



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
1520 ROYAL PALM SQUARE BLVD, SUITE 310
FORT MYERS, FLORIDA 33919

June 28, 2018

REPLY TO
ATTENTION OF

Regulatory Division
West Permits Branch
Fort Myers Permits Section
SAJ-2016-01788(NW-SJR)

City of Naples
Attn: Stephanie Molloy
295 Riverside Cir
Naples, FL 34102

Dear City of Naples:

The U.S. Army Corps of Engineers (Corps) assigned your application for a Department of the Army permit, which the Corps received on June 5, 2018, the file number SAJ-2016-01788. A review of the information and drawings provided indicates that the proposed work would result in the creation or enhancement of three oyster reef areas in Naples Bay, Gordon River, and Haldeman Creek by installing approximately 4,633 cubic yards of loose shell surrounded by approximately 413 cubic yards of limestone rock and 4' by 4' oyster shell bags spaced at a minimum of 16' apart and a maximum of 5' in height. One piling is to be jetted in site 1 for scientific data and educational signage. Site 1 is approximately 0.768 acres and will avoid the existing oyster habitat. Site 1 will have approximately 138 cubic yards of concrete by installing three 150' by 13' reef ball wave attenuation structures. Site 2 is approximately 0.212 acres and will enhance the existing oyster habitat. Site 3 is the creation of approximately 0.045 acres of oyster habitat. The project sites are located within 2.15 miles of each other, in three locations along the Naples Bay, Gordon River, and Haldeman Creek. Site 1 is located west of Parcel ID# 2076348002 and 20763520001, in Section 15, Township 50 South, Range 25 East. Site 2 is located west of Parcel ID # 20763440000, in Section 15, Township 50 South, Range 25 East. Site 3 is located west of Parcel ID # 20763440000, in Section 3, Township 50 South, Range 25 East, Collier County, Florida.

Your project, as depicted on the enclosed drawings, is authorized by Nationwide Permit (NWP) Number 27. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017,

specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on "Source Book"; and, then click on "Nationwide Permits." These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 27. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, Cynthia Ovdenk, 1520 Royal Palm Square Boulevard, Suite 310, Fort Myers, Florida 33919. The permittee shall reference this permit number, SAJ-2016-01788(NW-SJR), on all submittals. Electronic compliance documents may be submitted to cynthia.d.ovdenk@usace.army.mil at the following web address: <https://safe.amrdec.army.mil/safe/> or you can send any documents to SAJ-RD-Enforcement@usace.army.mil
2. Within 60 days of completion of the work authorized by this permit, the permittee shall complete the attached "Self-Certification Statement of Compliance" form and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the permittee shall describe the deviations between the work 239 authorized by this permit and the work as constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.
3. The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the U.S. Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

4. Cultural Resources/Historic Properties:

a. No structure or work shall adversely affect impact or disturb properties listed in the *National Register of Historic Places* (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

5. The Permittee shall comply with the “Standard Manatee Conditions for In-Water Work – 2011”

6. The Permittee shall comply with National Marine Fisheries Service's “Sea Turtle and Smalltooth Sawfish Construction Conditions” dated March 23, 2006

7. Prior to the initiation of any of the work authorized by this permit, the Permittee shall install floating turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all suspended and erodible materials have been stabilized. Turbidity barriers shall be removed upon stabilization of the work area.

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact me by telephone at 239-334-1975 x0009.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to complete our automated Customer Service Survey at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Your input is appreciated – favorable or otherwise.

Sincerely,

Robert Tewis
Senior Project Manager

Enclosures

General Conditions
Department of the Army Permit Transfer Request
Self-Certification Statement of Compliance
Standard Manatee Conditions for In-Water Work
Sea Turtle and Smalltooth Sawfish Construction Conditions
Permit Drawings

GENERAL CONDITIONS
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **March 18, 2022**.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-2016-01788(NW-SJR)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019.

(TRANSFEREE-SIGNATURE)

(SUBDIVISION)

(DATE)

(LOT)

(BLOCK)

(NAME-PRINTED)

(STREET ADDRESS)

(MAILING ADDRESS)

(CITY, STATE, ZIP CODE)

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: SAJ-2016-01788(NW-SJR)

Permittee's Name & Address (please print or type): _____

Telephone Number: _____

Location of the Work: _____

Date Work Started: _____ Date Work Completed: _____

PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES _____ NO _____

TO SCHEDULE AN INSPECTION PLEASE CONTACT _____

AT _____

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks, dredging, etc.): _____

Acreage or Square Feet of Impacts to Waters of the United States: _____

Describe Mitigation completed (if applicable): _____

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

Signature of Permittee

Date

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shut down if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida, and to FWC at ImperiledSpecies@myFWC.com
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

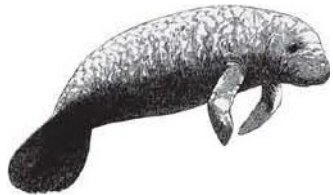
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

888-404-FWCC (3922)

cell *FWC or #FWC



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office 263
13th Avenue South St.
Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

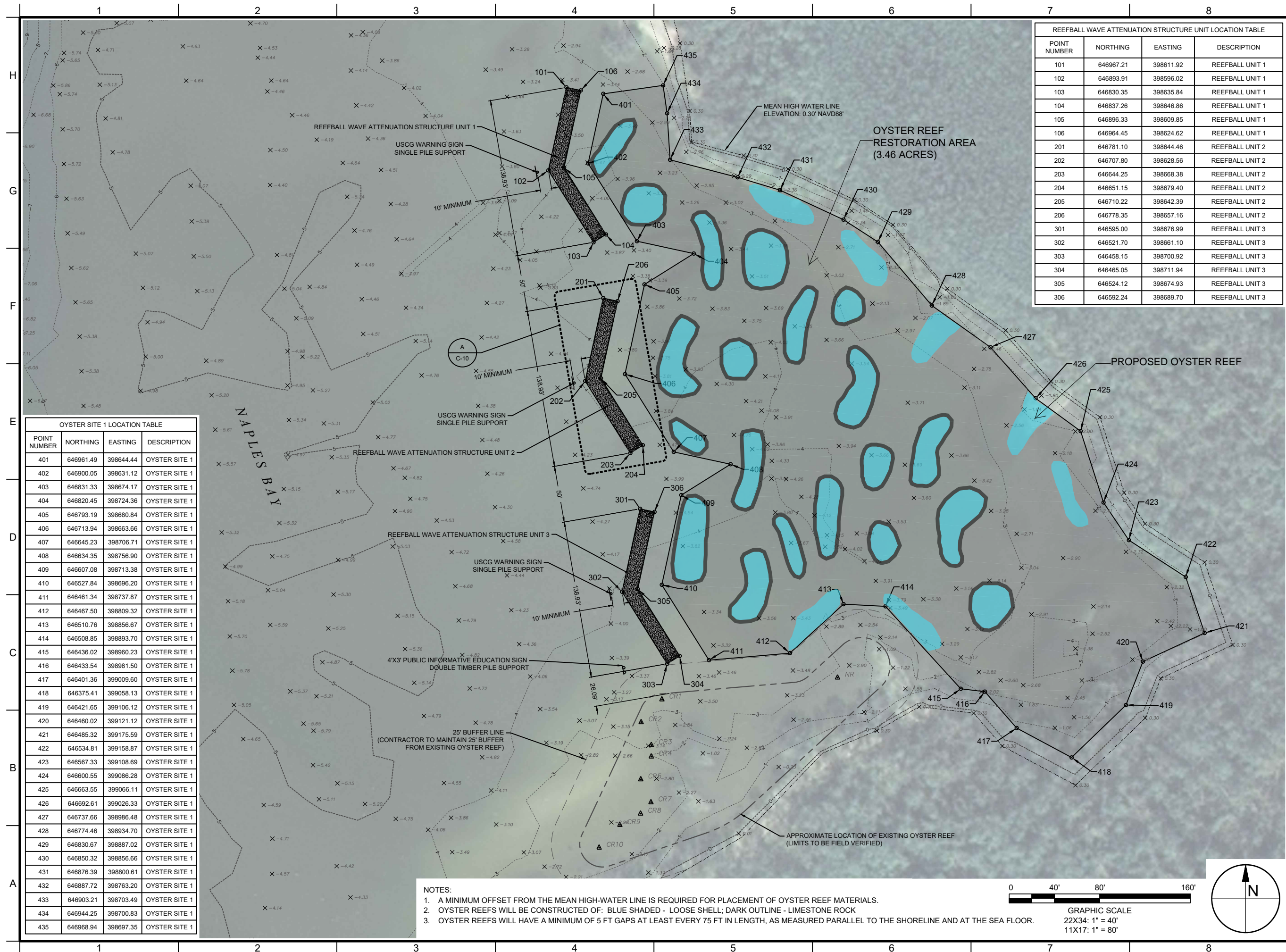
The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824- 5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc





REEFBALL WAVE ATTENUATION STRUCTURE UNIT LOCATION TABLE

POINT NUMBER	NORTHING	EASTING	DESCRIPTION
101	646967.21	398611.92	REEFBALL UNIT 1
102	646893.91	398596.02	REEFBALL UNIT 1
103	646830.35	398635.84	REEFBALL UNIT 1
104	646837.26	398646.86	REEFBALL UNIT 1
105	646896.33	398609.85	REEFBALL UNIT 1
106	646964.45	398624.62	REEFBALL UNIT 1
201	646781.10	398644.46	REEFBALL UNIT 2
202	646707.80	398628.56	REEFBALL UNIT 2
203	646644.25	398668.38	REEFBALL UNIT 2
204	646651.15	398679.40	REEFBALL UNIT 2
205	646710.22	398642.39	REEFBALL UNIT 2
206	646778.35	398657.16	REEFBALL UNIT 2
301	646595.00	398676.99	REEFBALL UNIT 3
302	646521.70	398661.10	REEFBALL UNIT 3
303	646458.15	398700.92	REEFBALL UNIT 3
304	646465.05	398711.94	REEFBALL UNIT 3
305	646524.12	398674.93	REEFBALL UNIT 3
306	646592.24	398689.70	REEFBALL UNIT 3

OYSTER SITE 1 LOCATION TABLE

POINT NUMBER	NORTHING	EASTING	DESCRIPTION
401	646961.49	398644.44	OYSTER SITE 1
402	646900.05	398631.12	OYSTER SITE 1
403	646831.33	398674.17	OYSTER SITE 1
404	646820.45	398724.36	OYSTER SITE 1
405	646793.19	398680.84	OYSTER SITE 1
406	646713.94	398663.66	OYSTER SITE 1
407	646645.23	398706.71	OYSTER SITE 1
408	646634.35	398756.90	OYSTER SITE 1
409	646607.08	398713.38	OYSTER SITE 1
410	646527.84	398696.20	OYSTER SITE 1
411	646461.34	398737.87	OYSTER SITE 1
412	646467.50	398809.32	OYSTER SITE 1
413	646510.76	398856.67	OYSTER SITE 1
414	646508.85	398893.70	OYSTER SITE 1
415	646436.02	398960.23	OYSTER SITE 1
416	646433.54	398981.50	OYSTER SITE 1
417	646401.36	399009.60	OYSTER SITE 1
418	646375.41	399058.13	OYSTER SITE 1
419	646421.65	399106.12	OYSTER SITE 1
420	646460.02	399121.12	OYSTER SITE 1
421	646485.32	399175.59	OYSTER SITE 1
422	646534.81	399158.87	OYSTER SITE 1
423	646567.33	399108.69	OYSTER SITE 1
424	646600.55	399086.28	OYSTER SITE 1
425	646663.55	399066.11	OYSTER SITE 1
426	646692.61	399026.33	OYSTER SITE 1
427	646737.66	398986.48	OYSTER SITE 1
428	646774.46	398934.70	OYSTER SITE 1
429	646830.67	398887.02	OYSTER SITE 1
430	646850.32	398856.66	OYSTER SITE 1
431	646876.39	398800.61	OYSTER SITE 1
432	646887.72	398763.20	OYSTER SITE 1
433	646903.21	398703.49	OYSTER SITE 1
434	646944.25	398700.83	OYSTER SITE 1
435	646968.94	398697.35	OYSTER SITE 1



90% SUBMITTAL
PERMIT APPLICATION
PURPOSES ONLY
NOT FOR
CONSTRUCTION

PROJECT TITLE
**NAPLES BAY
OYSTER RESTORATION
CONSTRUCTION DRAWINGS**
CITY OF NAPLES, COLLEGER COUNTY,
FLORIDA

Always call 811 two full business days before you dig
Sunshine811.com

PRELIMINARY DRAWINGS: THESE DRAWINGS
ARE NOT IN FINAL FORM, BUT ARE BEING
TRANSMITTED FOR REVIEW.

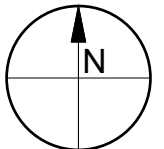
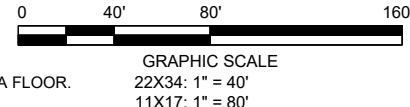
NO.	REVISIONS / SUBMISSIONS	DATE

PROJECT NO.	
DATE	
DESIGNED	
DRAWN	
CHECKED	
REVIEWED	
SCALE	AS SHOWN

DRAWING TITLE
SITE PLAN SITE 1

SHEET 1 OF 3

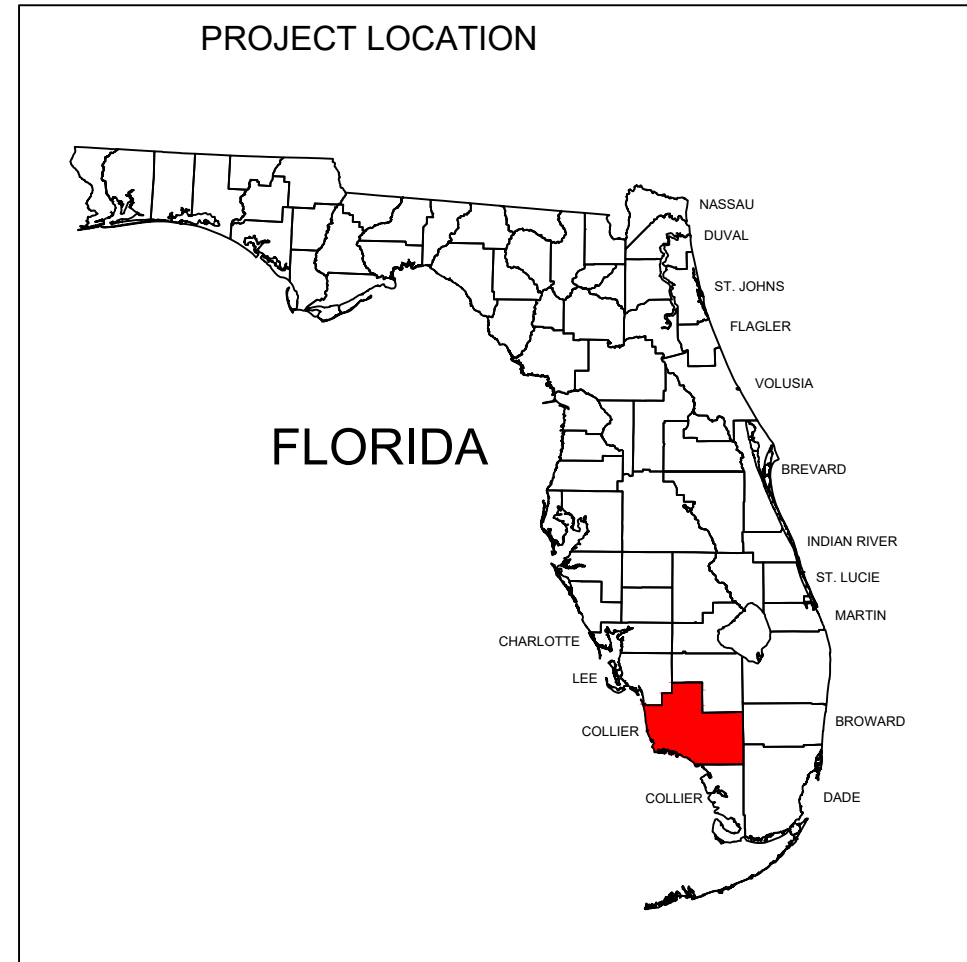
- NOTES:
1. A MINIMUM OFFSET FROM THE MEAN HIGH-WATER LINE IS REQUIRED FOR PLACEMENT OF OYSTER REEF MATERIALS.
 2. OYSTER REEFS WILL BE CONSTRUCTED OF: BLUE SHADED - LOOSE SHELL; DARK OUTLINE - LIMESTONE ROCK
 3. OYSTER REEFS WILL HAVE A MINIMUM OF 5 FT GAPS AT LEAST EVERY 75 FT IN LENGTH, AS MEASURED PARALLEL TO THE SHORELINE AND AT THE SEA FLOOR.



NAPLES BAY OYSTER RESTORATION CONSTRUCTION DRAWINGS

CITY OF NAPLES, COLLIER COUNTY, FLORIDA

90% SUBMITTAL
PERMIT APPLICATION
PURPOSES ONLY
NOT FOR
CONSTRUCTION

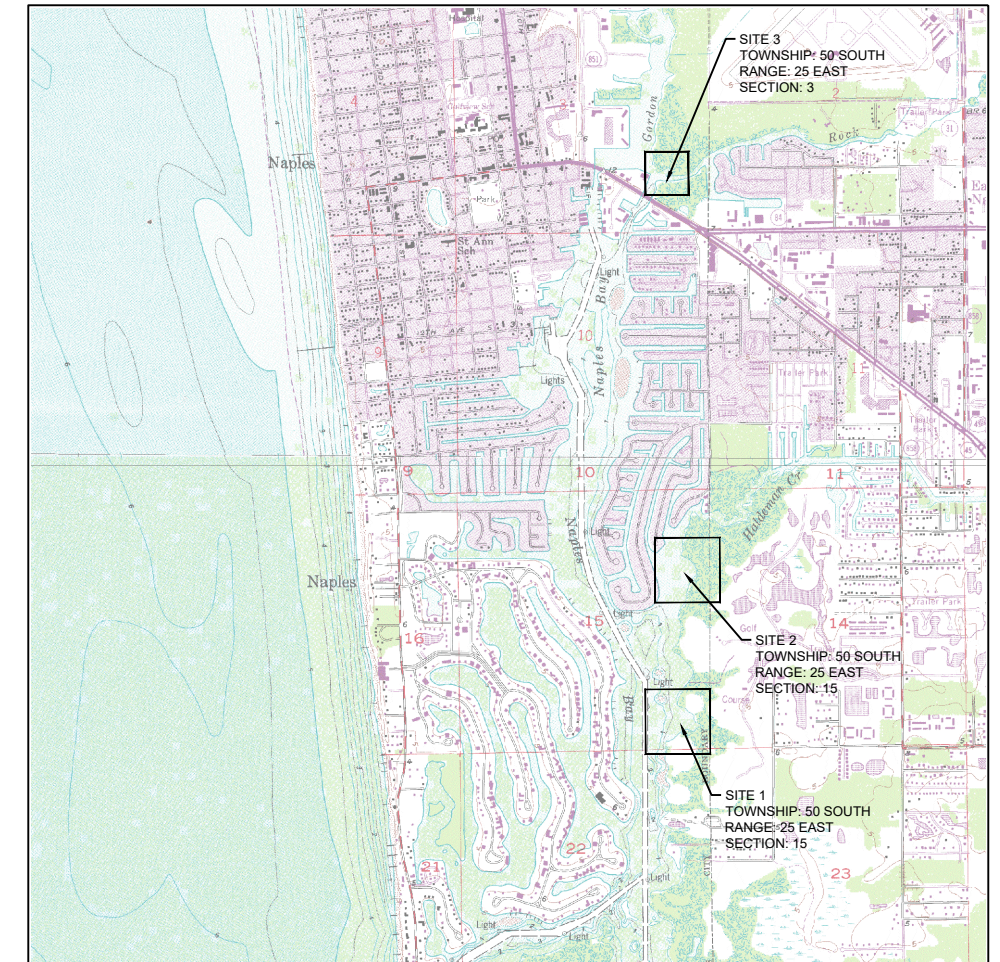


LOCATION MAP
N.T.S.



DRAWING INDEX

- C-1 TITLE SHEET
- C-2 PROJECT NOTES
- C-3 PROJECT OVERVIEW & STAGING AREAS
- C-4 APPROXIMATE MUCK DEPTHS SITE 1
- C-5 APPROXIMATE MUCK DEPTHS SITE 2
- C-6 APPROXIMATE MUCK DEPTHS SITE 3
- C-7 SITE PLAN SITE 1
- C-8 SITE PLAN SITE 2
- C-9 SITE PLAN SITE 3
- C-10 REEFBALL TYPICAL DETAILS
- C-11 OYSTER BAG & MARINE MATTRESS DETAILS
- C-12 USCG SIGNAGE DETAILS
- C-13 EROSION & SEDIMENT CONTROL DETAILS



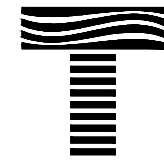
VICINITY MAP
1" = 2,000' (22x34)
1" = 4,000' (11x17)

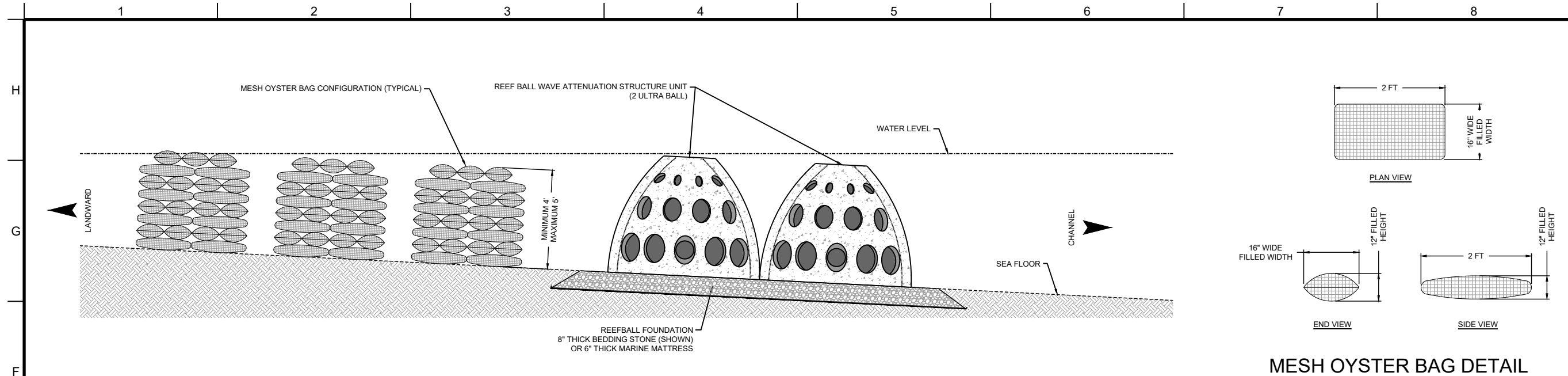
REFERENCE:
USGS 7.5' QUADRANGLE MAPS
NAPLES NORTH, FLORIDA 1991
NAPLES SOUTH, FLORIDA 1991

REBECCA JOHNSON, 8/24/2016 9:36:59 AM, X:\wp\Projects\C2015037 Naples Bay Oyster BestConstruction\C2015037-C-Title.dwg

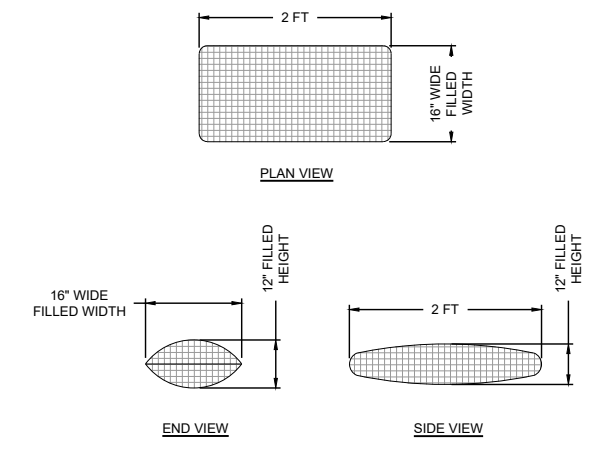
Always call 811 two full business days before you dig



 TAYLOR ENGINEERING INC. 10151 DEERWOOD PARK BLVD. BLDG. 300, SUITE 300 JACKSONVILLE, FLORIDA 32256 (904)-731-7040 1675 PALM BEACH LAKES, SUITE 210 WEST PALM BEACH, FLORIDA 33401 (561)-640-7310 <small>CERTIFICATE OF AUTHORIZATION # 4815</small>	PRELIMINARY DRAWINGS: THESE DRAWINGS ARE NOT IN FINAL FORM, BUT ARE BEING TRANSMITTED FOR REVIEW.	SEAL 90% SUBMITTAL PERMIT APPLICATION PURPOSES ONLY NOT FOR CONSTRUCTION <small>CLIFFORD L. TRUITT P.E. # 21194</small>
	PROJECT TITLE NAPLES BAY OYSTER RESTORATION CONSTRUCTION DRAWINGS <small>CITY OF NAPLES, COLLIER COUNTY, FLORIDA</small>	
C-1 SHEET 1 OF 13		



**TYPICAL DETAIL
OYSTER BAG & REEF BALL CONFIGURATION**
22X34: 1" = 2"
11X17: 1" = 4"
0 2 4



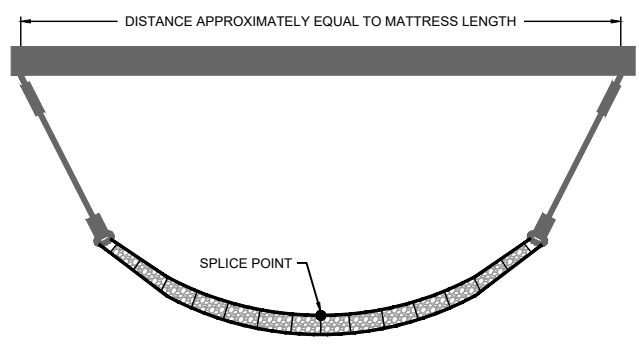
MESH OYSTER BAG DETAIL
22X34: 1" = 2"
11X17: 1" = 4"
0 2 4

REEFBALL CONFIGURATION NOTES:

- REEFBALL UNITS SHALL BE 4.3 FEET HIGH X 5.5 FEET WIDE AT THE BASE. UNITS TO BE INSTALLED SUCH THAT THE BASE OF EACH UNIT ABUTS & CONSISTS OF INTERLOCKING UNITS.
- POCKETS OF MUCK AND ORGANICS EXIST WITHIN THE SITE; THEREFORE FOUNDATION PREPARATION SHALL BE REQUIRED AND CONSIST OF 1 OF 2 OPTIONS:
FOUNDATION PREPARATION OPTION 1
THE CONTRACTOR MAY USE 6" THICK STONE FILLED MARINE MATTRESS WITH MARINE GRADE FILTER FABRIC PRE-ATTACHED TO THE BOTTOM. THE GRID SHALL BE BX1600 OR EQUAL & SHALL WITHSTAND A MINIMUM LIFTING CAPACITY OF 32,900 LBS. THE MARINE MATTRESS STONE FILL MUST CONSIST OF 2" TO 4" LIMESTONE ROCK WITH HARD ANGULAR SHAPE.
FOUNDATION PREPARATION OPTION 2
THE CONTRACTOR MAY USE A STANDARD OF 8" THICK LAYER OF BEDDING STONE. THE BEDDING STONE MUST CONSIST OF NO. 3 STONE WITH AN AVERAGE OF DIAMETER OF 1.5 INCHES. MARINE GRADE FILTER FABRIC MUST BE PLACED ALONG THE SEA FLOOR PRIOR TO STONE PLACEMENT.
- THE CONTRACTOR MUST PLACE ROCK AROUND THE ENDS OF ALL THREE (3) WAVE ATTENUATION STRUCTURE UNITS TO PREVENT SCOUR. THE ROCK MUST BE 1.5 - 2.0 FEET IN DIAMETER AND SHALL OVERLAP THE LENGTH OF REEFBALL UNITS ALONG THE LANDWARD & SEAWARD SIDES BY TWO UNITS.

MESH OYSTER BAG NOTES:

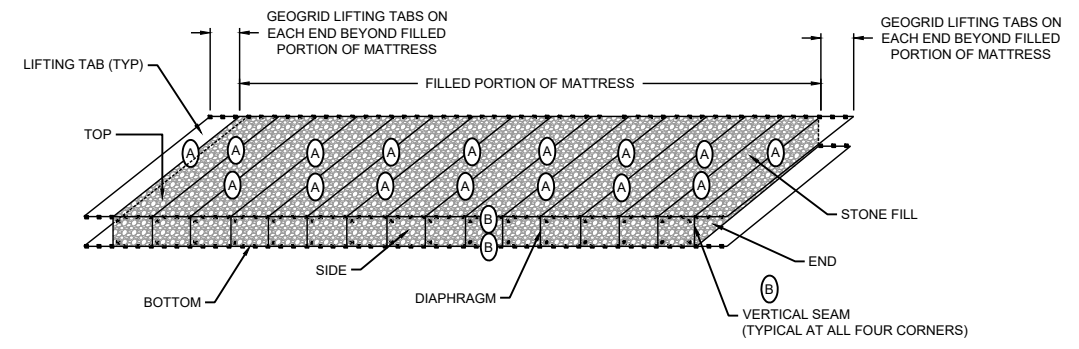
- MESH OYSTER BAGS SHALL CONSIST OF TUBULAR KNITTED NETS MADE FROM UV STABILIZED POLYETHYLENE. THE MESH APERTURES MAY BE DIAMOND OR OCTAGONAL IN SHAPE BUT MUST NOT EXCEED AN OPENING SIZE OF 0.25 INCHES.
- MESH OYSTER BAGS SHALL BE FILLED WITH OYSTER CLUTCH AND ENCLOSED AS PER THE MANUFACTURER'S SPECIFICATIONS.
- THE DIMENSIONS SHOWN IN THE MESH OYSTER BAG DETAIL ARE APPROXIMATE ONLY AND BASED ON ESTIMATED MESH OYSTER BAG SIZE CHARACTERISTICS OF EXISTING CITY REEF ADJACENT TO SITE #1.
- MESH OYSTER BAGS ARE TO BE INSTALLED CONTIGUOUSLY IN 4' WIDE BY 4' LONG PODS THAT WILL HAVE A MAXIMUM STACKED HEIGHT OF 5 FEET ABOVE THE SEA FLOOR WITH EACH LAYER OF BAGS CONFIGURED PERPENDICULAR TO THE LAYER BELOW.
- MESH OYSTER BAG DIMENSIONS SHOWN IN DETAIL ABOVE REPRESENT ESTIMATED FILLED BAG DIMENSIONS. ACTUAL FILLED DIMENSIONS IN THE FIELD WILL VARY BASED ON SIZE AND VOLUME OF SHELL FILL PLACED INSIDE BAG.



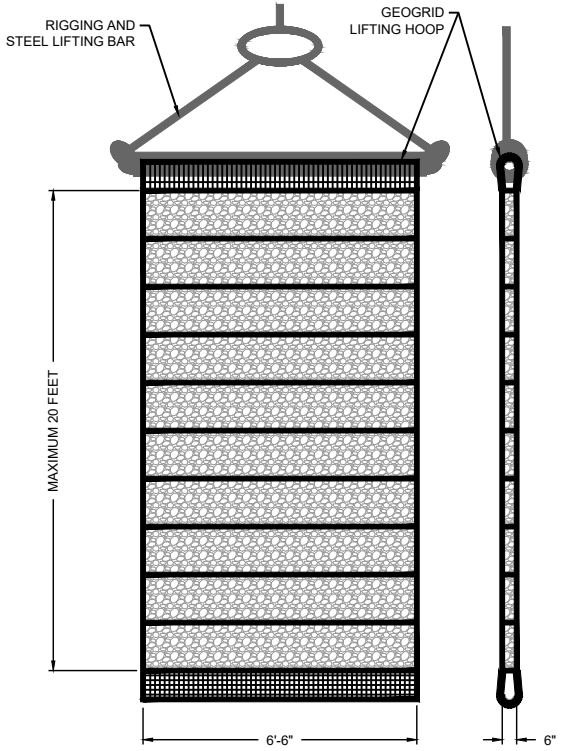
**MARINE MATTRESS
TWO-ENDS LIFTING DETAIL**
NOT TO SCALE

MARINE MATTRESS NOTES:

- ENDS, TOP, BOTTOM, SIDES, AND ANY EXTRA LENGTH USED FOR LIFTING OR ANCHORING PURPOSES SHALL BE COMPOSED OF LIKE MATERIAL.
- PLASTIC CABLE TIES MAY BE USED TO SECURE BODKIN CONNECTORS IN POSITION PRIOR TO TENSIONING OR FILLING OF MATTRESS UNIT.
- LIFTING BAR, RIGGING AND HANDLING MUST BE SUITABLE TO DISTRIBUTE THE LIFTING LOADS UNIFORMLY TO THE GEOGRID. LIFTING APPARATUS TO BE PROPOSED BY CONTRACTOR AND ENGINEER APPROVED. HANDLING AND LIFTING OF GRID MATERIALS AND MATTRESSES SHALL BE AVOIDED WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 5 DEGREES BELOW ZERO, CELSIUS.
- STONE-FILLED COMPARTMENTS SHALL BE FORMED BY THE USE OF INTERNAL BAFFLES ACROSS EACH MAT AT A MAXIMUM SPACING OF APPROXIMATELY 2 FEET.
- ALL EXTERIOR SIDES AND INTERIOR BAFFLES AND LIFTING HOOPS SHALL BE FORMED WITH LIKE MATERIALS.
- SEE THE PROJECT SPECIFICATIONS REGARDING THE REQUIREMENTS FOR STONE FILL MATERIALS.
- FILLING SHALL BE ACCOMPLISHED SUCH THAT THE AVERAGE THICKNESS OF EACH MATTRESS DOES NOT EXCEED 6 INCHES.



TYPICAL CONFIGURATION OF MARINE MATTRESS
NOT TO SCALE



**MARINE MATTRESS
ONE-END LIFTING DETAIL**
NOT TO SCALE

TAYLOR ENGINEERING INC.
10151 DEERWOOD PARK BLVD.
BLDG. 300, SUITE 300
JACKSONVILLE, FLORIDA 32256
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1675 PALM BEACH LAKES, SUITE 210
WEST PALM BEACH, FLORIDA 33401
(561)-640-7310
CERTIFICATE OF AUTHORIZATION # 4815

SEAL
90% SUBMITTAL
PERMIT APPLICATION
PURPOSES ONLY
NOT FOR
CONSTRUCTION
CLIFFORD L. TRUITT P.E. # 21194

PROJECT TITLE
NAPLES BAY
OYSTER RESTORATION
CONSTRUCTION DRAWINGS
CITY OF NAPLES, COLLIER COUNTY,
FLORIDA

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PRELIMINARY DRAWINGS: THESE DRAWINGS
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TRANSMITTED FOR REVIEW.

NO	ZONE	REVISIONS / SUBMISSIONS	DATE

PROJECT NO	C2015-037
DATE	AUGUST 2016
DESIGNED	JP
DRAWN	RLJ
CHECKED	CAS
REVIEWED	CLT
SCALE	AS SHOWN

DRAWING TITLE
**OYSTER BAG & MARINE
MATTRESS DETAILS**

REBECCA JOHNSON, 02/24/2016 9:38:50 AM, X:\wp\Projects\C2015\037 Naples Bay Oyster Reef Construction\C2015\037-C-Details.dwg

USCG SIGNAGE NOTES:

1. ALL SIGNAGE SHALL COMPLY WITH THE CODES, REGULATIONS, AND STANDARDS SET FORTH IN "GUIDELINES FOR POSTING UNIFORM WATERWAY MARKERS IN FLORIDA'S WATERWAYS; LATEST REVISION" PRODUCED BY THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION AND THE UNITED STATES FISH AND WILDLIFE SERVICE. GUIDELINES ARE BASED ON FEDERAL REGISTER TITLE 33, CODE OF FEDERAL REGULATION (CFR), PART 62, 64, & 66.

2. PILES:

- A. THE PILE SUPPORT FOR THE FLOAT BARRIERS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST MAXIMUM CHANNEL WATER VELOCITIES OF 20 FEET PER SECOND.
- B. ALL PILES SHALL CONFORM TO THE REQUIREMENTS OF ASTM D25 WITH MINIMUM BUTT DIAMETERS OF TWELVE (12) INCHES.
- C. TREATED PILES SHALL BE CLEAN PEELED AND PRESSURE TREATED IN ACCORDANCE WITH FEDERAL SPECIFICATION TT-W-572B AND AWPB STANDARDS C-3 AND P-5, WITH THE MINIMUM NET RETENTION INDICATED FOR SALTWATER USE AND FOR THE TYPE OF WOOD BEING TREATED.
- D. PILES SHALL BE LIMITED TO THE USE OF THOSE SPECIES OF MINIMUM NET RETENTION AS SHOWN IN THE TABLES OF FEDERAL SPECIFICATION TT-W-572B.
- E. TREATED PILES SHALL BE CAREFULLY HANDLED WITH NO SUDDEN DROPPING, BREAKING OF OUTER FIBERS, BRUISING, OR PENETRATING THE SURFACE WITH TOOLS.
- F. CUT OR DAMAGED SURFACES OF PILES, INCLUDING THE TOPS OF ALL PILES AFTER HEADING, AND BOLT HOLES, SHALL BE GIVEN AFTER-TREATMENT CARE AS REQUIRED BY FEDERAL SPECIFICATION TT-W-572B.
- G. IN ADDITION TO SUCH "AFTER-HEADING" TREATMENT, THE TOPS OF ALL PILES SHALL BE CAPPED WITH 20 GAUGE ALUMINUM SHEET METAL, FORMED IN THE FIELD WITH NO SHARP OR PROTRUDING EDGES AND FASTENED TO SIDE OF PILE WITH 6d STAINLESS STEEL NAILS AT 2" INTERVALS AROUND THE PERIMETER TO PROVIDE FOR "HEADING".
- H. PILES SHALL BE FURNISHED IN LENGTHS AT LEAST ONE FOOT GREATER THAN THE LENGTHS SPECIFIED TO BE BELOW THE CUT-OFF ELEVATIONS.

2. DRIVING PILES:

- A. NO PILES SHALL BE DRIVEN UNTIL THE EXCAVATION OR FILL IN THE AREA WHICH THEY ARE TO OCCUPY HAS BEEN COMPLETED TO THE REQUIRED GRADE.
- B. THE MAXIMUM PERMISSIBLE DEVIATION FOR PILES OUT OF PLUMB OR OFF BATTER SHALL BE 2 PERCENT OF THE PILE LENGTH.
- C. THE MAXIMUM PERMISSIBLE DEVIATION FROM INDICATED LOCATIONS SHALL BE 3 INCHES FOR EACH PILE.
- D. PILES SHALL HAVE METAL SHOES WHEN LENSES OR STRATA OF HARD ROCK OCCUR IN THE OVERBURDEN.
- E. PUNCHING OR DRILLING HOLES WILL BE PERFORMED WHERE NECESSARY TO PERMIT PILES TO PASS THROUGH THOSE STRATA AND REACH REQUIRED PENETRATION.
- F. ALL PILES SHALL BE DRIVEN CONTINUOUSLY AND WITHOUT VOLUNTARY INTERRUPTION UNTIL THE REQUIRED DEPTH OF PENETRATION HAS BEEN ATTAINED WITH A TOLERANCE OF PLUS OR MINUS 1.5 FEET.
- G. AFTER DRIVING AND BACK DRIVING, IF REQUIRED, ALL PILES SHALL BE CUT OFF AT THE CUTOFF LINE AND THE SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE OF THE WORK.
- H. WATER JETS MAY BE USED IN DRIVING ONLY WHEN SPECIFICALLY AUTHORIZED. 1. AT LEAST TWO JETS SHALL BE USED IN ALL JETTING OPERATIONS. 2. ALL JETTED PILES SHALL BE DRIVEN FOR THE FINAL FIVE (5) FEET OF PENETRATION UNLESS OTHERWISE DIRECTED.

3. CABLE:

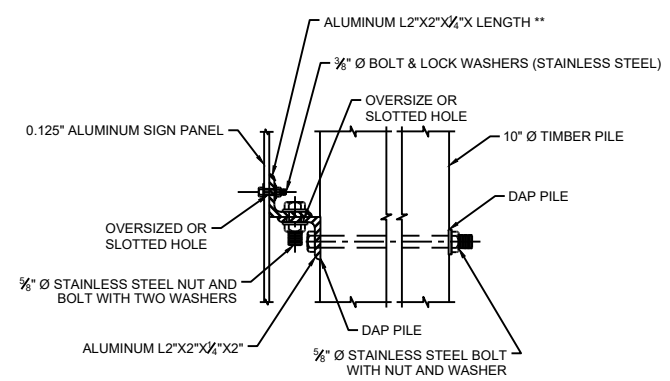
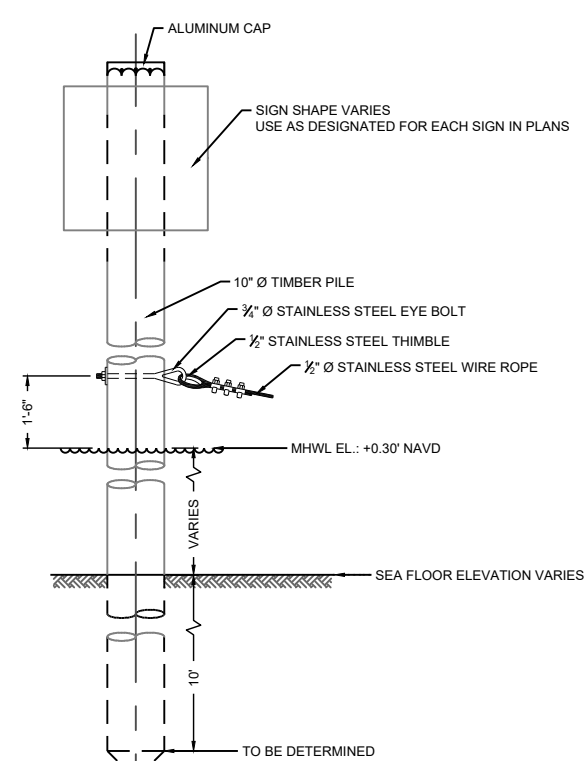
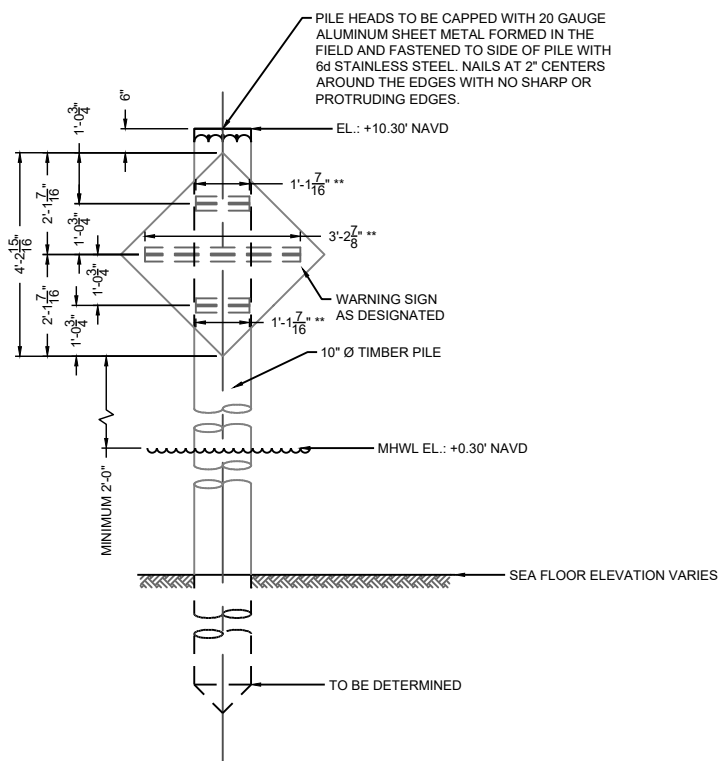
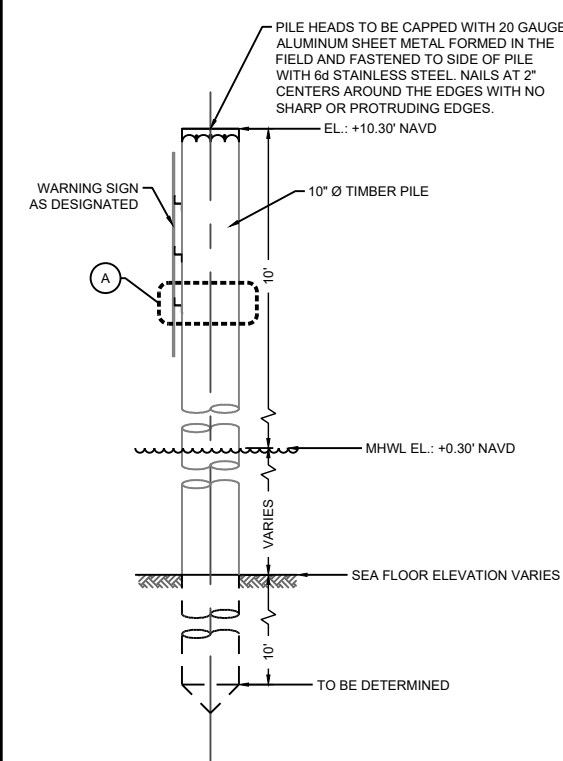
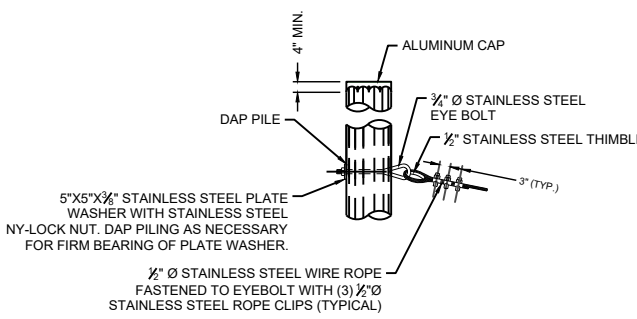
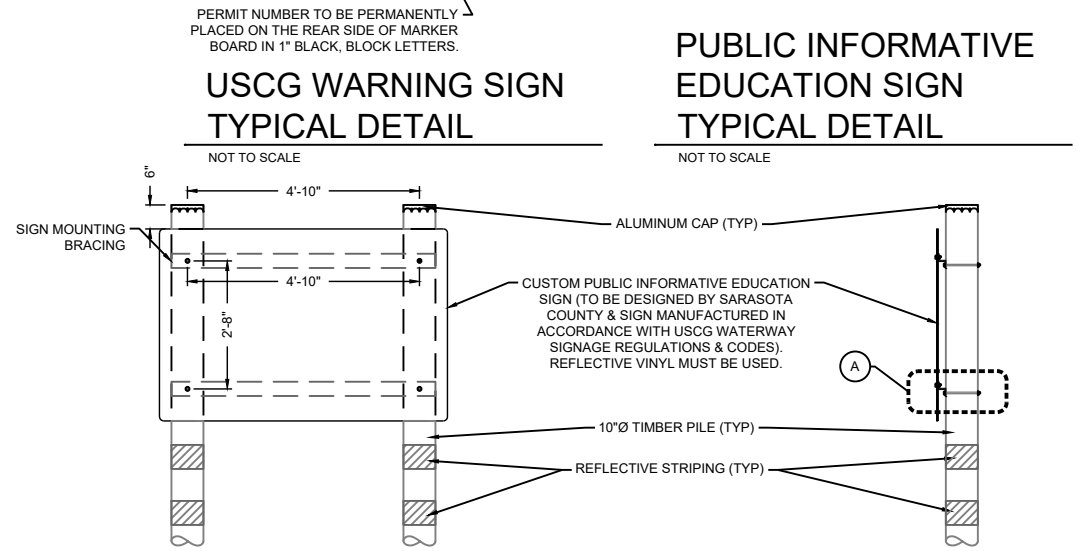
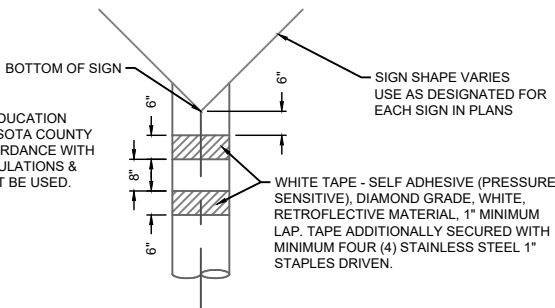
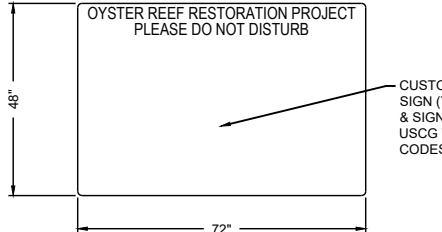
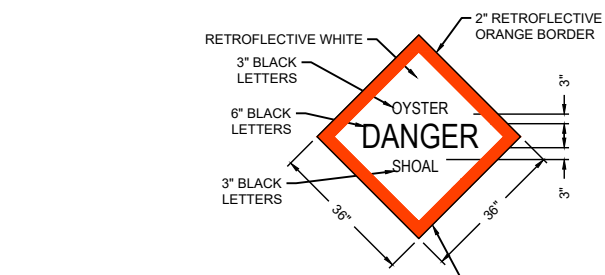
- A. ALL CABLE SHALL BE MINIMUM 1/4 INCH DIAMETER, STAINLESS STEEL WIRE CABLE. CABLE CLAMPS AND FASTENERS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST MAXIMUM CHANNEL WATER VELOCITIES OF 20 FEET PER SECOND.
- B. THE CABLE LENGTH SHALL PROVIDE ADEQUATE SLACK TO ADDRESS THE VARIATION OF WATER STAGE.
- C. CABLE CLAMPS SHALL BE SUPPLIED AS PER MANUFACTURER'S RECOMMENDATIONS.
- D. THIMBLES, WIRE ROPE CLAMPS, FASTENERS, AND ACCESSORIES SHALL BE STAINLESS STEEL OF A TYPE AND GRADE AT LEAST EQUAL IN STRENGTH TO THE MINIMUM BREAKING STRENGTH OF THE WIRE ROPE.
- E. EYE-BOLTS SHALL BE WELDLESS STAINLESS STEEL.

4. HARDWARE:

- A. FASTENERS, NUTS, WASHERS AND ALL OTHER STEEL ITEMS SHALL BE TAMPER PROOF STAINLESS STEEL TYPE 316.
- B. ALUMINUM MATERIAL SHALL CONFORM TO ALUMINUM ASSOCIATION ALLOY 5052 AND ALSO ASTM B209 FOR SHEETS AND PLATES, AND ASTM B221 FOR EXTRUDED SHAPES. ALUMINUM SHEETS AND PLATES SHALL HAVE ROUNDED OR BEVELED EDGES AND ROUNDED CORNERS.

5. SIGNAGE:

- A. SIGN PANEL SHALL BE MARINE GRADE ALUMINUM NO. 5052, WITH WHITE BACKGROUND AND BLACK LETTERS CONFORMING TO FEDERAL STANDARD ALPHABET SERIES E. THE PANEL, LETTERING DESIGN AND ENAMELING SHALL CONFORM TO FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- B. THE CONTRACTOR SHALL SUBMIT LETTERING DESIGN TO THE ENGINEER FOR APPROVAL.



TAYLOR ENGINEERING INC.
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WEST PALM BEACH, FLORIDA 33401
(561)-640-7310
CERTIFICATE OF AUTHORIZATION # 4815

SEAL

90% SUBMITTAL PERMIT APPLICATION PURPOSES ONLY NOT FOR CONSTRUCTION

CLIFFORD L. TRUITT P.E. # 21194

PROJECT TITLE
NAPLES BAY OYSTER RESTORATION CONSTRUCTION DRAWINGS
CITY OF NAPLES, COLLIER COUNTY, FLORIDA

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PRELIMINARY DRAWINGS: THESE DRAWINGS ARE NOT IN FINAL FORM, BUT ARE BEING TRANSMITTED FOR REVIEW.

NO.	ZONE	REVISIONS / SUBMISSIONS	DATE

PROJECT NO	C2015-037
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DRAWN	RLJ
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REVIEWED	CLT
SCALE	AS SHOWN

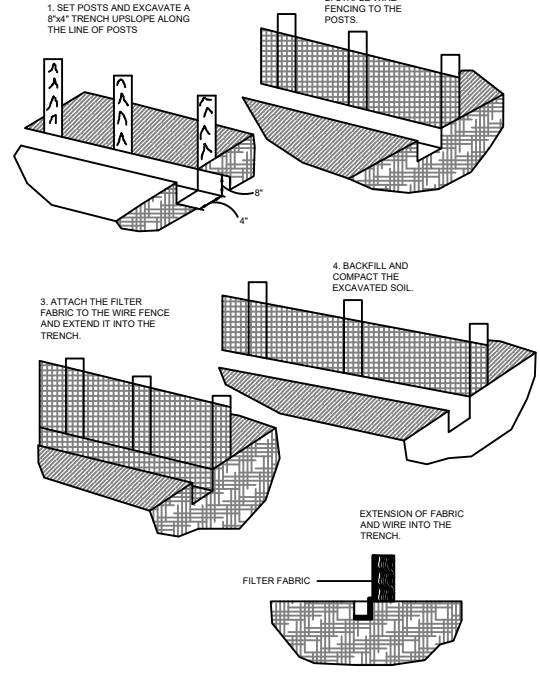
DRAWING TITLE
USCG SIGNAGE DETAILS

C-12
SHEET 12 OF 13

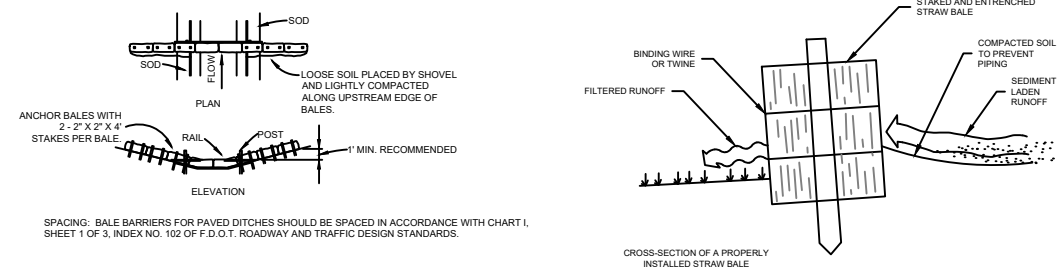
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EROSION CONTROL AND GRASSING/SODDING NOTES:

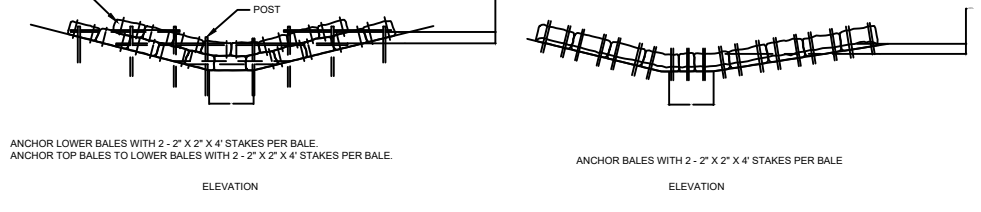
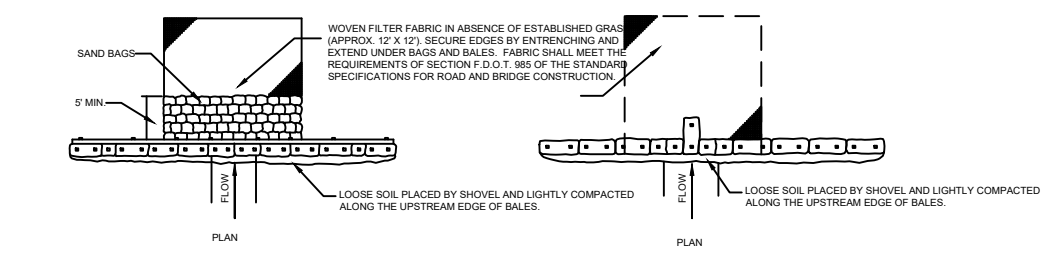
- THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN EROSION CONTROL MEASURES AND TURBIDITY SILTATION PREVENTION DEVICES AS NECESSARY TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND COMPLY WITH STATE WATER QUALITY CRITERIA FOR STORMWATER DISCHARGE. EROSION CONTROL MEASURES INCLUDE BUT ARE NOT LIMITED TO TURBIDITY SCREENS, MULCHING, HAY BALES, AND SILT FENCE. IF A WATER QUALITY VIOLATION OCCURS, THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR ALL DAMAGE AND ALL COSTS WHICH MAY RESULT INCLUDING LEGAL FEES, CONSTRUCTION COSTS, AND FINES.
- DISTURBED AREAS NOT INCLUDING ROADWAYS AND WETLANDS SHALL BE SEEDED/GRASSED, FERTILIZED, MULCHED, AND MAINTAINED IN ACCORDANCE WITH CITY, COUNTY, STATE, AND FEDERAL REQUIREMENTS UNTIL A PERMANENT VEGETATIVE COVER IS ESTABLISHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING A PERMANENT STAND OF SOD AND/OR GRASS AT ALL DISTURBED AREAS PER CITY STANDARDS AND SPECIFICATIONS AND MEETING THE NPDES FINAL STABILIZATION REQUIREMENTS.
- EROSION CONTROL MEASURES SHALL BE MAINTAINED FOR THE ENTIRE DURATION OF THE PROJECT.
- EROSION CONTROL MEASURES SHALL BE PLACED TO CONTAIN ALL POINTS OF DISCHARGE TO SURFACE WATERS OR WETLANDS INCLUDING CURB INLETS, DITCH BOTTOM INLETS, DITCHES, AND DOWNSTREAM PORTIONS OF STREAMS AND TIDAL WATERS ADJACENT TO CONSTRUCTION.
- 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR WILL SUBMIT A NPDES PERMIT TO FDEP.
- THE CONTRACTOR SHALL WRAP STORM GRATES IN FILTER FABRIC TO PREVENT SEDIMENTATION OF THE STORM SEWER SYSTEM.
- THE SITE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AND TURBIDITY SILTATION PREVENTION DEVICES AFTER COMPLETION OF CONSTRUCTION AND ONLY WHEN AREAS HAVE BEEN STABILIZED.
- SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. ALL TURBIDITY SILTATION PREVENTION DEVICES SHALL BE INSPECTED AFTER ANY STORM EVENTS TO ENSURE THAT ALL DEVICES ARE SECURELY IN PLACE AND UNDAMAGED. IF ANY DAMAGE HAS OCCURRED, THE CONTRACTOR SHALL ENSURE ALL DEVICES ARE FIXED AND/OR REPLACED AS REQUIRED AND SECURED PROPERLY.



CONSTRUCTION DETAILS FOR SILT FENCES
SCALE: N.T.S.

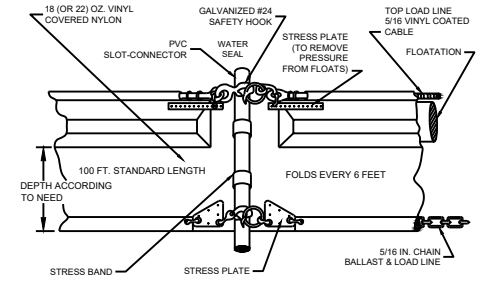


BARRIER FOR PAVED DITCH SCALE: N.T.S.
STAKED HAY BALE SCALE: N.T.S.

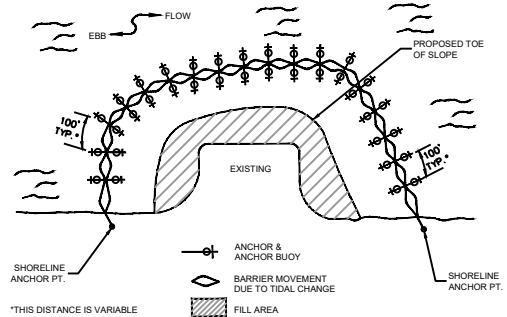


APPLICATION AND SPACING OF TYPES I & II HAY BALE BARRIERS SHALL BE IN ACCORDANCE WITH SHEET 1 OF 3, F.D.O.T. INDEX NO. 102

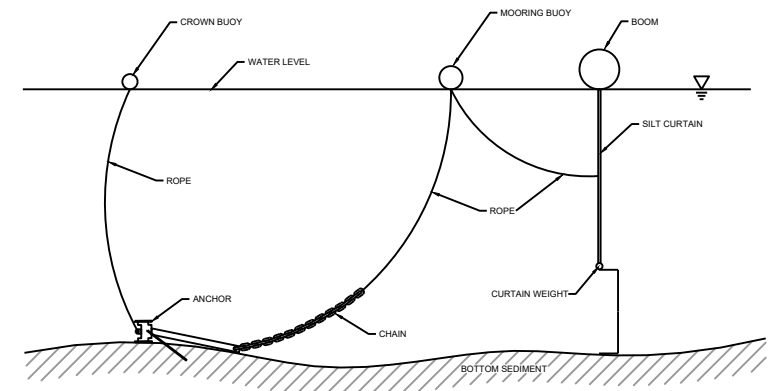
HAY BARRIERS TYPE I & II
SCALE: N.T.S.



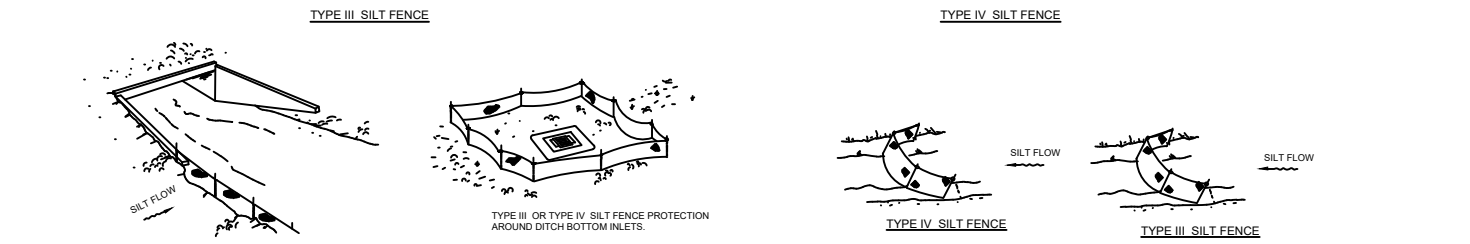
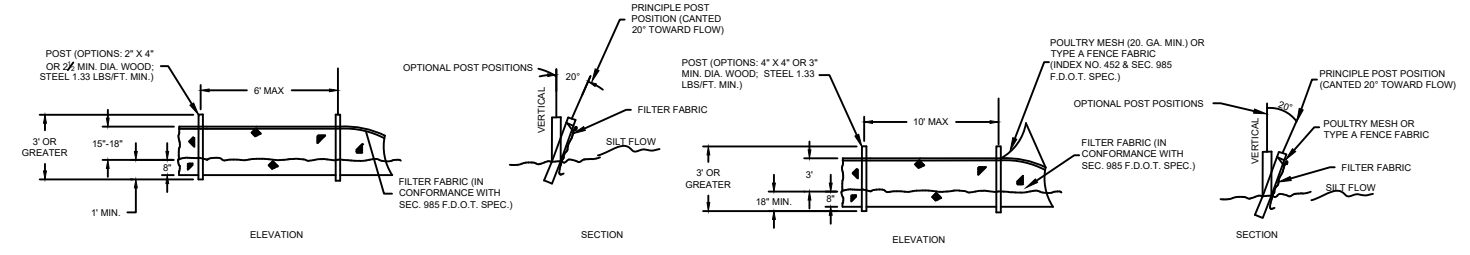
TURBIDITY CURTAIN - TYPE II
SCALE: N.T.S.



SAMPLE PLAN FOR TIDAL WATERS AND/OR HEAVY WIND & WAVE ACTION
SCALE: N.T.S.



TURBIDITY CURTAIN DETAIL
SCALE: N.T.S.



DO NOT DEPLOY IN A MANNER THAT SILT FENCES WILL ACT AS A DAM ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.

SILT FENCE TYPE III & IV
SCALE: N.T.S.

TAYLOR ENGINEERING INC.
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SCALE	AS SHOWN

DRAWING TITLE
EROSION & SEDIMENT CONTROL DETAILS

REBECCA JOHNSON, 02/22/2016 9:36:02 AM, X:\wpj\project\C2015037 Naples Bay Oyster BestConstruction\C2015037-C-Turbidity.dwg

Site 1				
Reef (Site-number)	Area (sq ft)	Area (acres)	Reef Center Coordinates (Lat/Long)	
Chevron-1	1881	0.043	26.11123	81.78490
Chevron-2	1881	0.043	26.11072	81.78480
Chevron-3	1881	0.043	26.11021	81.78470
1-1	734	0.017	26.11128	81.78475
1-2	1224	0.028	26.11115	81.78467
1-3	1229	0.028	26.11103	81.78448
1-4	1494	0.034	26.11102	81.78434
1-5	550	0.013	26.11091	81.78411
1-6	1256	0.029	26.11086	81.78426
1-7	936	0.021	26.11077	81.78440
1-8	1235	0.028	26.11073	81.78459
1-9	562	0.013	26.11059	81.78455
1-10	1181	0.027	26.11050	81.78436
1-11	1605	0.037	26.11039	81.78416
1-12	1476	0.034	26.11073	81.78406
1-13	473	0.011	26.11052	81.78403
1-14	941	0.022	26.11057	81.78391
1-15	1461	0.034	26.11038	81.78382
1-16	647	0.015	26.11034	81.78402
1-17	563	0.013	26.11032	81.78426
1-18	1180	0.027	26.11022	81.78435
1-19	1810	0.042	26.11034	81.78453
1-20	1230	0.028	26.11017	81.78374
1-21	990	0.023	26.11116	81.78430
1-22	883	0.020	26.11101	81.78407
1-23	871	0.020	26.11082	81.78389
1-24	950	0.022	26.11061	81.78363
1-25	462	0.011	26.11045	81.78351
1-26	826	0.019	26.11013	81.78394
1-27	1053	0.024	26.11014	81.78421
Site 1 Total Area	33465	0.768		

Site 2				
Reef (Site-number)	Area (sq ft)	Area (acres)	Reef Center Coordinates (Lat/Long)	
2-1	819	0.019	26.11950	81.78422
2-2	744	0.017	26.11945	81.78402
2-3	946	0.022	26.11947	81.78376
2-4	739	0.017	26.11926	81.78363
2-5	1266	0.029	26.11911	81.78379
2-6	717	0.016	26.11909	81.78345
2-7	837	0.019	26.11882	81.78343
2-8	807	0.019	26.11932	81.78388
2-9	1351	0.031	26.11897	81.78367
2-10	1018	0.023	26.11882	81.78379
Site 2 Total Area	9244	0.212		

Site 3				
Reef (Site-number)	Area (sq ft)	Area (acres)	Reef Center Coordinates (Lat/Long)	
3-1	262	0.006	26.14178	81.78555
3-2	416	0.010	26.14177	81.78542
3-3	213	0.005	26.14191	81.78528
3-4	1081	0.025	26.14164	81.78540

Site 2 Total Area	1972	0.045			Total area reefs/chevrons (acres):	1.026
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148000

Piling for datasonde and educational signage

-81.784238, 26.11065