The minimum overlap guide-

line shall indicate where the edge of the panel must be placed in order to achieve a full 12-inches of bentonite overlap for each panel.

- G. Manufacturing Quality Control - The GCL shall be tested for compliance with this specification by the test methods and frequencies indicated on the material specification at the end of this Section. GCL materials may be tested pre-approved at the manufacturing location.
1. Manufacturer Quality Control Certification - Quality Control certificates shall be issued by the GCL manufacturer to the ENGINEER for each delivery of material. The certifications shall be signed by the quality control manager of the GCL manufacturer or other responsible party and shall include the following information:
 - a. Shipment Packing List - A list indicating the rolls shipped on a particular truckload.
 - b. Bill of Lading - The shipping documents for the truck used for the shipment.
 - c. Letter of Certification - The letter indicating the material is in conformance with the physical properties specified.
 - d. Physical Properties Sheet - The material specification for the GCL supplied in accordance with this Specification.
 2. Manufacturer Quality Control Submittal - Quality Control submittals shall be issued by the GCL manufacturer to the ENGINEER for each lot of material if necessary. The submittals shall include the following information:
 - a. Bentonite Manufacturer Certification - Bentonite manufacturer quality documentation for the particular lot of clay used in the production of the rolls delivered.
 - b. Geotextile Manufacturer Certification - Geotextile manufacturer quality control documentation for the particular lots of geotextiles used in the production of the rolls delivered.
 - c. GCL Manufacturer Tracking List - Cross referencing list delineating the corresponding geotextile and bentonite lots for the materials used in the production of the rolls delivered.
 - d. Manufacturing Quality Control Data - The manufacturing quality control test data indicating the actual test values obtained when tested at the appropriate frequencies for the properties specified at the end of this Section.
- H. Packaging – Package all GCL rolls in moisture resistant plastic sleeves. The cardboard cores shall be sufficiently strong to resist collapse during transit and handling.
- I. Roll Identification and Labeling - Prior to shipment, the manufacturer shall label each roll, both on the GCL roll and on the surface of the plastic protective sleeve. Labels shall be resistant to fading and moisture degradation to ensure legibility at

the time of the installation. At a minimum the roll labels shall identify the following:

1. Length and width of roll
2. Total weight of roll
3. Type of GCL material
4. Production Lot number and Individual Roll number.

- J. Accessory Bentonite - All accessory bentonite used for sealing seams, penetrations, or repairs, shall be the same granular bentonite as used in the production of the GCL itself.

PART 3 – EXECUTION

3.1 GENERAL

- A. The following installation procedures are as specific as possible while recognizing that the specific requirements of the project may necessitate minor modifications. Significant deviations from these procedures shall be pre-approved by the ENGINEER and the manufacturer.

3.2 PRECONSTRUCTION MEETING WITH GCL MANUFACTURE'S REPRESENTATIVE

- A. Before beginning GCL installation, schedule an onsite meeting with an experienced and knowledgeable GCL manufacturer's representative to discuss the liner delivery, storage, handling, installation, etc. Minimum attendees shall be the CONTRACTOR, the liner installer, the ENGINEER, and the OWNER'S geotechnical testing consultant. The manufacturer's representative shall run the meeting and provide all required assistance and recommendations necessary to produce a stellar GCL installation project. Pay all of the manufacturer's representative's expenses. Provide minimum two working day notice to ENGINEER regarding meeting date and time.

3.3 SHIPPING AND HANDLING

- A. Contact the manufacturer prior to shipment to determine the correct unloading methods and equipment.
- B. The Geosynthetic Clay Liner (GCL) shall be properly supported during handling to ensure worker safety and prevent damage to the liner. Under no circumstances shall the rolls be dragged, lifted from one end, lifted with only the forks of a lift truck, or pushed to the ground from the delivery vehicle. If any of these occur, the particular roll of liner shall be rejected and immediately removed from the Project site.

- C. Verify that proper handling equipment is available at the job site that will not pose any danger to installation personnel or risk of damage or deformation to the liner material itself. Suitable handling equipment is described below:
1. Spreader Bar Assembly - A spreader bar assembly shall include both a core pipe or bar and a spreader bar beam. The core pipe shall be used to uniformly support the roll when inserted through the GCL core while the spreader bar beam will prevent chains or straps from chafing the roll edges.
 2. Stinger - A stinger is a rigid pipe or rod with one end directly connected to a forklift or other handling equipment. If a stinger is used, it shall be fully inserted to its full length into the roll to prevent excessive bending of the roll when lifted.
 3. Roller Cradles - Roller cradles consist of two large diameter rollers spaced approximately 3 inches apart, which both support the GCL roll and allow it to freely unroll. The use of roller cradles shall be permitted if the rollers support the entire width of the GCL roll.
 4. Straps - Straps are allowed only to support the ends of spreader bars. They are not to be used for any other purpose.
- D. GCL Inspection Upon Delivery - Each roll shall be visually inspected when unloaded to determine if any packaging or material has been damaged during transit. Repairs to damaged GCL shall be performed in accordance with Section 3.4 of this specification.
1. Rolls exhibiting damage shall be marked and set aside for closer examination during deployment.
 2. To prevent moisture damage, minor rips or tears in the plastic packaging shall be repaired with moisture resistant tape approved by the GCL manufacturer, prior to being placed in storage.
 3. GCL rolls delivered to the project site shall be only those indicated on GCL manufacturing quality control certificates.
- E. Storage / Stockpiling / Staging
1. Store all GCL rolls in strict accordance with the manufacturer's specifications. All GCL rolls shall be stockpiled and maintained dry in a flat location area away from high-traffic areas but sufficiently close to the active work area to minimize handling. Store the material aboveground on proper supports with the storage area draining away from the stored material in a manner acceptable to the GCL manufacturer.
 2. For needlepunched GCLs, the presence of free-flowing water within the packaging shall require that roll be set aside for further examination to ascertain the extent of damage, if any. Free-flowing water within the packaging of unreinforced GCLs shall be cause for rejection of that roll.
 1. Do not store GCL higher than three to four rolls high. Situate stacks or tiers of rolls in a manner that prevents sliding or rolling by "chocking" the bottom layer of rolls.

2. In order to prevent bending, deformation, or other damage to the GCL, or cause difficulty inserting the core pipe, rolls shall not be stacked on uneven or discontinuous surfaces.
 3. Use an additional tarpaulin or plastic sheet over the stacked rolls to provide extra moisture protection for GCL material stored outdoors.
 - 4.3.4. Store and tarp bagged bentonite material next to GCL rolls unless other more protective measures are available. Store bags on pallets or other dry surface which will prevent pre-hydration.
- F. Exposure to Sunlight – Under no circumstances shall the GCL be exposed to sunlight for more than 14 cumulative days. If this occurs, the liner will be rejected whether placed on the prepared slope or not, and immediately removed from the job site.

3.4 EARTHEN SUBGRADE PREPARATION

- A. The surface upon which the GCL material will be installed shall be certified by the OWNER'S testing laboratory before placement of the GCL. The subgrade shall be continuously inspected, approved, and certified by the testing laboratory prior to GCL placement.
- B. The subgrade soil shall be well graded containing less than 20% gravel two inches or larger and no sharp stones.
- C. Compact the subgrade to minimum 90 percent modified proctor or greater.
- D. The surfaces to be lined shall be smooth and free of any debris, vegetation, roots, sticks, sharp rocks, or other deleterious materials larger than two inches as well as free of any voids, large cracks, or standing water.
- E. Directly prior to deployment of the GCL, the subgrade shall be final-graded to fill remaining voids or desiccation cracks, and proof-rolled to eliminate sharp irregularities or abrupt elevation changes. The surfaces to be lined shall be maintained in this smooth condition.
- F. There will be no payment for GCL panels placed on subgrade that has not been approved to receive panels. The OWNER'S testing laboratory field personnel has the authority to approve or reject subgrade preparation.
- G. Subgrade Record Drawing Verification - As subgrade preparation progresses and as a condition for GCL installation payment, provide the ENGINEER with signed and sealed survey information (2 copies) on all subgrade that is ready to receive GCL. The ENGINEER or his designee will review the survey information as rapidly as possible. As a minimum, show top of subgrade elevations at 50' intervals at the following locations:
 1. Top of slope

2. Toe of slope
3. Across basin bottom.

3.5 GCL PLACEMENT

A. GCL Orientation

1. Slopes - In the absence of specific guidelines, GCL panels shall be placed with the nonwoven side up on slopes to maximize the shear strength characteristics.
2. Base or Flat Areas - In base or flat areas, the GCL does not require any particular orientation.

B. GCL Panel Position - All slope panels shall be installed parallel to the maximum slope (i.e. perpendicular to the basin bottom) while panels installed in flat areas require no particular orientation. In basins in which flow occurs, install GCL panels by beginning downstream and working upstream, so that overlaps are on the upstream end (e.g. similar to installation of roof shingles).

C. Panel Deployment – Install GCL materials in general accordance with the procedures set forth in this section, subject to site specific conditions which would necessitate modifications. Used reinforced GCL on both slopes as well as the flat areas to ensure the GCL withstands the rigors of the installation and subsequent low load hydration.

1. Deployment shall proceed from the highest elevation to the lowest to facilitate drainage in the event of precipitation.
2. The GCL may be deployed on slopes by pulling the material from a suspended roll, or securing a roll end into an anchor trench and unrolling each panel as the handling equipment slowly moves backwards.
3. Deployment on flat areas shall be conducted in the same manner as that for the slopes, however, care shall be taken to minimize “dragging” the GCL. Slip-sheet may be used to facilitate positioning of the liner while ensuring the GCL is not damaged from underlying sources.
4. Overlaps shall be a minimum of 12-inches and free of wrinkles, folds, or “fish-mouths”. Panels installed with less than 12-inch overlap will be considered defective Work and rejected.
5. Only install as much GCL that can be covered at the end of the day. No GCL shall be left exposed overnight. Cover the exposed edge of the GCL with a temporary tarpaulin or other such water resistant sheeting until the next working day.

D. Anchoring- Standard trench anchors or “run-out” anchors shall be used as shown on the Drawings

E. Seaming - A 12-inch lap line and a 9-inch match line shall be imprinted on both edges of the upper geotextile component of the GCL to assist in installation

overlap quality control. Lines shall be printed as continuous dashes in easily observable non-toxic ink.

1. Overlap seams shall be a minimum of 12-inches on panel edges and 12-inches on panel ends.
2. Loose granular bentonite shall be placed between panels at a rate of 1/4 pound per lineal foot of seam.

F. Detailing - Detail work, defined as the sealing of the liner to pipe penetrations, foundation walls, drainage structures, spillways, and other appurtenances, shall be performed as recommended by the GCL Manufacturer.

G. Damage Repair - Prior to cover material placement, damage to the GCL shall be identified and repaired. Damage is defined as any rips or tears in the geotextiles, delamination of geotextiles, or a displaced panel.

1. Rip and Tear Repair (Flat Surfaces)

- a. Rips or tears may be repaired by completely exposing the affected area, removing all foreign objects or soil, and by then placing a patch cut from unused GCL over the damage (damaged material may be left in place), with a minimum overlap of 12-inches on all edges.
- b. Place accessory bentonite between the patch edges and the repaired material at a rate of a half-pound per lineal foot of edge spread in a continuous 12-inch fillet.

2. Rip and Tear Repair (Slopes) - Damaged GCL material on slopes shall be repaired by the same procedures above, however, the edges of the patch shall also be adhered to the repaired liner with an adhesive approved by the GCL manufacture, to keep the patch in position during backfill or cover operations.

3. Displaced Panels – Adjust displaced panels to the correct position and orientation. The adjusted panel shall then be inspected for any geotextile damage or bentonite loss. Damage shall be repaired by the above procedures.

4. Premature Hydration - If the GCL is prematurely hydrated, immediately notify the ENGINEER for a site specific determination as to whether the material is acceptable or if alternative measures must be taken to ensure the quality of the design. The ENGINEER shall be the sole judge as to whether or not the material is acceptable or if alternative measures must be taken.

H. Install all GCL in the dry. Dewater so the water table is at least one foot below the liner bottom.

I. Flotation During Construction – The CONTRACTOR is solely responsible if GCL panels “float” during construction. All liners that are dislodged due to flotation by rising groundwater shall be removed from the job site and the liner replaced at no cost to the OWNER. (Terrafix Geosynthetics, Inc. recommends keeping the

dewatering system active for each area until the water level in the basin, floway, etc. has been brought to design levels.)

3.6 EARTHEN COVER SOIL

- A. Cover materials shall be compatible as well as suitable for use over the GCL, and placed in a manner appropriate to the particular subgrade. Regardless of the cover material, protect the uncovered edge of GCL panels at the end of each working day with a waterproof sheet that is secured adequately with ballast.
- B. Place a minimum thickness of 24 inches over the GCL; however, if the GCL is installed below structures the minimum cover thickness shall be 2'-6". The soil cover shall be free of sharp-edged stones greater than 2 inches in size. Laboratory analysis of especially calcareous cover material shall be required to ensure compatibility with the GCL.
- C. Equipment – Place soil cover with low ground pressure equipment. Care shall be taken to avoid damaging the GCL by making sharp turns or pivots with equipment as well as sudden starts or stops.
- D. Placement - Soils may be placed on the GCL by pushing with a track dozer or by carefully placing it with a loader or a back-hoe. The use of scrapers or pans directly over the GCL is strictly prohibited.
- E. Thickness - A minimum thickness of 24 to 36 inches of cover shall be kept between heavy equipment and the GCL at all times, except when final-grading. No heavy vehicles shall be driven directly on the GCL until the proper thickness of cover has been placed.
- F. Compaction – Compact cover above the GCL to 95 percent of Modified Proctor. Coordinate with the GCL manufacture to determine the minimum initial lift thickness of cover that should be placed over the GCL to prevent damage to the GCL due to compaction efforts.
- G. Slope Placement – To prevent the liner from slipping during covering operations, all cover material shall be pushed up-slope. Exception: If overlaps are allowed by the GCL manufacturer, the fill at the overlap shall be carefully placed down-slope to prevent the overlap from moving. All GCL that slips during cover placement will be rejected. Place fill in the same direction as the liner is laid.
- H. The placement of all GCL panels must be inspected by the OWNER or the OWNER'S testing laboratory personnel before backfilling. There will be no payment for GCL panels that are covered without inspection. If panels are covered without inspection, they will be rejected.

PART 4 – WARRANTY

- A. Material – The GCL manufacturer shall provide a five-year material and workmanship warranty, stating that the GCL product supplied to the project was manufactured in accordance with industry accepted practices and meets the manufacturer's specified certified properties.

- B. Installation - The CONTRACTOR shall provide a one-year installation workmanship warranty, repairing and or replacing any material not installed in full compliance with the requirements of this Specification.

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Board of County Commissioners

1801 27th Street
Vero Beach, Florida 32960-3365

Non-Mandatory PRE-BID MEETING AGENDA JUNE 17, 2020 – 9:30 AM

VIA ZOOM: <https://ircgov.zoom.us/j/7837260776> (video only)
[For audio: Dial in USA 602 333 2017](https://ircgov.zoom.us/j/7837260776)
[USA 8882045987 \(US Toll Free\)](https://ircgov.zoom.us/j/7837260776)
[Conference code: 153949](https://ircgov.zoom.us/j/7837260776)

Project Name: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**
Bid Number: 2020030
Owner: Indian River County

INTRODUCTIONS:

Attendees will be asked to provide their name and firm at the beginning of the meeting. This will establish the sign in sheet, which will be released as part of Addendum No. 1.

CONTRACT DETAILS:

Bid Opening Cut-Off Date and Time: July 9, 2020 at 2:00 PM. Late Bids will not be accepted.

Request for Information (RFI) or Clarification Cut-Off Date and Time: Monday, June 29, 2020 at 2:00 PM.

Contract time: **Final Completion – 300 calendar days** from the date of the Notice-to-Proceed
Substantial Completion – There is no substantial completion date.

Liquidated Damages: **See Section 00520 paragraph 4.03.**

Local Preference considerations will not be used in the award of this bid.

PROJECT DESCRIPTION: (POWERPOINT SHOWN)

In general, the Contract covers the construction of a pollution removal facility that will include a large pump station that will pump water from Indian River Farms Water Control District's North Relief Canal into the Moorhen Marsh treatment facility. The facility includes large concrete basins that will use water lettuce to remove dissolved nutrients from the canal water, followed by smaller concrete basins in which algae will be grown to provide additional treatment, two settling basins, and two wetland polishing marshes. The treated water will be returned to the North Relief Canal. Other concrete support structures

will also be constructed along with entrance and perimeter roads. The site will be landscaped with native Florida landscaping.

STRUCTURAL NOTES/HIGHLIGHTS:

- Review list of anticipated shop drawings
- Review Bid Item Notes
- Review Concrete Curing – (7-day wet cure)
 - criteria for water used for curing
- Stainless steel shall be Type 316
- Concrete placement sequence/schedule
- Review Typical Detail sheets (wall jointing, waterstops)

CORRESPONDENCE/LINES OF AUTHORITY FOR BIDDING:

Please reference the cone of silence and clarification information in the invitation to bid. All correspondence regarding this bid shall be addressed in writing to the attention of Jennifer Hyde, IRC Purchasing Manager, at purchasing@ircgov.com.

CONSTRUCTION MANAGEMENT:

The project is being administered by Indian River County Public Works Division which will assign appropriate fulltime construction observation personnel.

Project Manager: Keith McCully, P.E. – IRC Stormwater Engineer

SITE VISITS:

- Accommodation of site visits will depend on IRC staff's availability.

MISCELLANEOUS:

- All questions must be in writing and sent to Jennifer Hyde as discussed above.
- Indian River Farms Water Control District permit and canal operation.
- Gopher tortoise relocation from construction zone. See Section 02050 – Site Preparation.

ADDENDUMS

Will cover appropriate questions received in writing immediately after this Pre-bid meeting until the Information/Clarification cut-off date and time. Miscellaneous clarifications and revisions to the contract documents will also be addressed.

**NON-MANDATORY PRE-BID MEETING SUMMARY
PREPARED BY INDIAN RIVER COUNTY
JUNE 17, 2020 – 9:30 AM**

VIA ZOOM: <https://ircgov.zoom.us/j/7837260776> (video only)
[For audio: Dial in USA 602 333 2017](tel:6023332017)
[USA 8882045987 \(US Toll Free\)](tel:8882045987)
[Conference code: 153949](#)

Discussion

Keith McCully, P.E., generally followed the agenda that was shown on the computer screen by Jennifer Hyde, Purchasing Manager. Additional items discussed not specifically listed on the agenda follow:

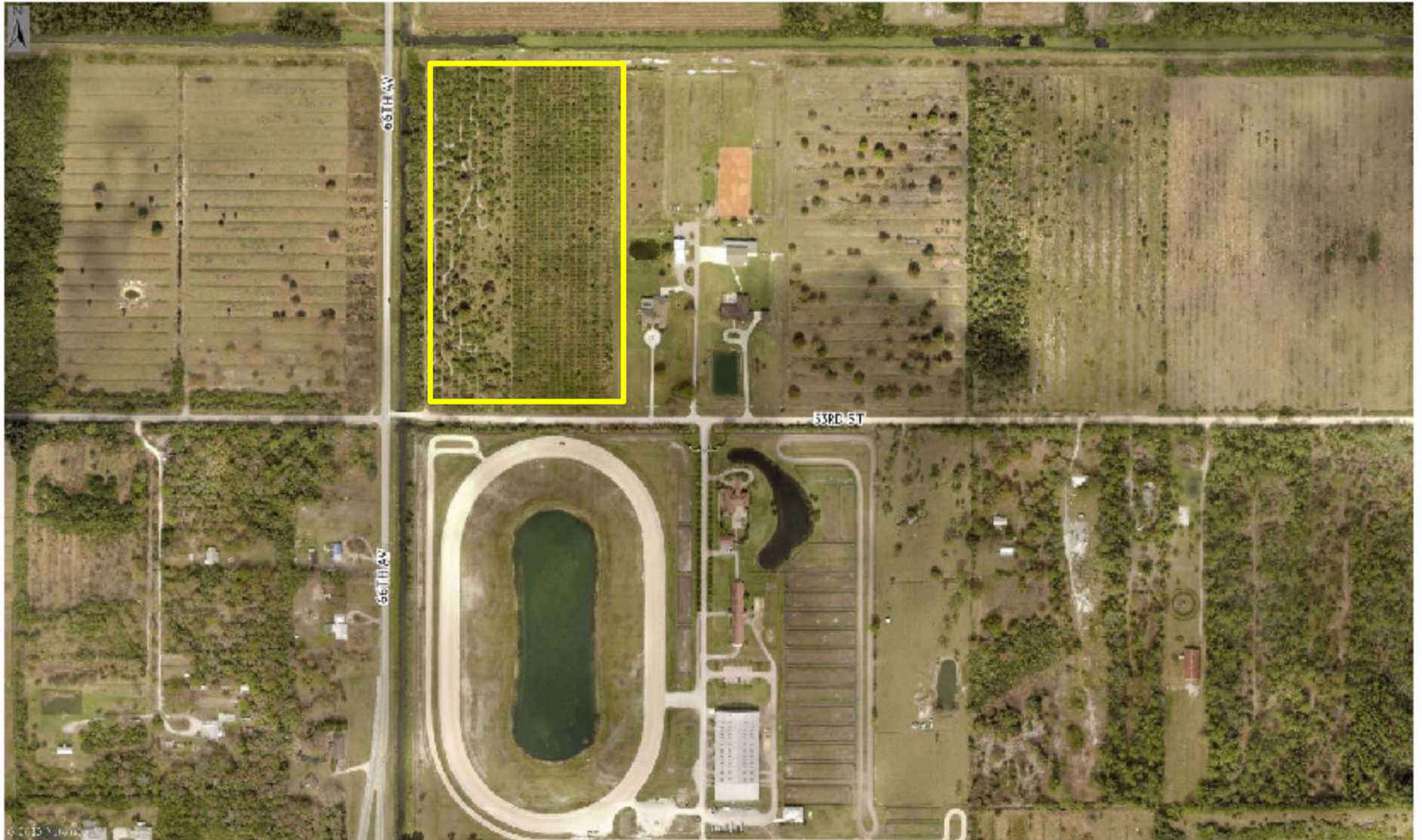
- Keith mentioned all permits received by County and reminded everyone that contractor is responsible for obtaining all other permits needed, including building permit for pole barn. County will pay all permit fees.
- Described existing site to bidders and stated that County is doing some clearing work to aid in gopher tortoise locations, but to assume this will not be done before contract awarded, so bid as discussed in Section 02050.
- Discussed the two grants and grant amounts, which are included in the bidding documents.
- Reminded bidders to look at all permit and grant special conditions.
- Went over site access locations on PowerPoint. Only one access to County property. Contact IRFWCD for potential access over its right-of-way.
- Recommended any questions for IRFWCD should be submitted through Jennifer so the reply becomes part of the contract. Private conversations with IRFWCD will not be part of the contract with the County.
- When a particular item is specified, it must be included in the bid. Only after contract is awarded can the contractor ask for a substitution, which may or may not be granted. Referred bidders to look at bid documents regarding this issue.
- Mentioned the geotechnical report will be placed on Demandstar but it is not part of the bidding or contract documents and is provided solely for contractor's reference.
- County will have a fulltime inspector; Kimley-Horn will have spot inspections; Anderson Andre will perform all construction material inspections and fulltime GCL installation inspections; Treasure Coast Engineering will provide spot electrical inspections.
- FPL is notoriously slow and needs to be contacted immediately upon receipt of contract award.
- Engineer's construction estimate = \$10,000,000
- IRFWCD canal water cannot be used for concrete or for wet curing of concrete. All water used must meet ASTM specifications listed on the structural drawings. Lots of chlorides and other unknowns in the IRFWCD water – drains ~12,000

acres. There is an artesian well near 53rd Street, offsite, but not sure if valve is functional. [6/24/2020 - This statement is clarified in Addendum 1 – Only potable water purchased from Indian River County Utilities may be used in concrete operations, including wet curing of concrete.]

Joe Miller asked if the FPL service pole shown on E1 is existing. Mr. McCully did not know.

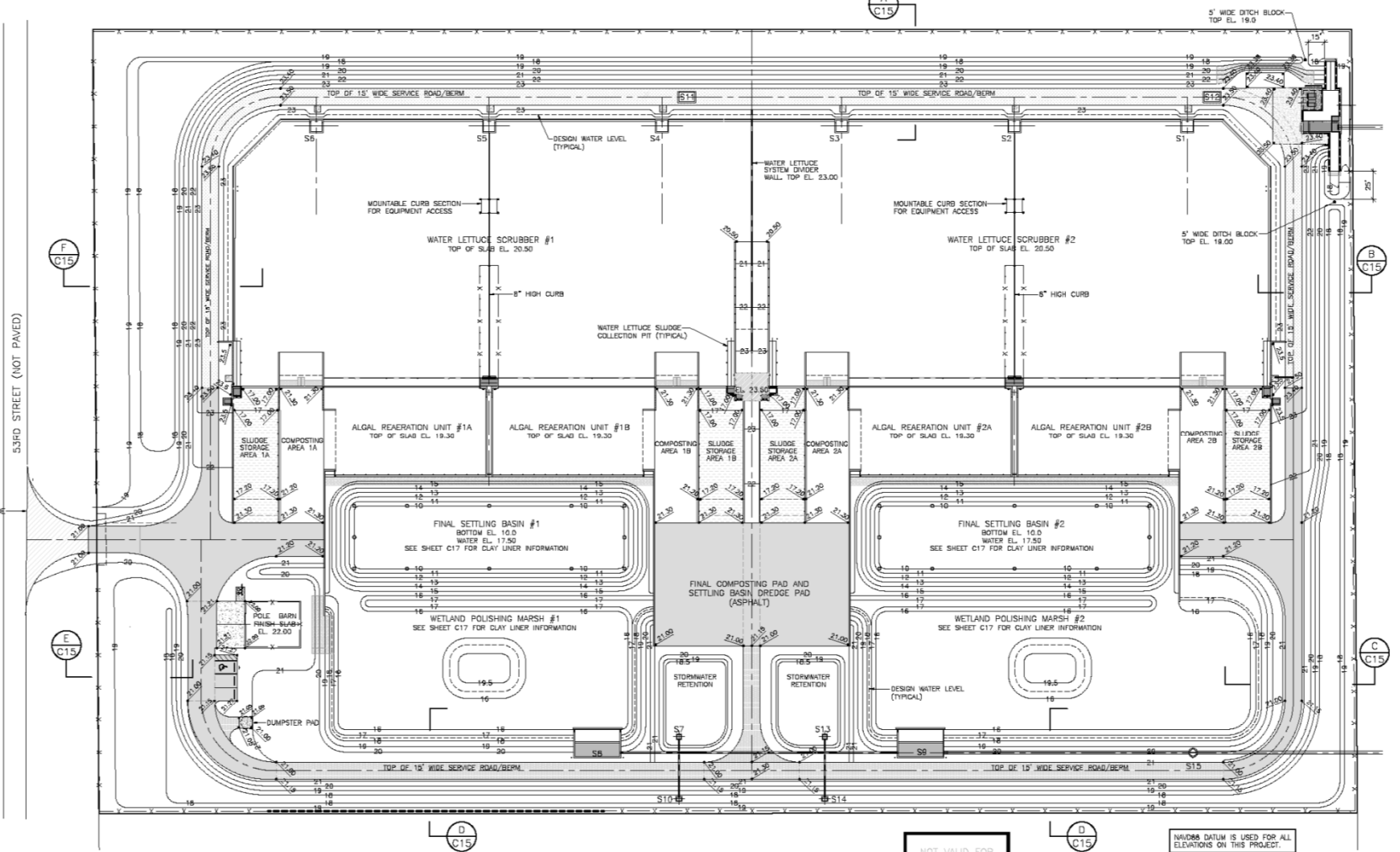
MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM PREBID MEETING





01/22/2019 - 02/08/2019

IRFWCD LATERAL A CANAL



**NOT FOR CONSTRUCTION:
BIDDING PURPOSES ONLY**

DATE:	11/20/20	REVISION:		CREATED BY:	
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INDIAN RIVER COUNTY
STORMWATER DIVISION
801 37TH STREET
VERO BEACH, FLORIDA 32909
(772) 396-1362

MOORHEN MARSH LEAPS™

NOT VALID FOR
CONSTRUCTION
UNLESS
ORIGINALLY
SIGNED AND
SEALED

W. KEITH McCULLY, P.E.
FLORIDA P.E. NO. 32007
DATE:

**SITE GRADING WITHOUT
EXISTING TOPOGRAPHY**

PROJECT NO:
DATE: 3/10/2020
SCALE: 1"=30'
SHEET: **C2b**

VARIOUS DATUM IS USED FOR ALL
ELEVATIONS ON THIS PROJECT.

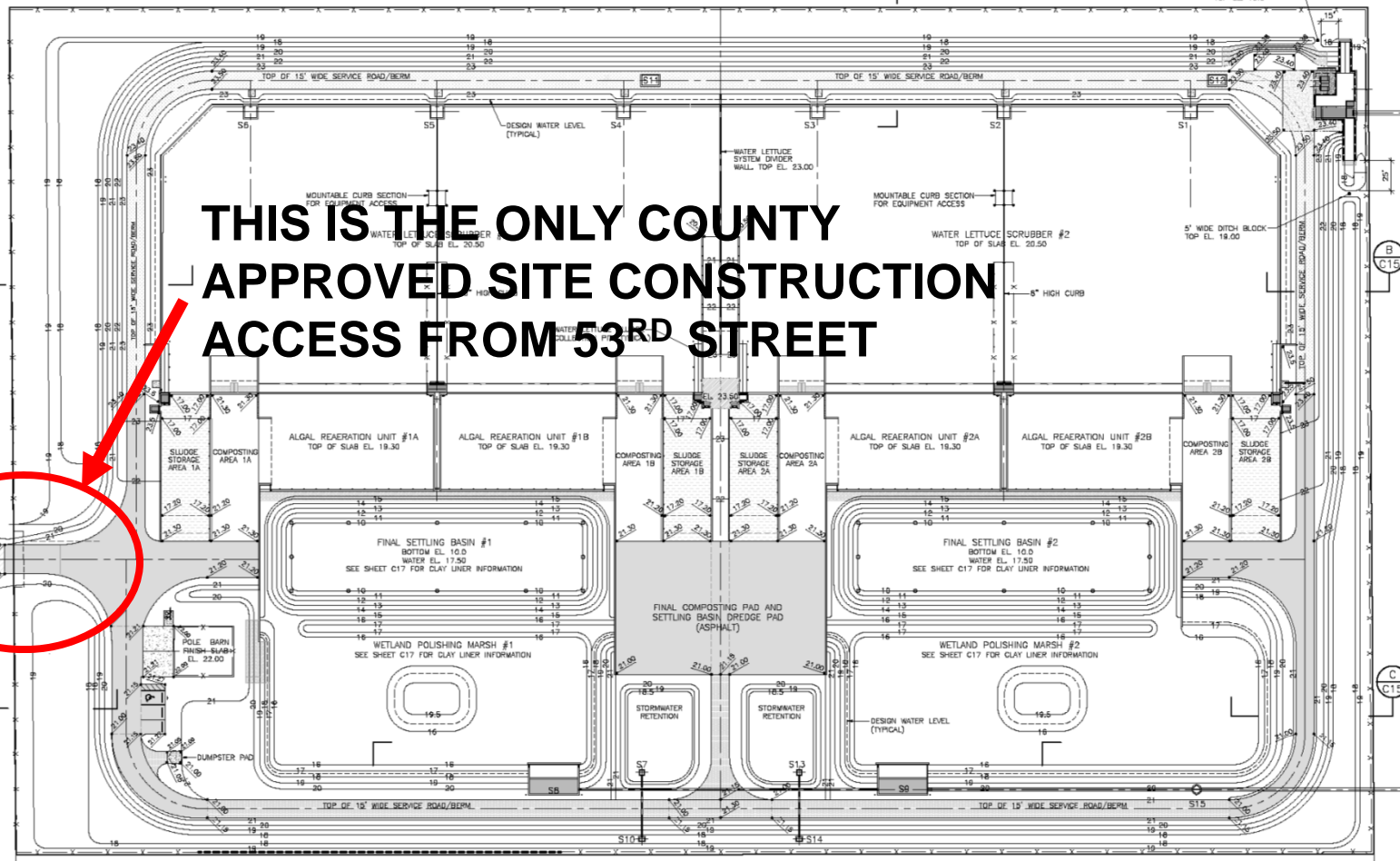
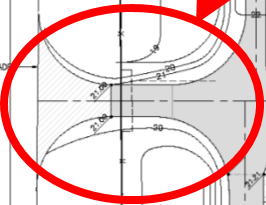
IRFWCD LATERAL A CANAL



**THIS IS THE ONLY COUNTY
APPROVED SITE CONSTRUCTION
ACCESS FROM 53RD STREET**

53RD STREET (NOT PAVED)

MATCH EXISTING GRADE AT ROAD.



**NOT FOR CONSTRUCTION:
BIDDING PURPOSES ONLY**

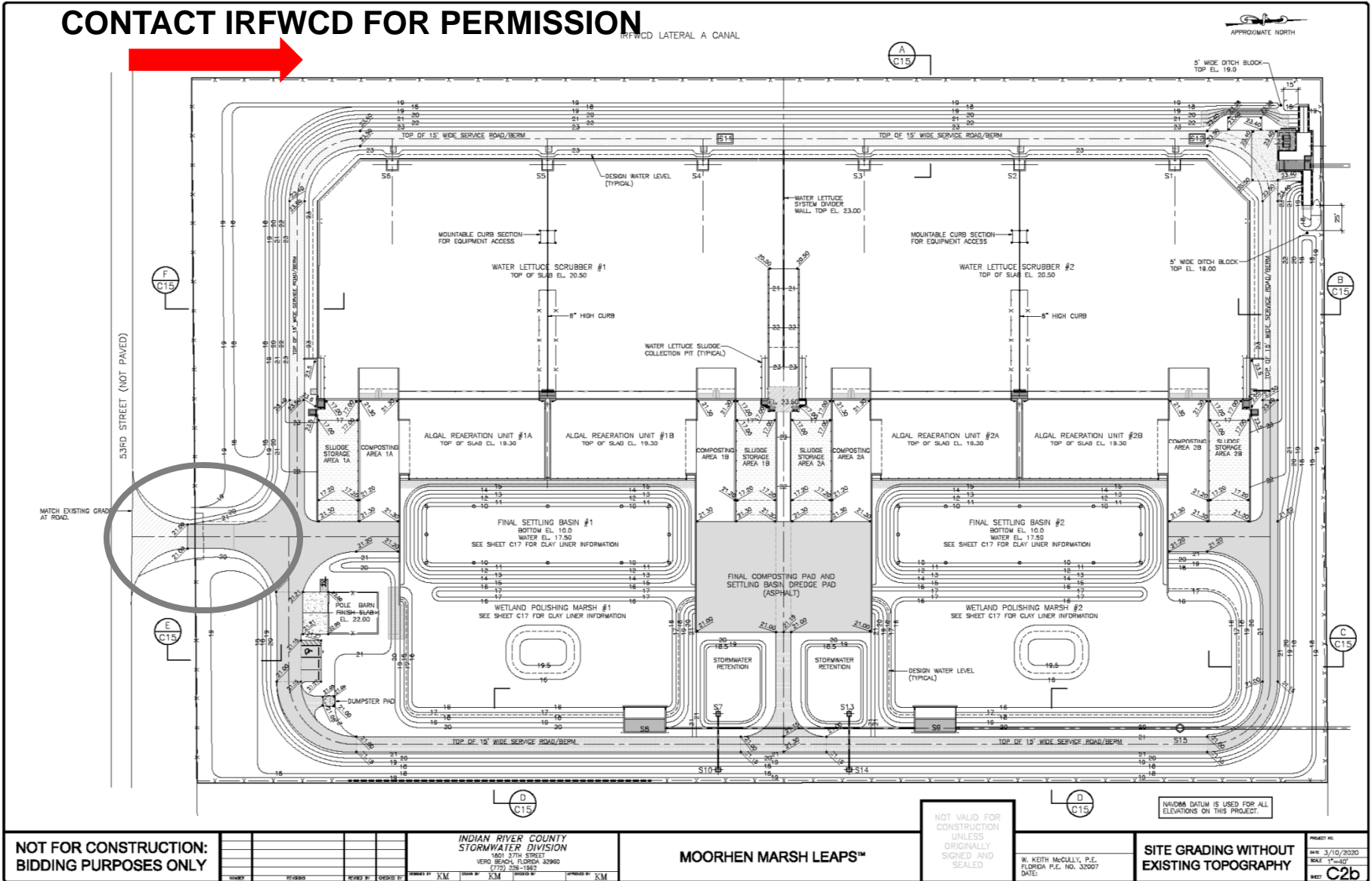
INDIAN RIVER COUNTY
STORMWATER DIVISION
1401 37th STREET
VERO BEACH, FLORIDA 32960
CITY OF VERO BEACH
DESIGNED BY KM DRAWN BY KM CHECKED BY KM

MOORHEN MARSH LEAPS™

NOT VALID FOR CONSTRUCTION UNLESS ORIGINALLY SIGNED AND SEALED
W. KEITH McCULLY, P.E.
FLORIDA P.E. NO. 32007
DATE:

SITE GRADING WITHOUT EXISTING TOPOGRAPHY
PROJECT NO. 3/10/2020
SCALE 1"=40'
SHEET C2b

POTENTIAL ACCESS TO PUMP STATION AREA. CONTACT IRFWCD FOR PERMISSION



**NOT FOR CONSTRUCTION:
BIDDING PURPOSES ONLY**

INDIAN RIVER COUNTY
STORMWATER DIVISION
801 37TH STREET
VERO BEACH, FLORIDA 32909
(772) 396-1962

MOORHEN MARSH LEAPS™

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SEALED

W. KEITH McCULLY, P.E.
FLORIDA P.E. NO. 32007
DATE:

**SITE GRADING WITHOUT
EXISTING TOPOGRAPHY**

PROJECT NO.
DATE: 3/10/2020
SCALE: 1"=30'
SHEET: **C2b**