DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BOULEVARD
JACKSONVILLE, FLORIDA 32207-8915

REPLY TO
ATTENTION OF

December 4, 2019

Regulatory Division
West Permits Branch
Tampa Section
SAJ-2000-03874 (SP-CSH)

Manatee County
c/o Charlie Hunsicker
5502 33rd Avenue Drive West
Bradenton, Florida 34209

Dear Mr. Hunsicker:

The U.S. Army Corps of Engineers (Corps) is pleased to enclose the Department of the Army permit, which should be available at the construction site. Work may begin immediately but the Corps must be notified of:

a. The date of commencement of the work,

b. The dates of work suspensions and resumptions of work, if suspended over a week, and

c. The date of final completion.

This information should be mailed to the Enforcement Section of the Regulatory Division of the Jacksonville District at saj-rd-enforcement@usace.army.mil. The Enforcement Section is also responsible for inspections to determine whether Permittees have strictly adhered to permit conditions.

IT IS NOT LAWFUL TO DEVIATE FROM
THE APPROVED PLANS ENCLOSED.

Sincerely,

MB Hogan-Charles

For Shawn H. Zinszer
Chief, Regulatory Division

Enclosures

cc:
Lauren Floyd, Coastal Protection Engineering
CESAJ-RD-PE
CESAJ-PM-WN

DEPARTMENT OF THE ARMY PERMIT

Permittee: Manatee County
c/o Charlie Hunsicker
5502 33rd Avenue Drive West
Bradenton, Florida 34209

Permit No: SAJ-2000-03874 (SP-CSH)

Issuing Office: U.S. Army Engineer District, Jacksonville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the U.S. Army Corps of Engineers (Corps) having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The project consists of the placement of beach compatible sand along 1.6 miles of shoreline on Coquina Beach between R-33 and R-41+305. The constructed beach includes a berm elevation of +4-feet NAVD and a seaward slope of 1V:15H. The volume within the template is approximately 252,000-cubic-yards. The sand will be dredged from one of three previously permitted borrow areas located in the Passage Key Inlet ebb tidal shoal, approximately 2,000-feet offshore of the north end of Anna Maria Island.

The work described above is to be completed in accordance with the 22 pages of drawings and 6 attachments affixed at the end of this permit instrument.

Project Location: The project would affect waters of the United States associated with the Gulf of Mexico. The project site is located at Coquina Beach, Anna Maria Island, Manatee County, Florida.

Directions to site: From I-75, take Exit 217 and head west on SR 70 / 53rd Ave. for approximately 11 miles. Turn right onto 75th St. W, then left on Cortez Road, cross over drawbridge to Anna Maria Island. Turn left onto Gulf Dr. to Coquina Beach (on right)

Approximate Central Coordinates: Latitude: 27.539866° North
Longitude: 82.690666° West

Permit Conditions

General Conditions:

1. The time limit for completing the work authorized ends on **December 4, 2034**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

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 and the mailing address 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 representatives 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.

Special Conditions:

1. **Reporting Address:** The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to either (not both) of the following addresses:

   a. For electronic mail (preferred): SAJ-RD-Enforcement@usace.army.mil (not to exceed 15 MB). The Permittee shall reference this permit number, SAJ-2000-03874, GRBO, and include the topic in the subject line of the email and on all submittals.

   b. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232-0019. The Permittee shall reference this permit number, SAJ-2000-03874 on all submittals.

2. **Commencement Notification:** Within 10 days from the date of initiating the work authorized by this permit the Permittee shall submit a completed "Commencement Notification" Form (Attachment 3).

3. **As-Built Certification:** Within 60 days of completion of the work authorized by this permit, the Permittee shall submit as-built drawings of the authorized work and a completed "As-Built Certification By Professional Engineer" form (Attachment 4) to the Corps. The as-built drawings shall be signed and sealed by a registered professional engineer and include the following:

   a. A plan view drawing of the location of the authorized work footprint, as shown on the permit drawings, with transparent overlay of the work as constructed in the same scale as the permit drawings. The plan view drawing should show all "earth disturbance," including wetland impacts and water management structures.

   b. A list of any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the attached "As-Built Certification By Professional Engineer" form the deviations between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or "As-Built Certification By Professional Engineer" form does not constitute approval of any deviations by the Corps.

   c. Include the Department of the Army permit number on all sheets submitted.

4. **State of Florida Authorization:** The permittee shall submit to the Corps a copy of any and all future State of Florida Environmental Resource Permits and/or Water Quality Certifications issued by the Florida Department of Environmental Protection (FDEP) for the overall project, or any portion of the overall work associated with this project, within 60 days of the issuance of such permits.

5. **Pre-Construction Meeting:** The Permittee will schedule a pre-construction meeting with the Enforcement Section representative no later than **14 days** prior to the start of work to review the limitations and special conditions of the permit. During this meeting participants will be required to sign a form acknowledging knowledge and comprehension of what has been authorized and associated requirements. The Permittee should not start work prior to the pre-construction meeting without written approval by the Corps.

6. **Points of Contact:** The Permittee shall provide a list of all points of contact associated with the project within 10 days from initiation of work to the address identified in Reporting Address Special Condition. The list should include area of responsibility and contact information for each point of contact.

7. **Dredging Quality Management:** Dredging and dredged material disposal and monitoring of dredging projects using the Dredging Quality Management (DQM) system shall be implemented for this permit. The Permittee shall ensure that each dredge assigned to the work authorized by this permit is equipped with DQM, previously known as 'Silent Inspector', for dredge monitoring. The Permittee's DQM system must have been certified by the DQM Support Team within one calendar year prior to the initiation of the dredging/disposal. Questions regarding certification should be addressed to the DQM Support Center at 251-690-3011. Additional information about the DQM System can be found at https://dqm.usace.army.mil. The Permittee is responsible for insuring that the DQM system is operational throughout the dredging and disposal project and that project data are submitted to the DQM National Support Center in accordance with the specifications provided at the aforementioned website. The data collected by the DQM system shall, upon request, be made available to the Regulatory Division of the U.S. Army Corps of Engineers - Jacksonville District.

8. **Agency Changes/Approvals:** Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a modification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a modification of this permit from the Tampa Permits Section. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

9. **Assurance of Navigation and Maintenance:** 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 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.

10. **Posting of Permit:** The Permittee shall have available and maintain for review a copy of this permit and approved plans at the construction site.

11. **Fill Material:** The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

12. **Regional Biological Opinion**: Hydraulic dredging is approved under the current National Marine Fisheries Service (NMFS) Gulf Regional Biological Opinion (GRBO), revised January 9, 2007. The GRBO and its references can be viewed on the following web address: https://www.fisheries.noaa.gov/content/endangered-species-act-section-7-biological-opinions-southeast.

    The Permittee is responsible for obtaining and complying with the GRBO. If the Permittee is unable to view the GRBO at this website, the Permittee should contact the Corps to receive a copy. The GRBO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is specified in the GRBO. Authorization under this permit is conditional upon compliance with all the mandatory terms and conditions associated with the GRBO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the GRBO, where a take of the listed species occurs, would constitute noncompliance with this permit and would be the basis for suspension and revocation of this permit or other enforcement action. NMFS has directed that this GRBO issued to the Corps serve as the formal consultation for all dredge projects in the area covered by the GRBO; however, where the terms and conditions of the GRBO differ from the special conditions of this permit, the special conditions of this permit will take precedence as the more stringent condition.

13. **Incidental Take Statement:** This permit does not authorize the Permittee to take an endangered species, in particular sea turtles, sturgeon, whales or any other endangered species listed in the GRBO. The GRBO includes an Incidental Take Statement (ITS) issued to the Corps. The Permittee understands and agrees that, even where it is in full compliance with the terms and conditions of the GRBO ITS and this permit, incidental take by the Permittee or other hopper dredging operations within the area covered by the GRBO may result in suspension or modification of this permit by the Corps. The amount of incidental take that will trigger suspension, and the need for any such suspension, shall be determined at the discretion of the Corps. The Permittee understands and agrees on behalf of itself, its agents, contractors, and other representatives, no claim, legal action in equity or for damages, adjustment, or other entitlement against the Corps shall arise as a result of such suspension or related action.

14. **Incidental Take:** The Permittee shall immediately cease all dredging operations and notify the Corps upon discovery of an incidental take of a sea turtle or sturgeon. The Permittee shall not resume dredging until notified by the District Engineer, or his designee. The Sea Turtle Incidental Take Data form which is located at the following web site: https://dqm.usace.army.mil/odess/#/download, must be filled out by the Observer and must be submitted to the Corps with photographic documentation within 6 hours of the take event.

15. **Manatee Conditions:** The Permittee shall comply with the “Standard Manatee Conditions for In-Water Work – 2011” (Attachment 5).

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

17. **Programmatic Piping Plover Biological Opinion (P3BO):** The Corps provided information to the U.S. Fish and Wildlife Service (FWS) during consultation for the piping plover and the rufa red knot. The Permittee has reviewed the Reasonable and Prudent Measures, Terms and Conditions of the P3BO dated May 22, 2013, and agreed to follow the measures included for non-optimal habitat to minimize impacts to the species listed above. The FWS provide concurrence that the dredging and sand placement activities are consistent with the P3BO. Therefore, the Permittee shall adhere to all of the reasonable and prudent measures provided in P3BO which is located at: https://www.saj.usace.army.mil/Portals/44/docs/regulatory/sourcebook/endangered_species/Piping%20Plover/20130522_ltr_Service_Corps_Piping%20Plover%20Programmatic_BO_FINAL.pdf

The Permittee is responsible for obtaining and complying with the P3BO. If the Permittee is unable to view the P3BO at this website, the Permittee shall contact the Corps to receive a copy. The Permittee shall implement all applicable reasonable and prudent measures identified in the P3BO for non-optimal habitat. Authorization under this permit is conditional upon compliance with all the mandatory terms and conditions associated with the P3BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the P3BO, where a take of the listed species occurs, would constitute noncompliance with this permit and would be the basis for suspension and revocation of this permit or other enforcement action. Should the terms and conditions of the P3BO differ from the special conditions of this permit, the special conditions of this permit will take precedence as the more stringent condition.

18. **Statewide Programmatic Biological Opinion (SPBO)**: The Corps provided information to the U.S. Fish and Wildlife Service (FWS) during consultation for the following species: West Indian Manatee (*Trichechus mantus*); nesting sea turtles: loggerhead sea turtle (*Caretta caretta*) and the green sea turtle (*Chelonia mydas*). The Permittee has reviewed the Reasonable and Prudent Measures, Terms and Conditions of the SPBO dated March 13, 2015 and agreed to follow the measures included to minimize impacts to the listed species above. The FWS provided concurrence that the dredging and sand placement activities are consistent with the SPBO provided the Permittee adheres to all of the reasonable and prudent measures provided in the SPBO, located at: https://www.fws.gov/panamacity/resources/2015SPBO.pdf

    The Permittee is responsible for obtaining and complying with the SPBO. If the Permittee is unable to view the SPBO at this website, the Permittee shall contact the Corps to receive a copy. The Permittee shall implement all reasonable and prudent measures identified in the SPBO. Authorization under this permit is conditional upon compliance with all the mandatory terms and conditions associated with the SPBO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the SPBO, where a take of the listed species occurs, would constitute noncompliance with this permit and would be the basis for suspension and revocation of this permit or other enforcement action. Should the terms and conditions of the SPBO differ from the special conditions of this permit, the special conditions of this permit will take precedence as the more stringent condition.

19. **Biological Opinion:** This permit does not authorize the Permittee to take an endangered species, in particular the Florida manatee, piping plover, or loggerhead and green sea turtles. In addition to the conditions listed above, all conservation measures and terms and conditions in the two enclosed U.S. FWS Biological

Opinions (BO), dated November 16, 2009 (Attachment 7) and December 19, 2013 (Attachment 8) continue to apply to all work authorized by this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with this permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

20. **Buoys**: Where buoys are used to mark pipelines, the Permittee shall use lightweight chain, non-looping wire rope, or plastic sheathing around nylon rope to secure the buoy line to the pipeline to prevent looping.

21. **Cultural Resources/Historic Properties**: 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.

    a. 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.

    b. 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.

    c. 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.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344)

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Charles Hunsicker — 12/03/2019
(PERMITTEE) (DATE)

Charles Hunsicker
(PERMITTEE NAME-PRINTED) Director, Manatee County Parks and Natural Resources

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for: MY Hogan-Charles — 04 December 2019
(DISTRICT ENGINEER) (DATE)
Andrew D. Kelly, Jr.
Colonel, U.S. Army
District Commander

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. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____
(TRANSFEREE-SIGNATURE) (DATE)

_____
(NAME-PRINTED)

_____
(ADDRESS)

_____
(CITY, STATE, AND ZIP CODE)

Attachments to Department of the Army Permit Number SAJ-2000-03874 (SP-CSH)

1. PERMIT DRAWINGS: 22 pages, dated 6/20/2019

2. WATER QUALITY CERTIFICATION: Specific Conditions of the water quality permit/certification in accordance with General Condition number 5 on page 2 of this DA permit. Environmental Resource Permit No. 0039378-018, dated 10/9/2019, 55 pages

3. COMMENCEMENT NOTIFICATION FORM: 1 page

4. AS-BUILT CERTIFICATION FORM: 2 pages

5. MANATEE CONDITIONS: 2 pages, *Standard Manatee Conditions for In-Water Work – 2011*

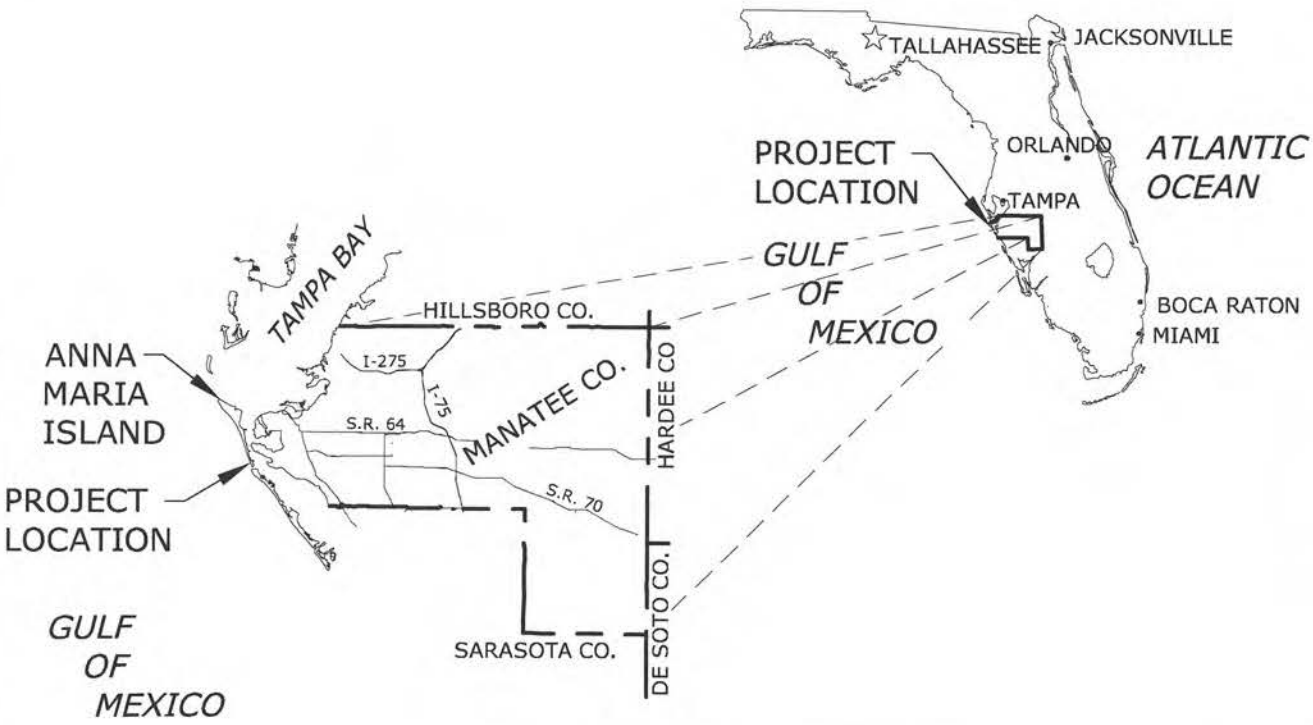
6. SEA TURTLE – SAWFISH CONDITIONS: 1 page, *Sea Turtle and Smalltooth Sawfish Construction Conditions, revised March 23, 2006*

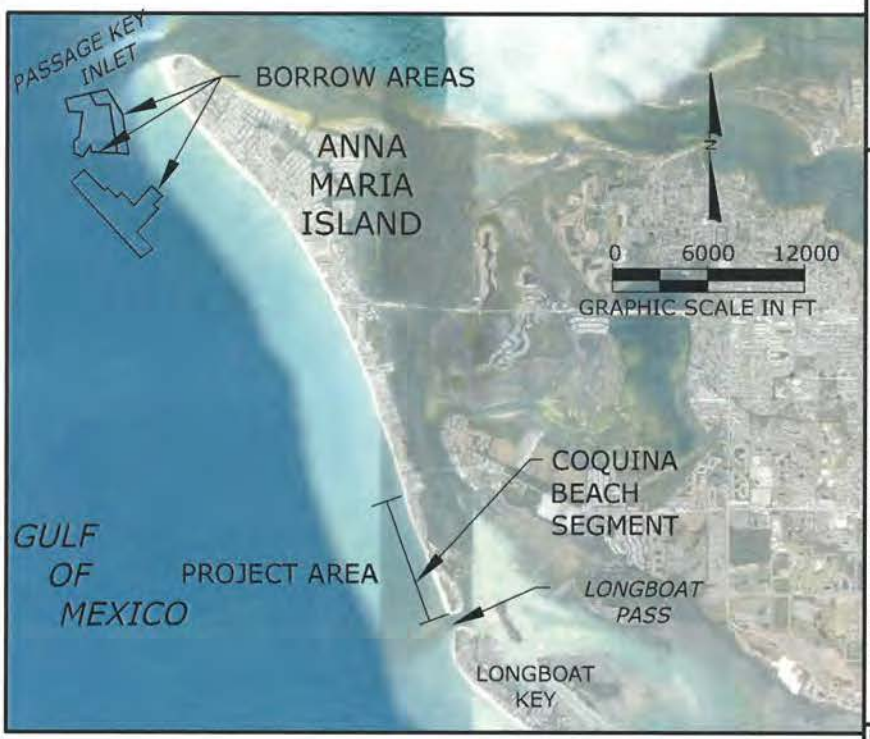
7. BIOLOGICAL OPINION: 53 pages, dated 11/16/2009

8. BIOLOGICAL OPINION: 4 pages, dated 12/19/2013

ATTACHMENT 1

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA





SHEET INDEX

MICHELLE REES PFEIFFER LICENSE No 76209 STATE OF FLORIDA PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER, P.E. NO. 76209

7/19/19
DATE

REVISIONS		
DATE	BY	DESCRIPTION

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
COVER SHEET

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-8116
C.O.A. FL. #9317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 1

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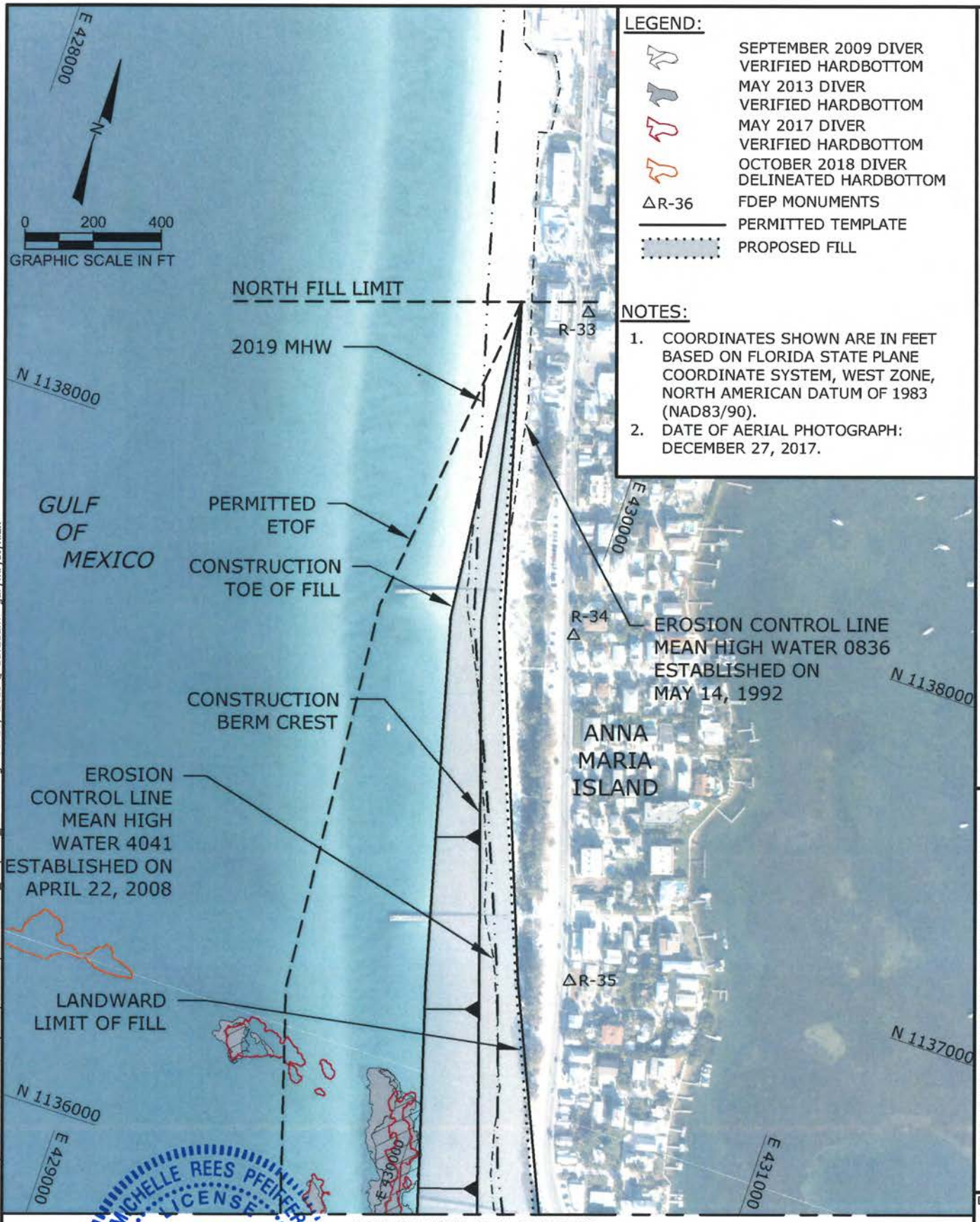

LEGEND:

- SEPTEMBER 2009 DIVER VERIFIED HARDBOTTOM
- MAY 2013 DIVER VERIFIED HARDBOTTOM
- MAY 2017 DIVER VERIFIED HARDBOTTOM
- OCTOBER 2018 DIVER DELINEATED HARDBOTTOM
- △R-36 FDEP MONUMENTS
- PERMITTED TEMPLATE
- PROPOSED FILL

NOTES:

1. COORDINATES SHOWN ARE IN FEET BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83/90).
2. DATE OF AERIAL PHOTOGRAPH: DECEMBER 27, 2017.

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
PLAN VIEW

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 2

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER LICENSE No 76209 STATE OF FLORIDA PROFESSIONAL ENGINEER

MICHELLE REES PFEIFFER P.E. NO. 76209

7/19/19
DATE

REVISIONS

DATE	BY	DESCRIPTION

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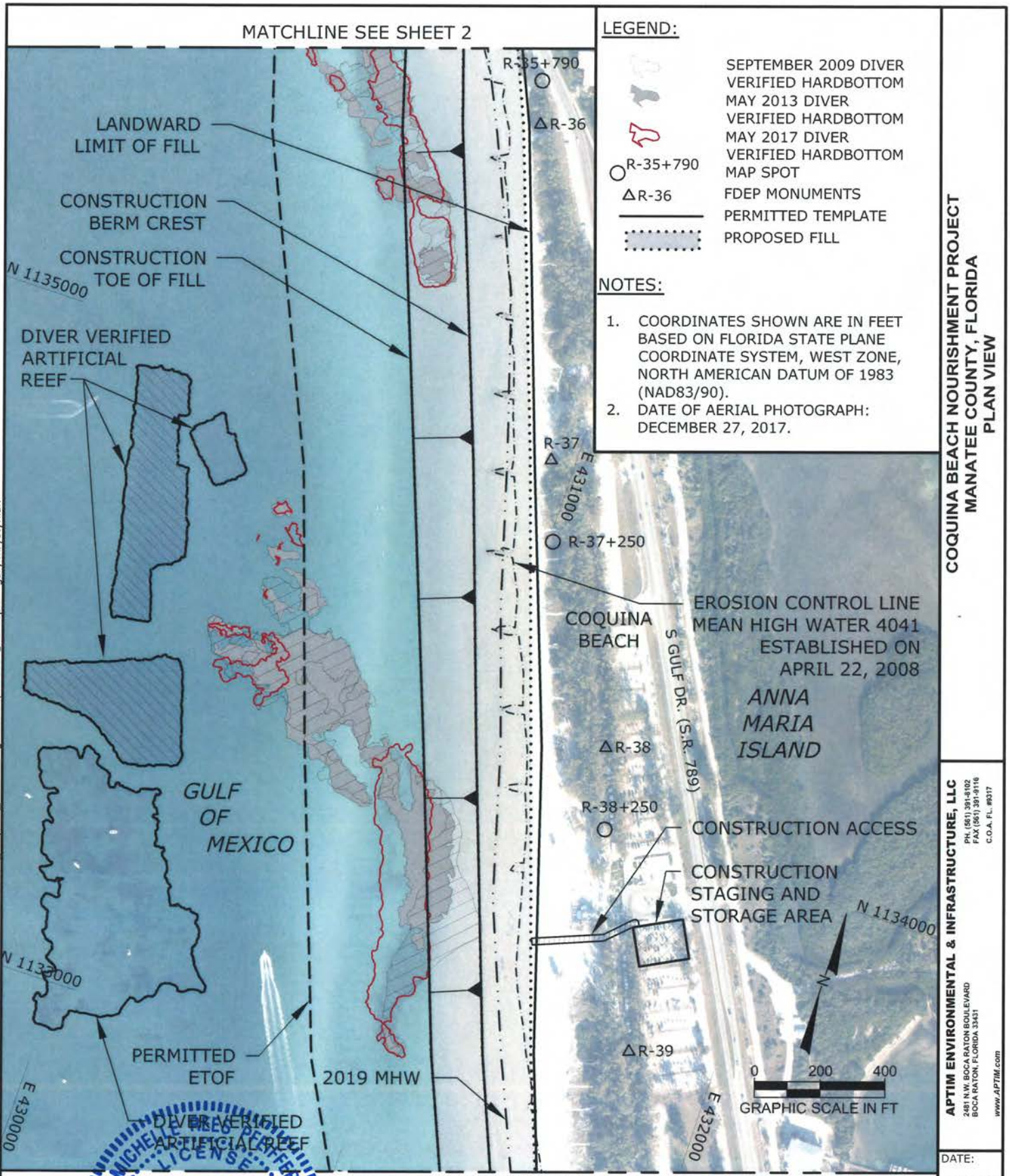

LEGEND:

- SEPTEMBER 2009 DIVER VERIFIED HARDBOTTOM
- MAY 2013 DIVER VERIFIED HARDBOTTOM
- MAY 2017 DIVER VERIFIED HARDBOTTOM
- R-35+790 MAP SPOT
- R-36 FDEP MONUMENTS
- PERMITTED TEMPLATE
- PROPOSED FILL

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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
PLAN VIEW

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 3

REVISIONS

DATE	BY	DESCRIPTION

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER LICENSE No 76209 STATE OF FLORIDA PROFESSIONAL ENGINEER

MICHELLE REES PFEIFFER P.E. NO. 76209

7/19/19
DATE

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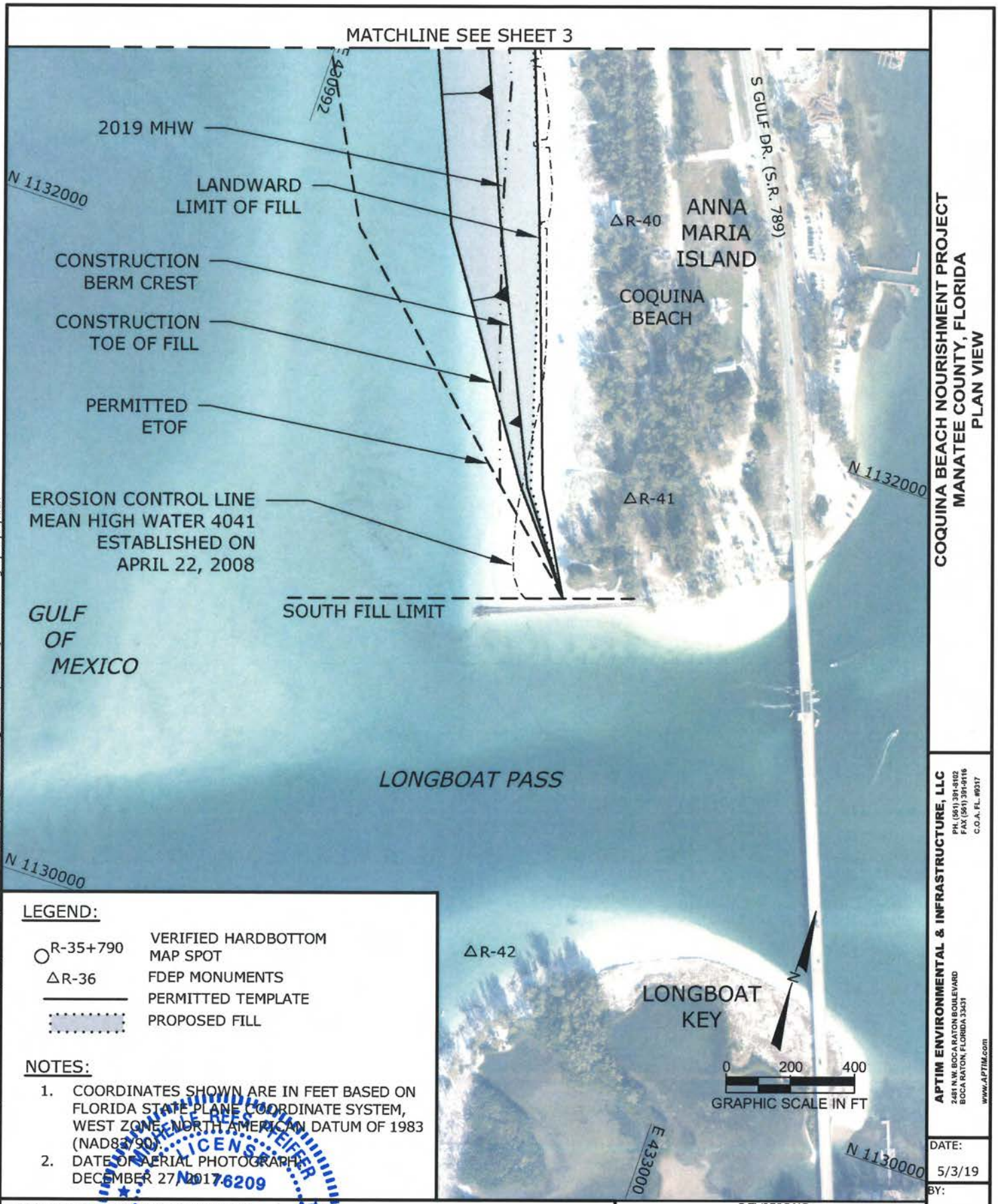


LEGEND:

○R-35+790	VERIFIED HARDBOTTOM MAP SPOT
△R-36	FDEP MONUMENTS
———	PERMITTED TEMPLATE
·····	PROPOSED FILL

NOTES:

1. COORDINATES SHOWN ARE IN FEET BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83/90).
2. DATE OF AERIAL PHOTOGRAPH: DECEMBER 27, 2017.

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER, P.E. NO. 76209

7/19/19
DATE

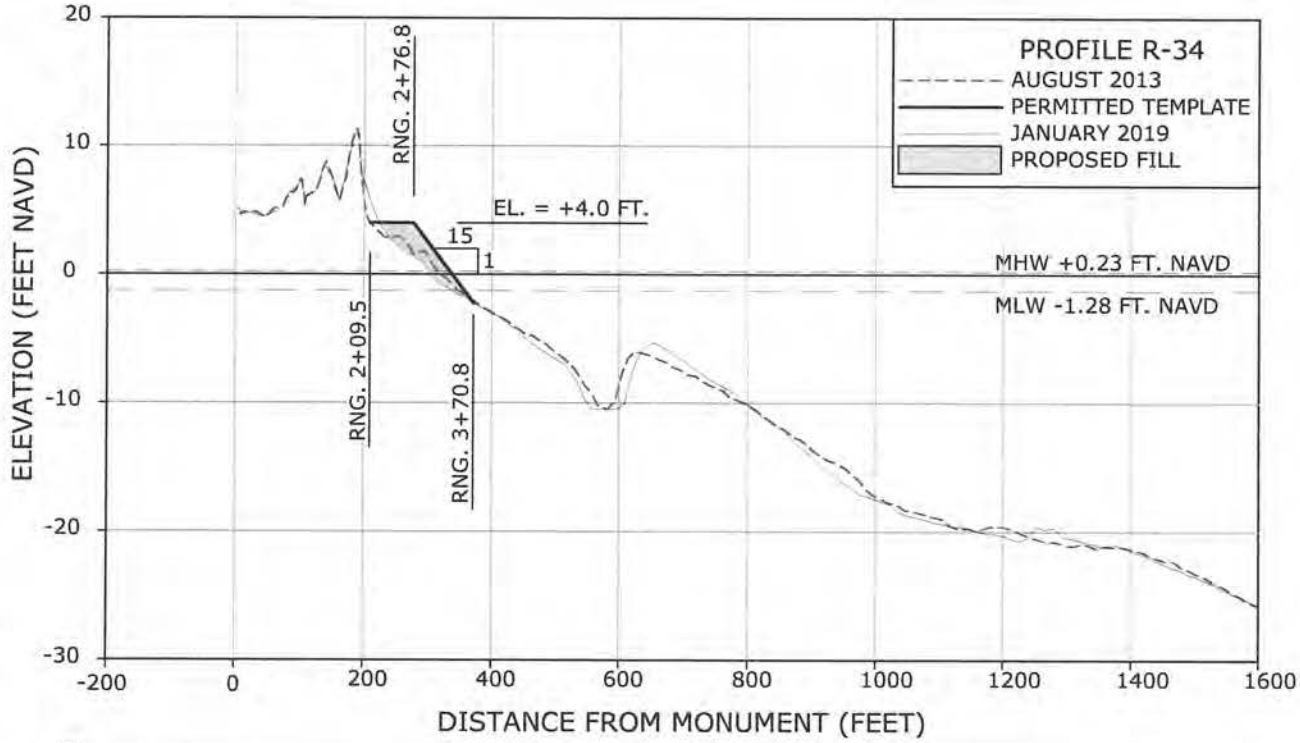
STATE OF FLORIDA — MICHELLE REES PFEIFFER — LICENSE NO. 76209 — PROFESSIONAL ENGINEER

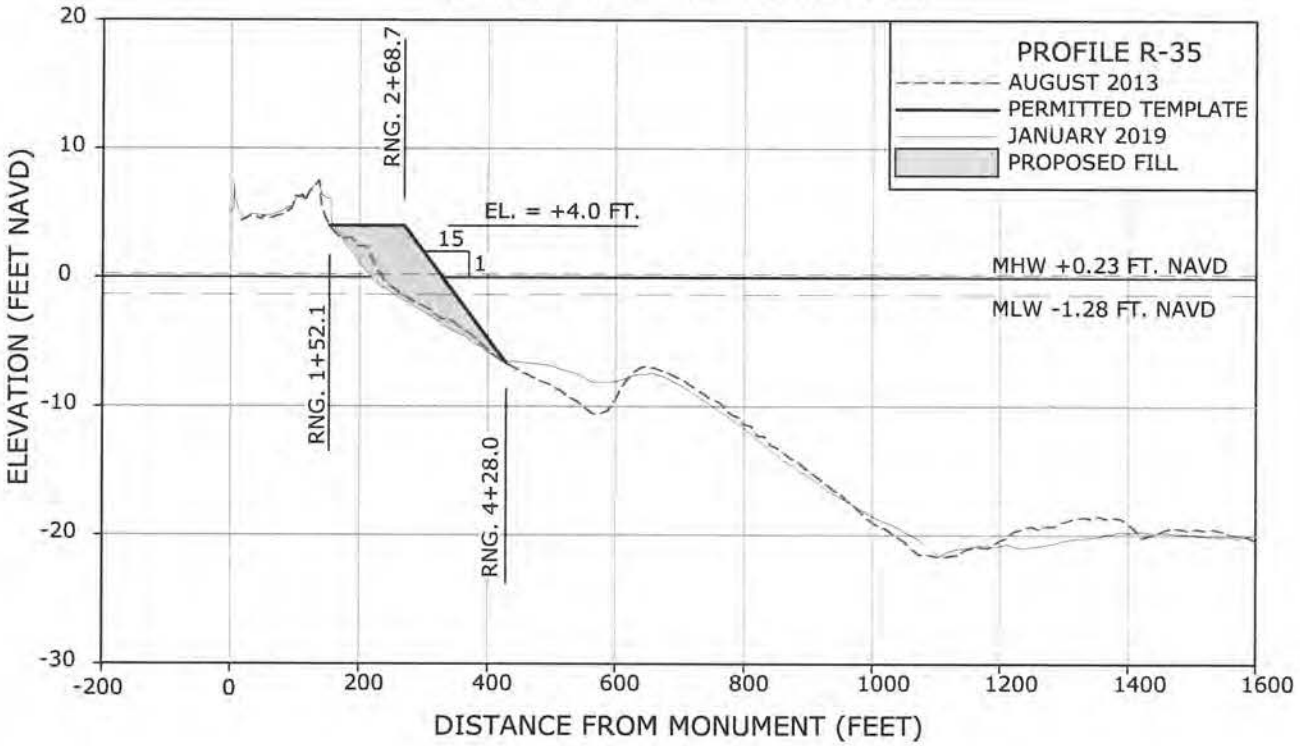
COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
PLAN VIEW

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

REVISIONS		
DATE	BY	DESCRIPTION

DATE: 5/3/19
BY: GK
COMM NO.: 1131002940
SHEET: 4





NOTE:

1. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ELEVATIONS PUBLISHED IN NAVD 88, FROM LAND BOUNDARY INFORMATION SYSTEM (LABINS) BASED ON EPOCH 1983-2001 TIDE INTERPOLATION POINT IDENTIFICATION NUMBER 200904.

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEFFER PE. NO. 76209

7/19/19

MICHELLE REES PFEFFER — No 76209 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

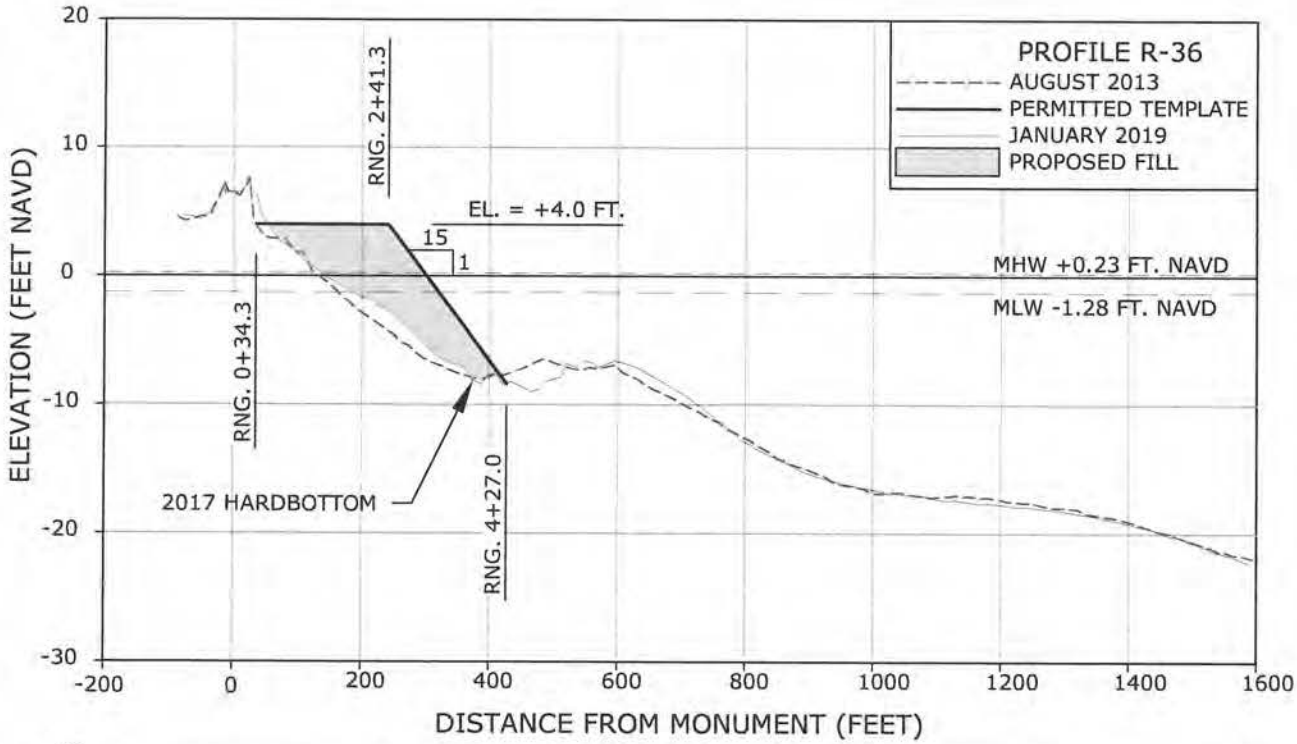
REVISIONS		
DATE	BY	DESCRIPTION

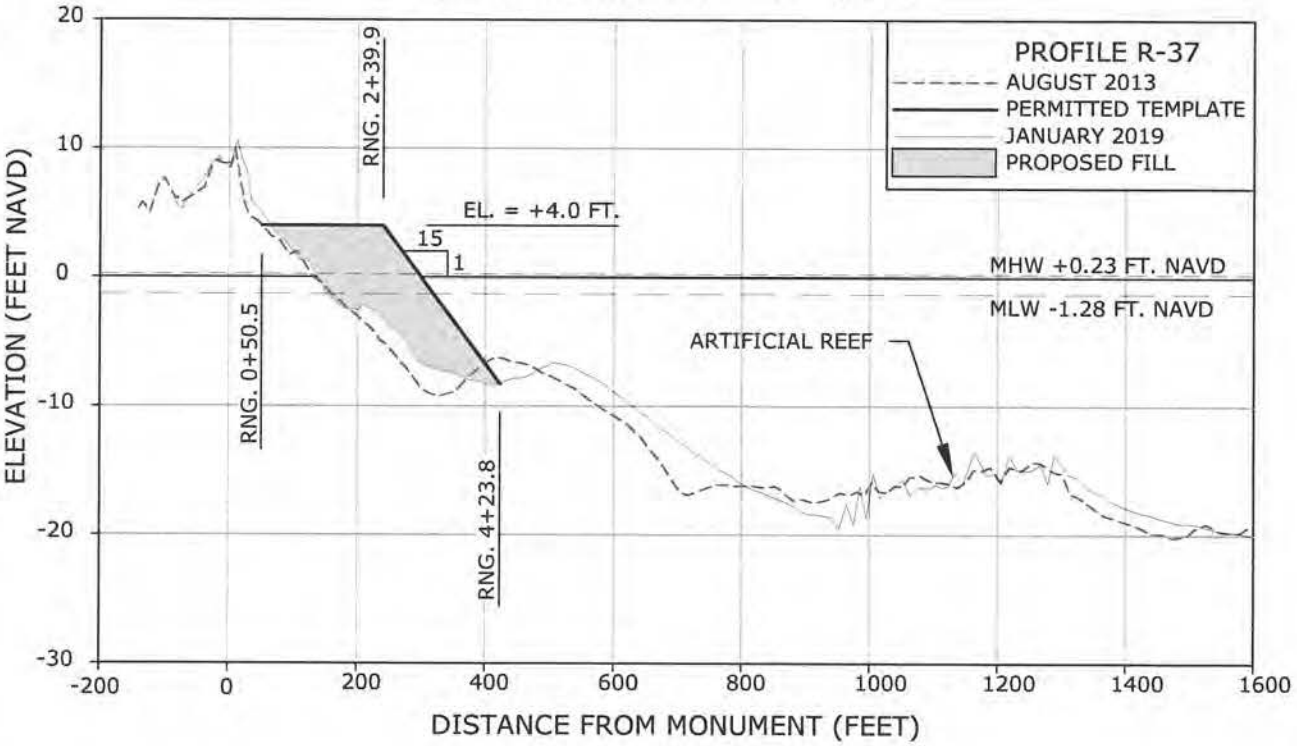
COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
CROSS SECTIONS

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #8317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 5

P:\Manatee\6312940585 - WA 1 - Coquina Beach Services\CAD\Permits\6312940585P Coquina XS.dwg - Jul 17, 2019 @ 2:55pm - gary.krystyniak





NOTE:

1. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ELEVATIONS PUBLISHED IN NAVD 88, FROM LAND BOUNDARY INFORMATION SYSTEM (LABINS) BASED ON EPOCH 1983-2001 TIDE INTERPOLATION POINT IDENTIFICATION NUMBER 200904.

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FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER
No 76209
STATE OF
PROFESSIONAL ENGINEER

Michelle Pfeiffer

MICHELLE REES PFEIFFER, P.E. NO. 76209

7/19/19

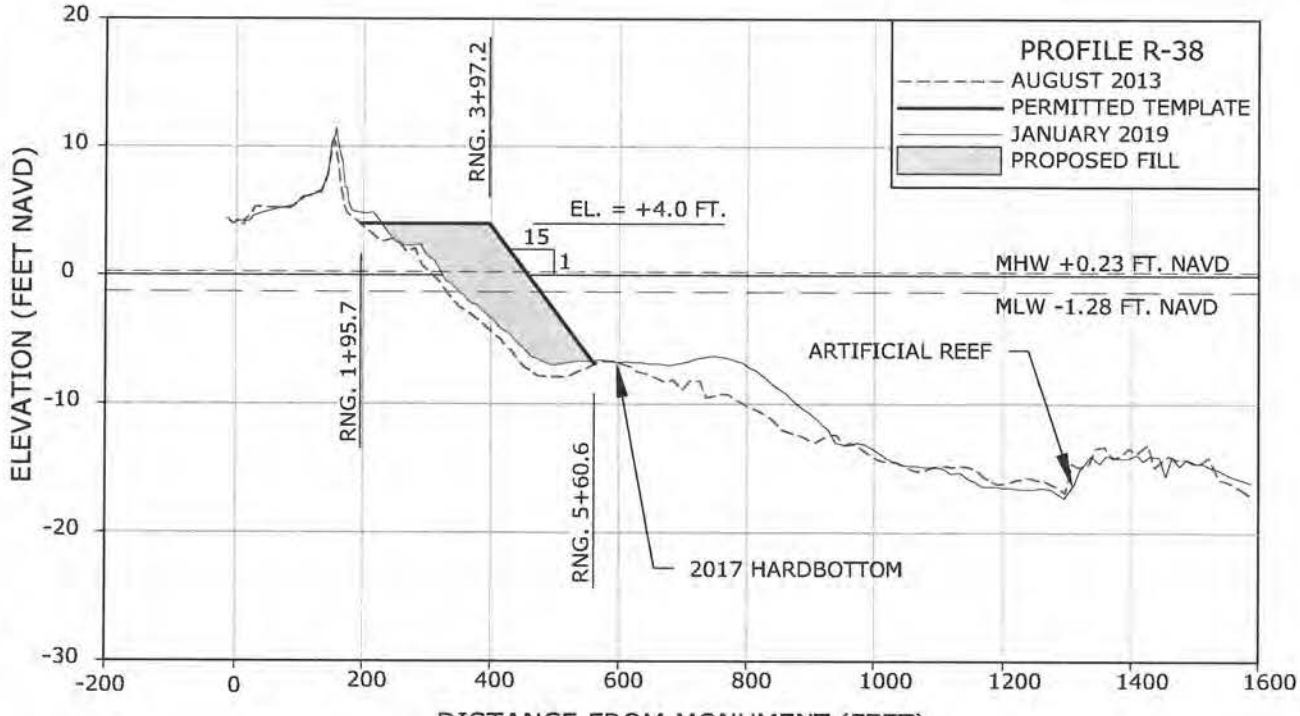
REVISIONS		
DATE	BY	DESCRIPTION

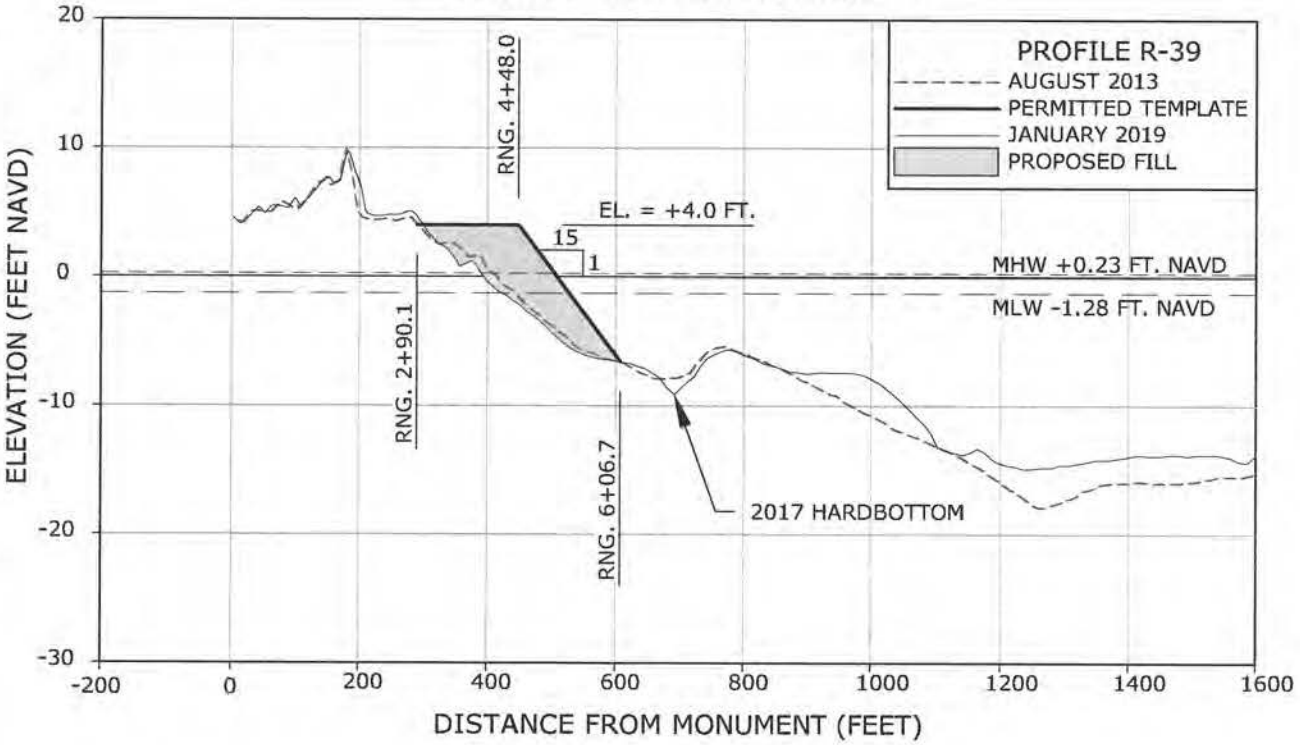
COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
CROSS SECTIONS

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 6

P:\Manatee\6312940585 - WA 1 - Coquina Beach Services\CAD\Permits\6312940585P Coquina XS.dwg - Jul 17, 2019 @ 1:44pm - gary.krystyniak





NOTE:

1. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ELEVATIONS PUBLISHED IN NAVD 88, FROM LAND BOUNDARY INFORMATION SYSTEM (LABINS) BASED ON EPOCH 1983-2001 TIDE INTERPOLATION POINT IDENTIFICATION NUMBER 200904.

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER, P.E. NO. 76209

7/19/19

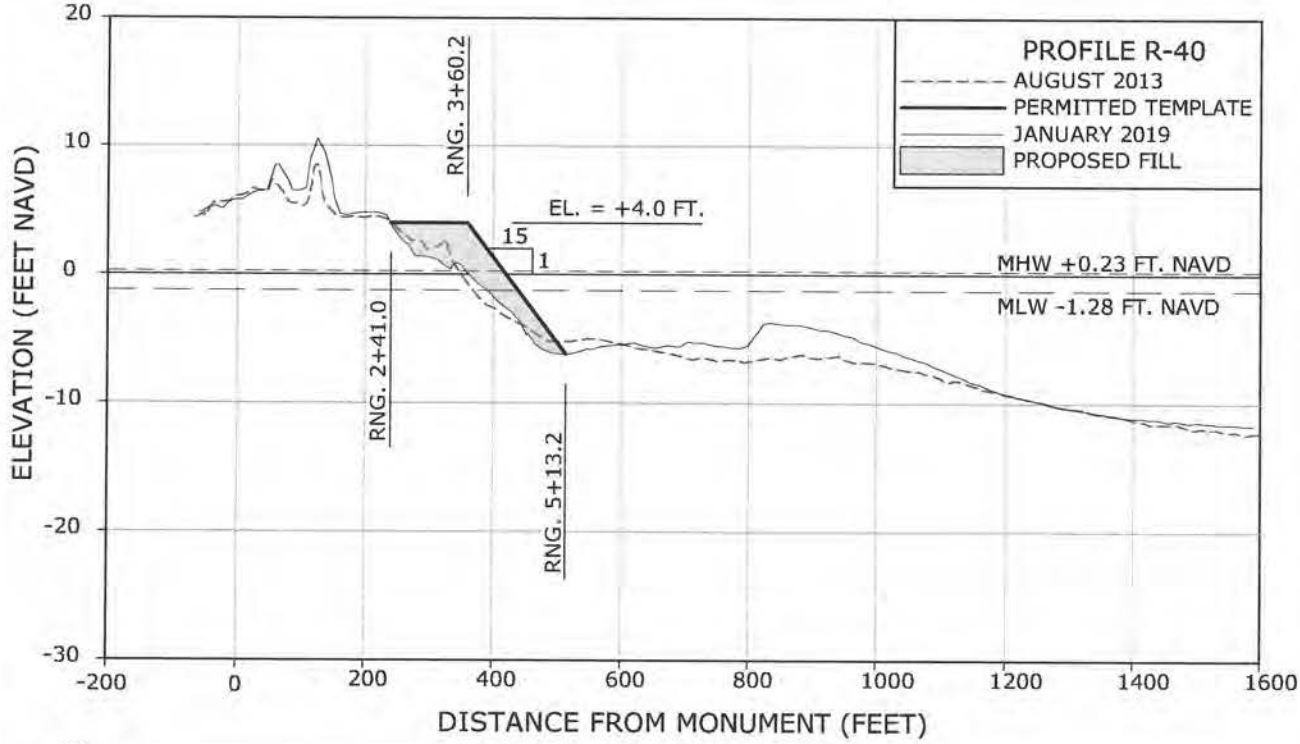
MICHELLE REES PFEIFFER LICENSE No. 76209 STATE OF FLORIDA PROFESSIONAL ENGINEER

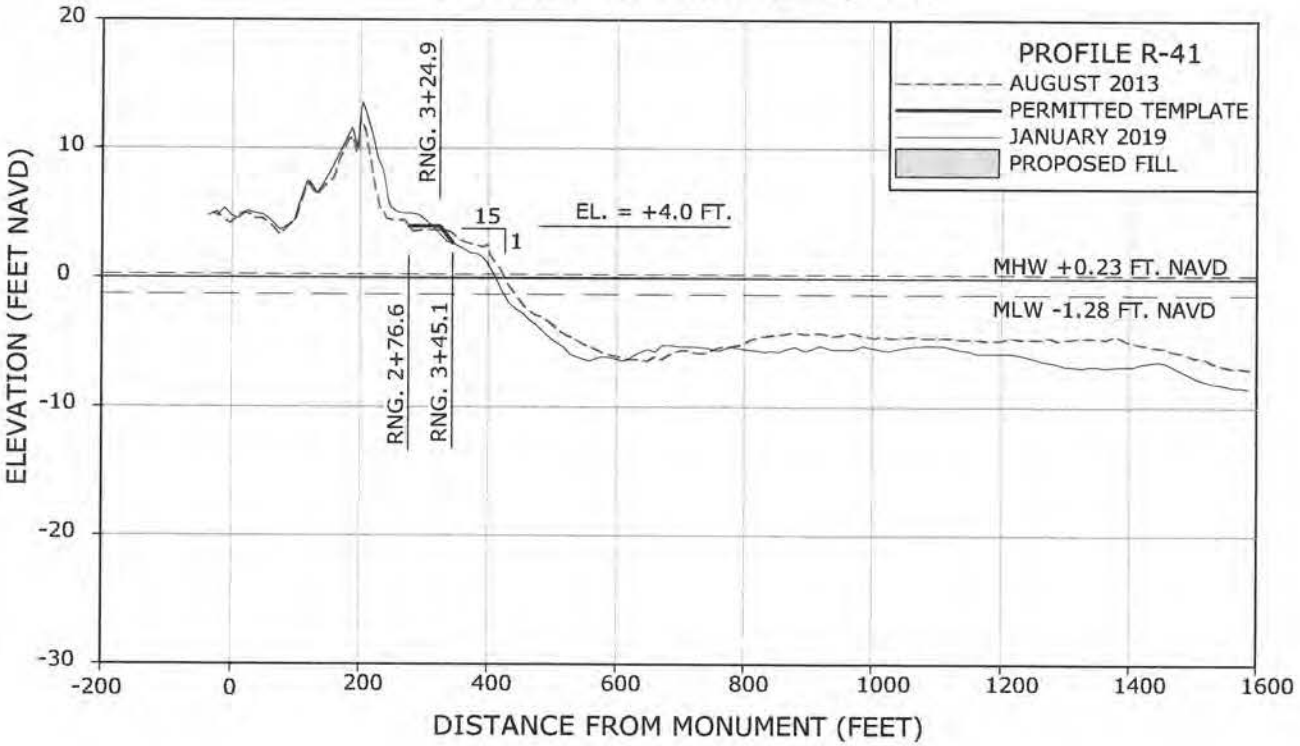
REVISIONS		
DATE	BY	DESCRIPTION

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
CROSS SECTIONS

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #8317
www.APTIM.com

DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 7





NOTE:

1. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ELEVATIONS PUBLISHED IN NAVD 88, FROM LAND BOUNDARY INFORMATION SYSTEM (LABINS) BASED ON EPOCH 1983-2001 TIDE INTERPOLATION POINT IDENTIFICATION NUMBER 200904.

MICHELLE REES PFEIFFER No. 76209 STATE OF FLORIDA PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

MICHELLE REES PFEIFFER PE. NO. 76209

7/19/19

REVISIONS		
DATE	BY	DESCRIPTION

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
CROSS SECTIONS

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
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FAX (561) 391-9116
C.O.A. FL. #8317
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DATE: 6/20/19
BY: GK
COMM NO.: 1131002940
SHEET: 8

P:\Manatee\631294058S - WA 1 - Coquina Beach Services\CAD\Permits\631294058SP_Coquina_XS.dwg - Jul 16, 2019 @ 11:32am - gary.krystyniak

C:\Users\kristina.mccoy\appdata\local\temp\AcPublish_3556\6312940585P_BA-1_PV.dwg - Jul 06, 2019 @ 3:23pm - Kristina.McCoy

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY P.G. NO. PG2718

STATE OF FLORIDA — KRISTINA MCCOY — LICENSED PROFESSIONAL GEOLOGIST

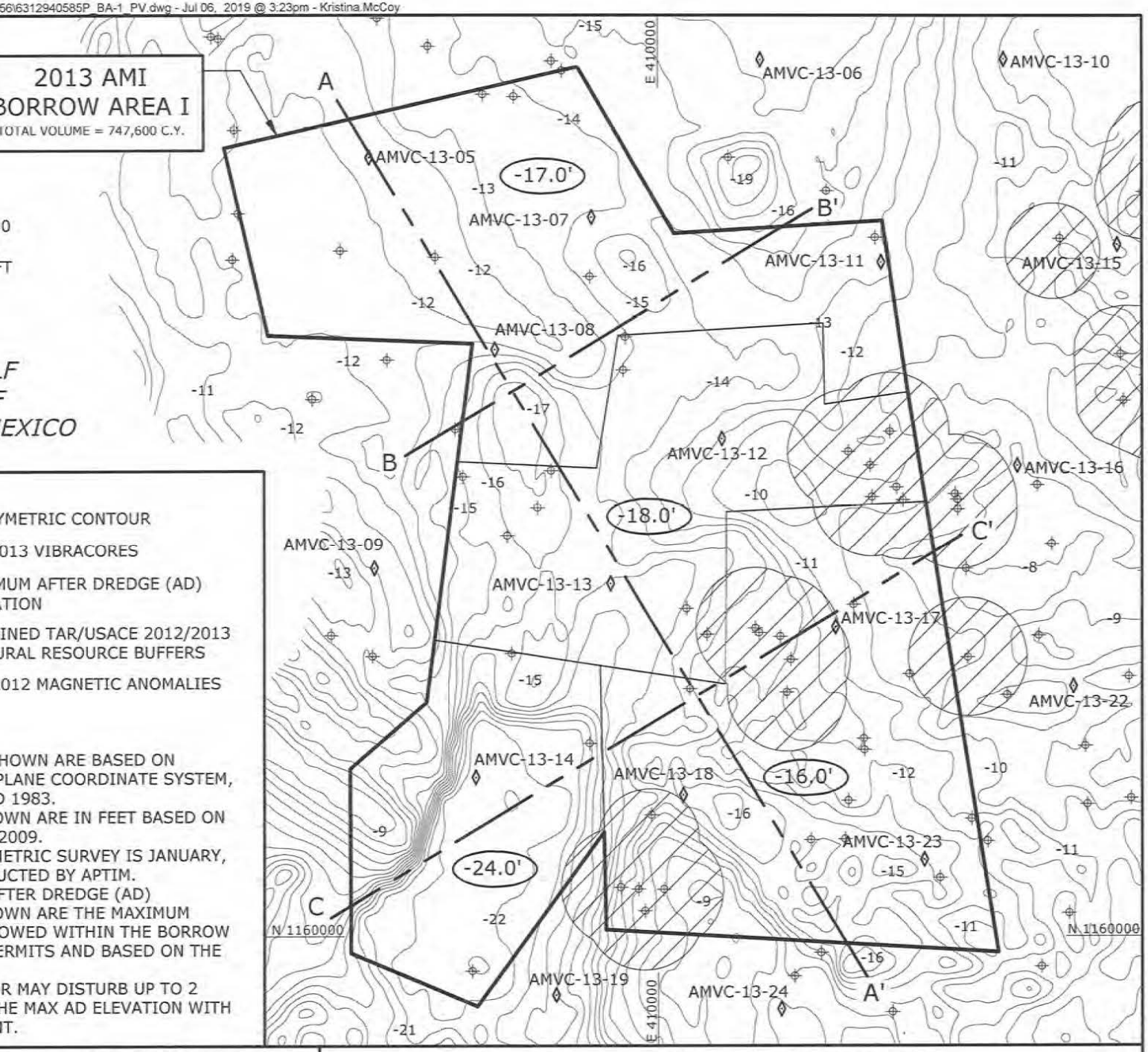
7/6/19
DATE

2013 AMI BORROW AREA I

TOTAL VOLUME = 747,600 C.Y.

N

0 300 600
GRAPHIC SCALE IN FT



LEGEND:

- -11 — BATHYMETRIC CONTOUR
- ◊ — CPE 2013 VIBRACORES
- -16.0' — MAXIMUM AFTER DREDGE (AD) ELEVATION
- COMBINED TAR/USACE 2012/2013 CULTURAL RESOURCE BUFFERS
- TAR 2012 MAGNETIC ANOMALIES

NOTES:

1. COORDINATES SHOWN ARE BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 1983.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN ARE THE MAXIMUM ELEVATIONS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
5. THE CONTRACTOR MAY DISTURB UP TO 2 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.

DATE	BY	REVISIONS DESCRIPTION

BY:	DATE:	COMM NO.:	SHEET:
GK	6/26/19	6312940585	9

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
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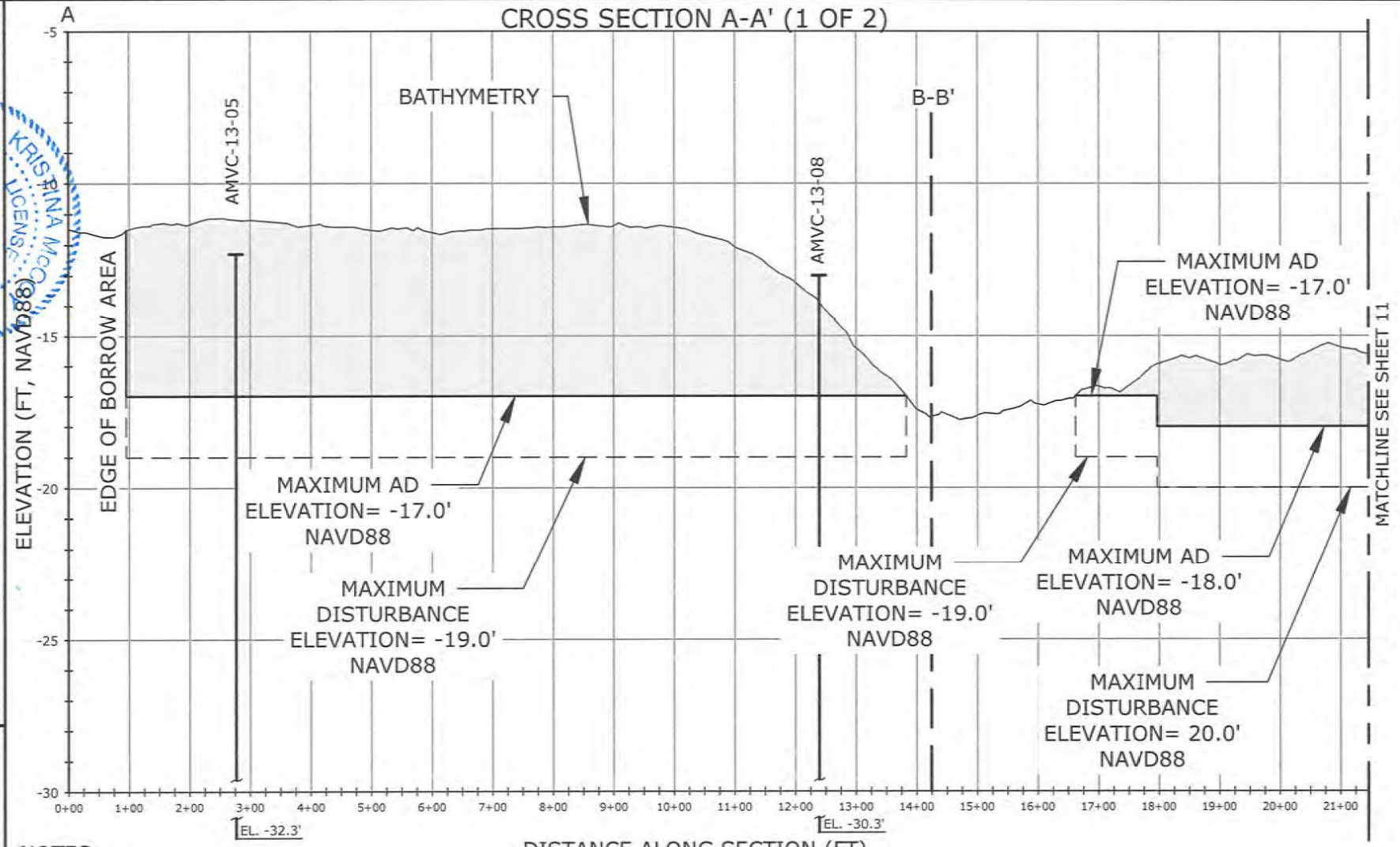
COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I PLAN VIEW

P:\Manatee\631294C585 - WA 1 - Coquina Beach Services\Engineering\Permit Sketches\DWG\6312940585P_BA-1_XS.dwg - Jul 06, 2019 @ 3:53pm - Kristina.McCoy

CROSS SECTION A-A' (1 OF 2)



NOTES:

1. SEE SHEET 9 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN ARE THE MAXIMUM ELEVATIONS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
5. THE CONTRACTOR MAY DISTURB UP TO 2 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.
6. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO REPRESENT SIMILAR MATERIAL.
7. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.

HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY, P.G. NO. 2718

STATE OF FLORIDA PROFESSIONAL GEOLOGIST

KRISTINA MCCOY LICENSE 2718

DATE 7/26/19

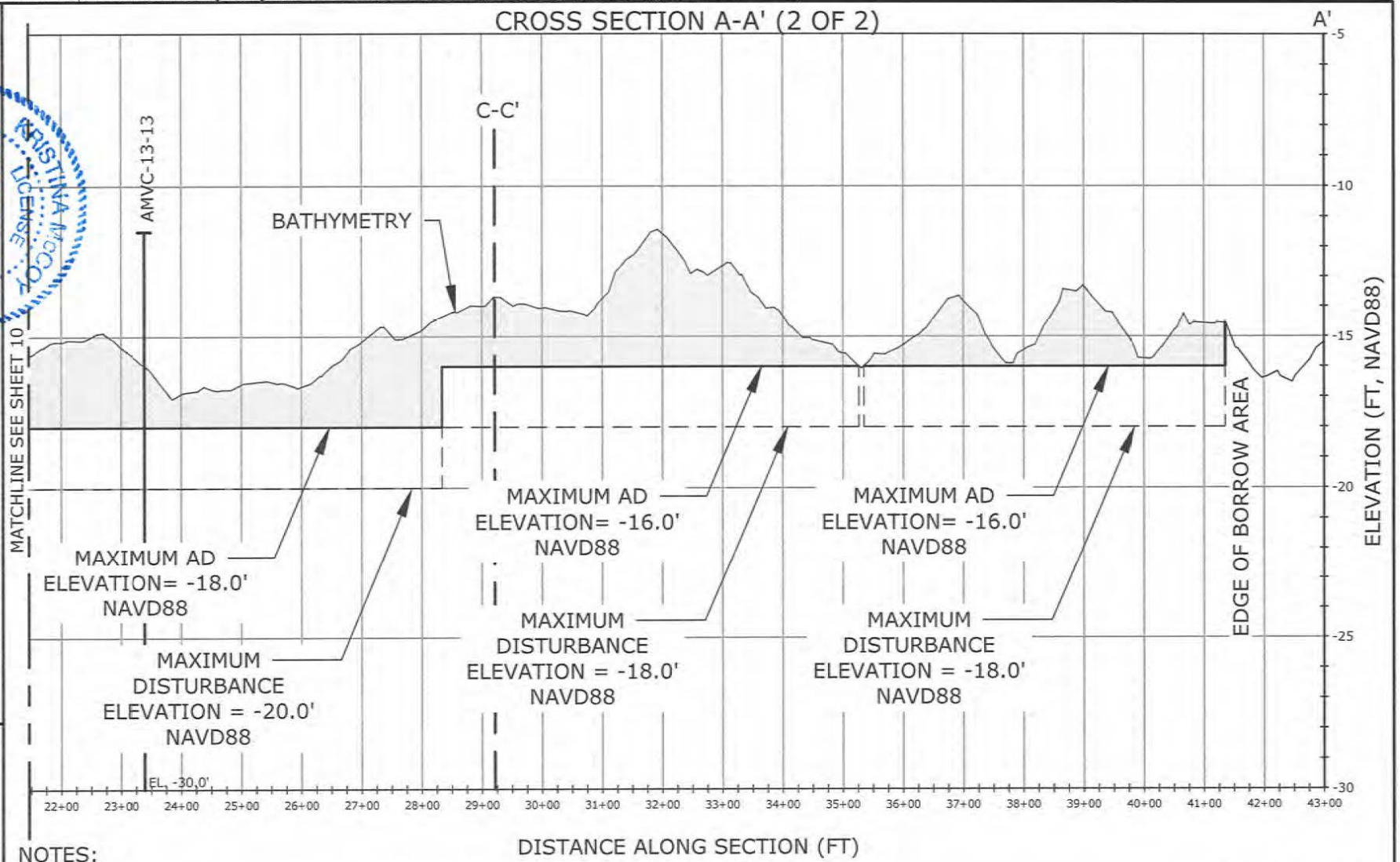
DATE	BY	REVISIONS DESCRIPTION

SHEET:	COMM NO.:	BY:	DATE:
10	631294585	GK	6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I CROSS SECTION A-A'

CROSS SECTION A-A' (2 OF 2)



NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

KRISTINA M. COY, P.E. NO. 62718
STATE OF FLORIDA
KRISTINA M. COY
LICENSE NO. 62718
PROFESSIONAL ENGINEER

DATE 7/6/19

NOTES:

1. SEE SHEET 9 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS		
DESCRIPTION	BY	DATE

SHEET:	COMM NO.:	BY:	DATE:
11	6312940585	GK	6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I CROSS SECTION A-A'

P:\Manatee\6312940585 - WA 1 - Coquina Beach Services\Engineering\Permit Sketches\DWG\6312940585P_BA-1_XS.dwg - Jul 06, 2019 @ 3:53pm - Kristina.McCoy

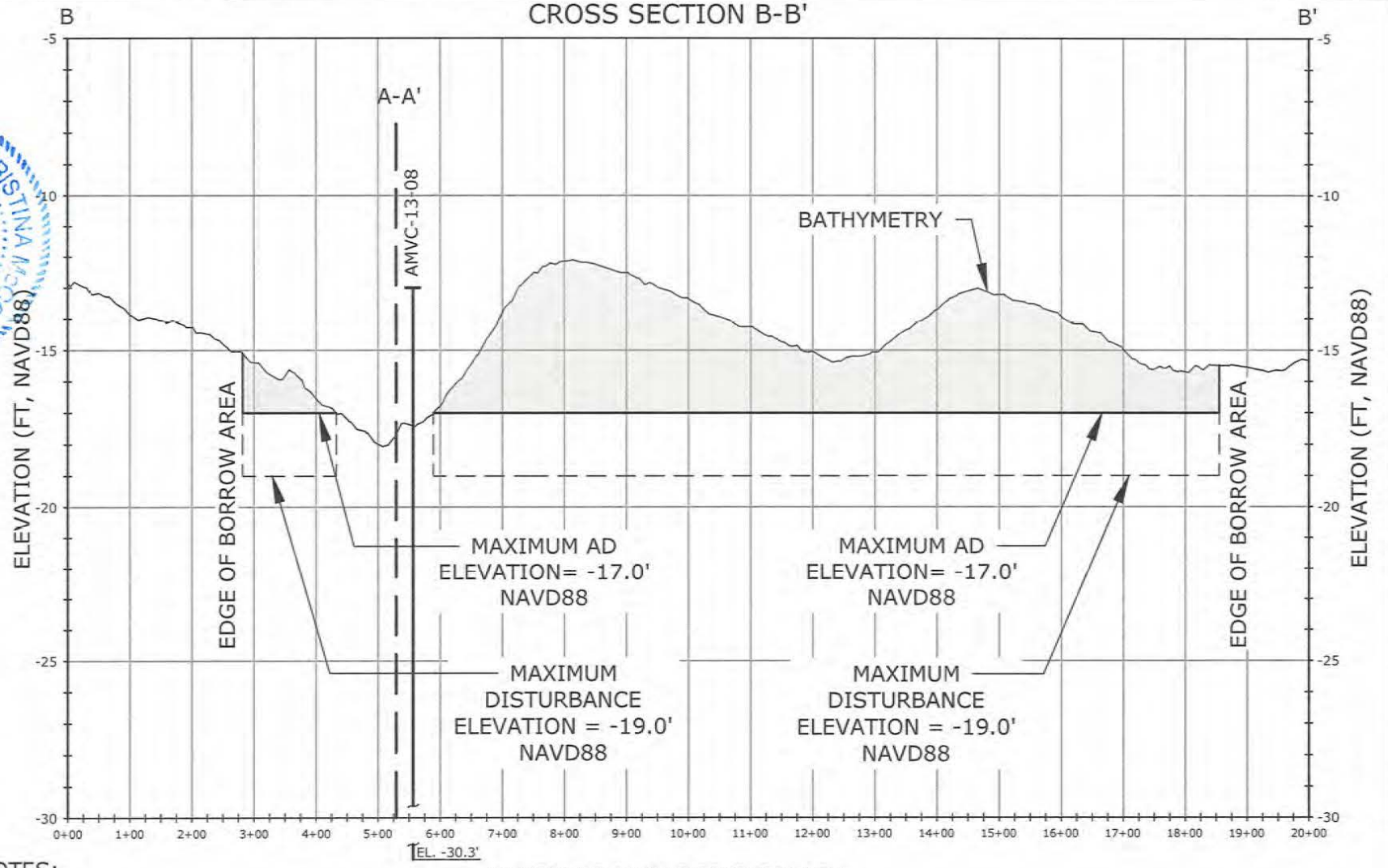
NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY P.E. NO. PE87718

STATE OF FLORIDA — KRISTINA MCCOY — LICENSE — PROFESSIONAL ENGINEER

7/26/19
DATE

CROSS SECTION B-B'



DISTANCE ALONG SECTION (FT)

NOTES:

1. SEE SHEET 9 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

DATE	BY	REVISIONS DESCRIPTION

COMM NO.:	BY:	DATE:
6312940585	GK	6/26/19

SHEET: 12

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
www.APTIM.com

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I CROSS SECTION B-B'

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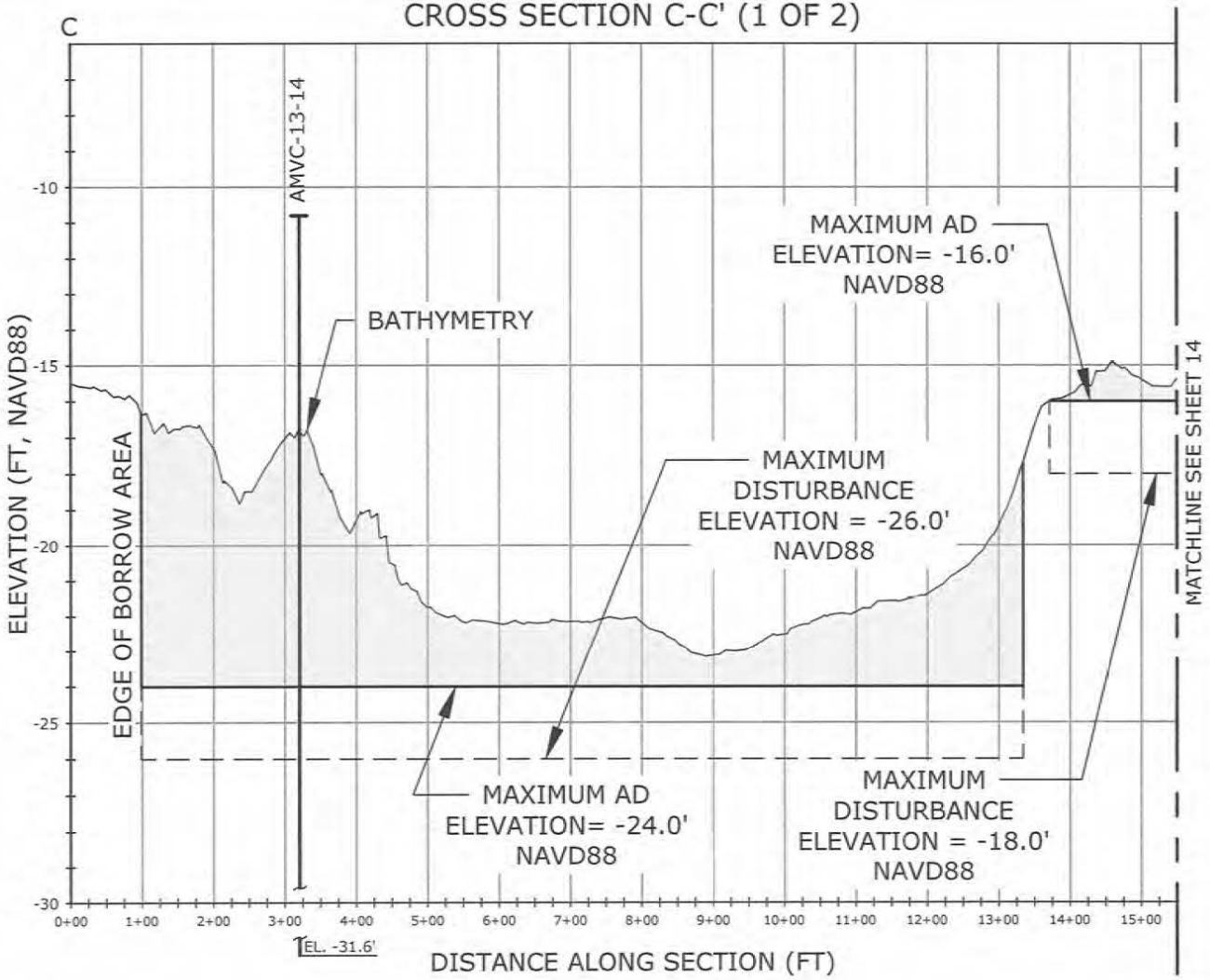
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY, P.G. NO. PG2716

DATE 7/9/19

KRISTINA MCCOY LICENSE NO. PG2716 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

CROSS SECTION C-C' (1 OF 2)



NOTES:

1. SEE SHEET 9 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS		
DESCRIPTION	BY	DATE

SHEET:	COMM NO.:	BY:	DATE:
13	6312940585	GK	6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I CROSS SECTION C-C'

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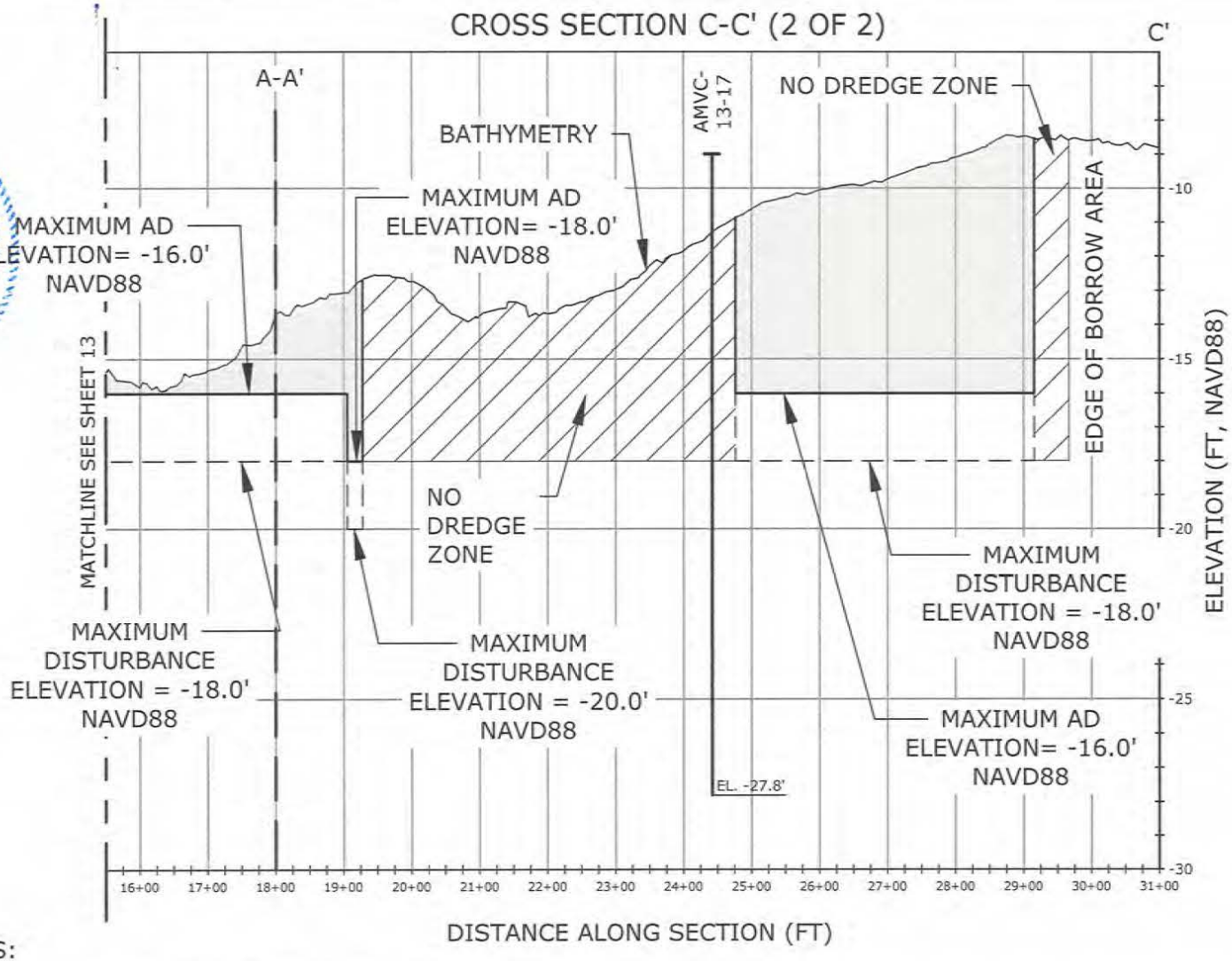
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY, P.G. NO. 2478

STATE OF FLORIDA
KRISTINA MCCOY
LICENSE NO. 2478
CHIEF HYDROLOGIST

DATE 7/26/19

CROSS SECTION C-C' (2 OF 2)



NOTES:

1. SEE SHEET 9 FOR LOCATION OF CROSS SECTION LINE.
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3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

DATE	BY	REVISIONS DESCRIPTION

SHEET:	COMM NO.:	BY:	DATE:
14	6312940585	GK	6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #9317
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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA I CROSS SECTION C-C'

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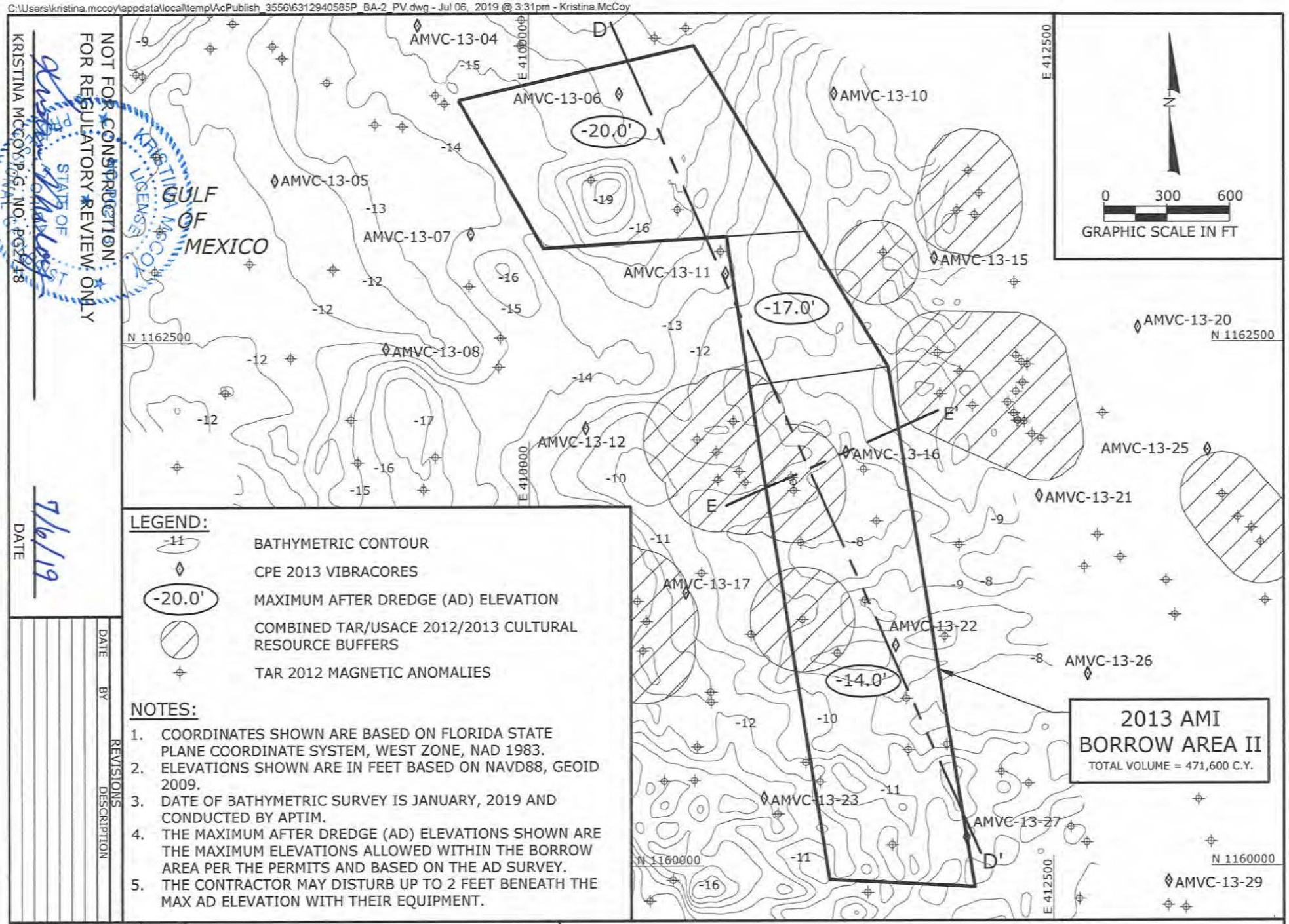

NOT FOR CONSTRUCTION
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY, P.G. NO. PG2718

STATE OF FLORIDA
KRISTINA MCCOY
LICENSE NO. PG2718

7/6/19
DATE

LEGEND:

- BATHYMETRIC CONTOUR
- CPE 2013 VIBRACORES
- -20.0' MAXIMUM AFTER DREDGE (AD) ELEVATION
- COMBINED TAR/USACE 2012/2013 CULTURAL RESOURCE BUFFERS
- TAR 2012 MAGNETIC ANOMALIES

NOTES:

1. COORDINATES SHOWN ARE BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 1983.
2. ELEVATIONS SHOWN ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS JANUARY, 2019 AND CONDUCTED BY APTIM.
4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN ARE THE MAXIMUM ELEVATIONS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
5. THE CONTRACTOR MAY DISTURB UP TO 2 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.

2013 AMI BORROW AREA II
TOTAL VOLUME = 471,600 C.Y.

REVISIONS		
DESCRIPTION	BY	DATE

COMM NO.:	6312940585
BY:	GK
DATE:	6/26/19
SHEET:	15

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
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FAX (561) 391-9116
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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA II PLAN VIEW

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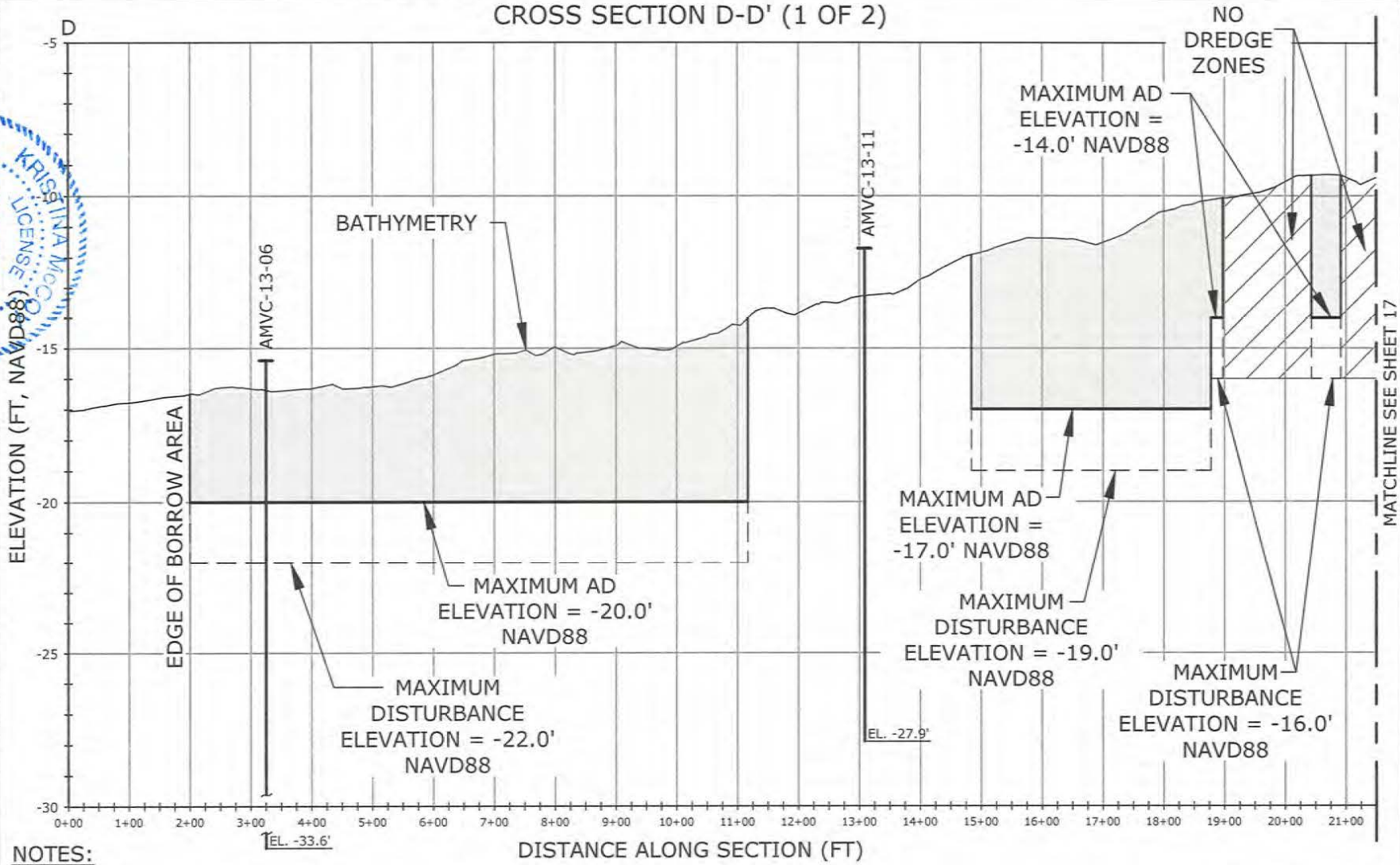
FOR REGULATORY REVIEW ONLY

KRISTINA MCCOY P.G. NO. PG2218

DATE 7/9/19

CROSS SECTION D-D' (1 OF 2)



NOTES:

1. SEE SHEET 15 FOR LOCATION OF CROSS SECTION LINE.
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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS

DESCRIPTION	BY	DATE

SHEET:	COMM NO.:	BY:	DATE:
16	6312940585	GK	6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
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C.O.A. FL. #9317
www.APTIM.com

COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA II CROSS SECTION D-D'

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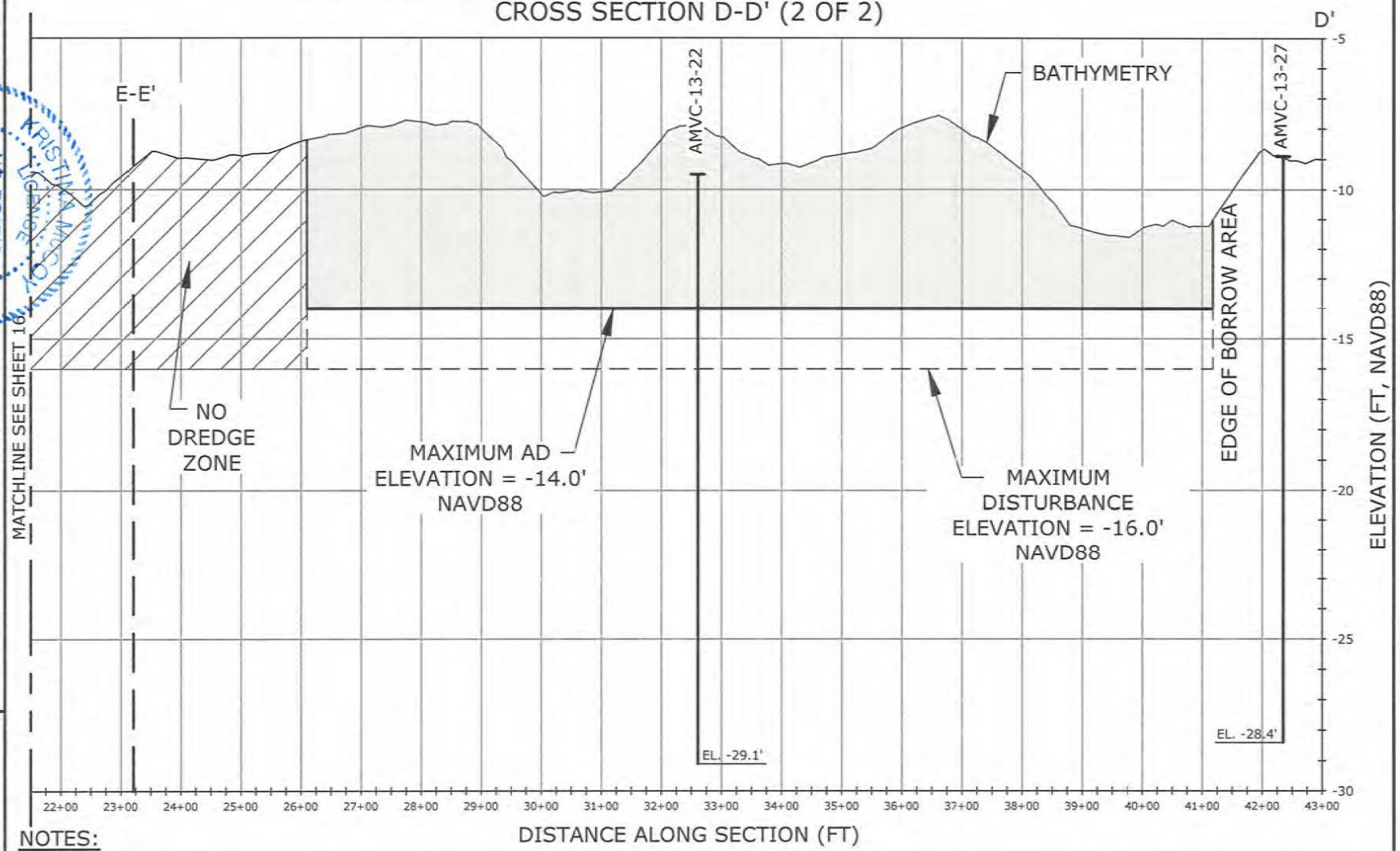
KRISTINA MCCOY, P.G. NO. PG2718

STATE OF FLORIDA — KRISTINA A. MCCOY — LICENSE NO. PG2718

7/6/19
DATE

CROSS SECTION D-D' (2 OF 2)



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HORIZONTAL SCALE
0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS		
DATE	BY	DESCRIPTION

SHEET:	COMM NO.:	BY:	DATE:
17	6312940585	GK	6/26/19

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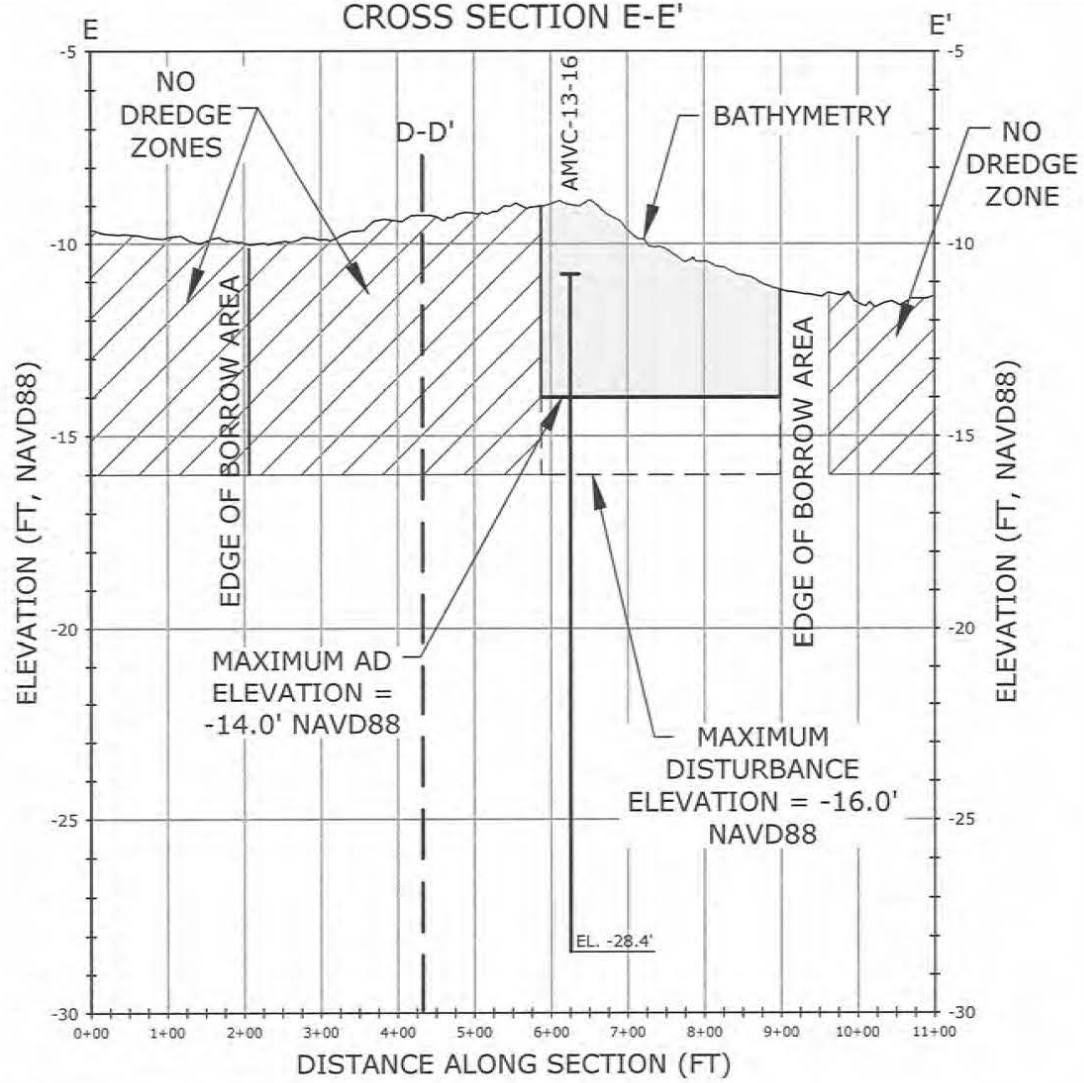
COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA II CROSS SECTION D-D'

CROSS SECTION E-E'



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0 125 250
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

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KRISTINA MCCOY, P.E. NO. PE2718

KRISTINA MCCOY LICENSE NO. PE2718 STATE OF FLORIDA PROFESSIONAL ENGINEER

7/6/19
DATE

DATE	BY	REVISIONS DESCRIPTION

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18	6312940585	GK	6/26/19

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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2013 AMI BORROW AREA II CROSS SECTION E-E'

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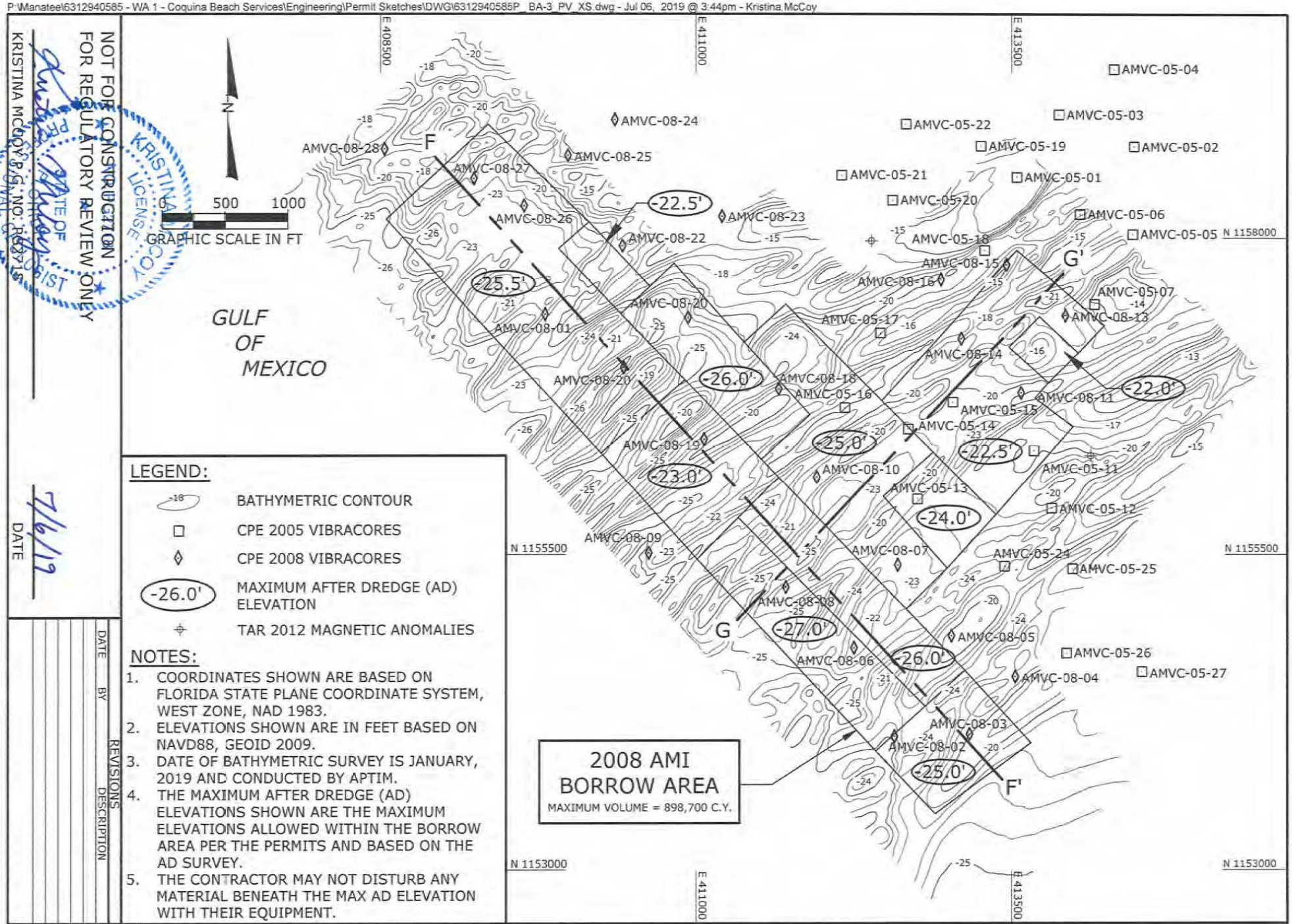

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KRISTINA McCOY, P.G. NO. 2431
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST
KRISTINA J. McCOY
LICENSE NO. 2431

7/6/19
DATE

LEGEND:

- BATHYMETRIC CONTOUR
- CPE 2005 VIBRACORES
- CPE 2008 VIBRACORES
- -26.0' MAXIMUM AFTER DREDGE (AD) ELEVATION
- TAR 2012 MAGNETIC ANOMALIES

NOTES:

1. COORDINATES SHOWN ARE BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 1983.
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DESCRIPTION	BY	DATE

COMM NO.:	6312940585
SHEET:	19
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DATE:	6/26/19

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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2008 AMI BORROW AREA PLAN VIEW

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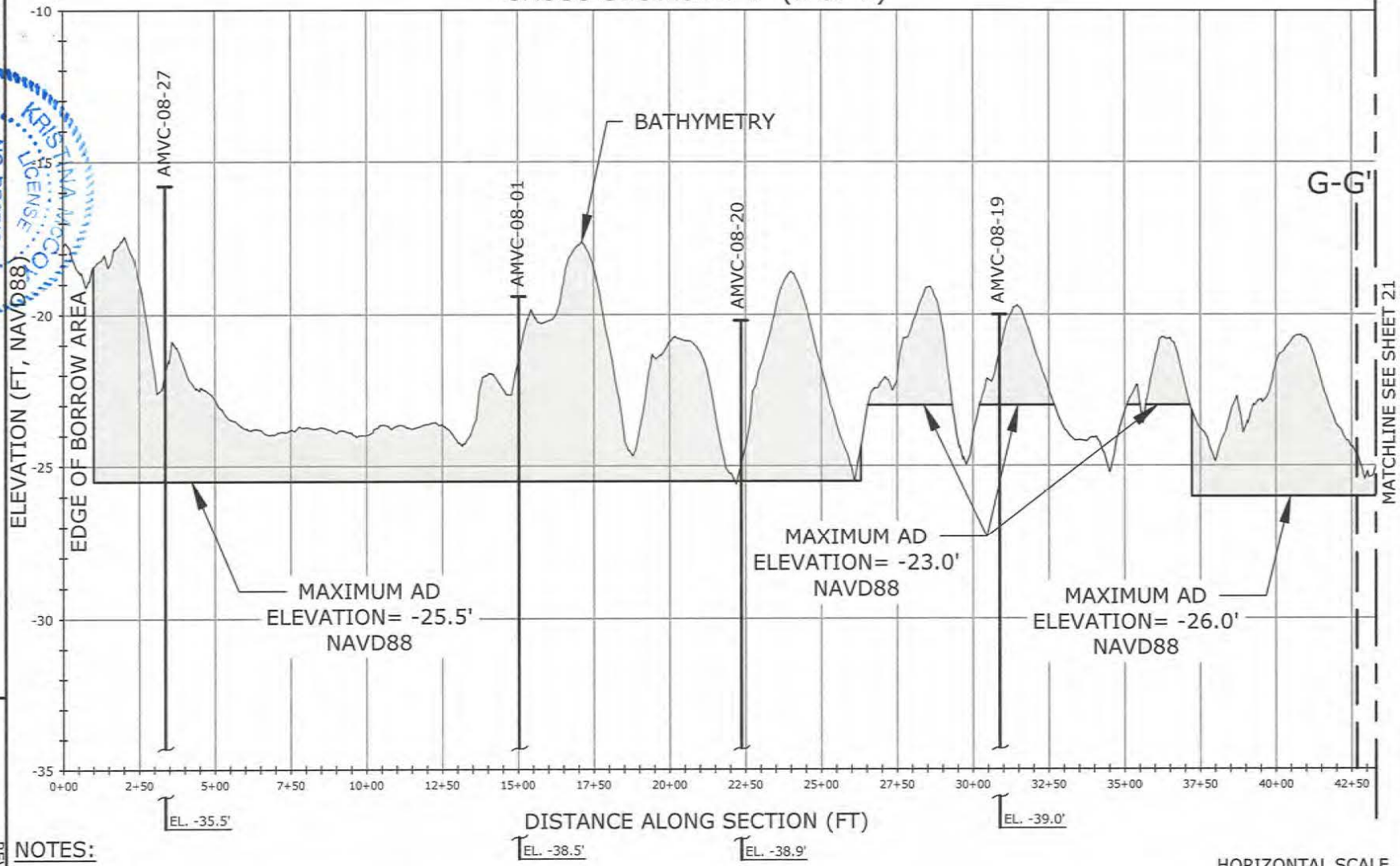
CROSS SECTION F-F' (1 OF 2)



NOT FOR CONSTRUCTION
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KRISTINA MCCOY, P.E. NO. PE72218
STATE OF FLORIDA
KRISTINA MCCOY LICENSE NO. 72218

7/9/19
DATE

NOTES:

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HORIZONTAL SCALE
0 250 500
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS		
DESCRIPTION	BY	DATE

SHEET: 20	COMM NO.: 6312940585	BY: GK	DATE: 6/26/19

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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2008 AMI BORROW AREA CROSS SECTION F-F'

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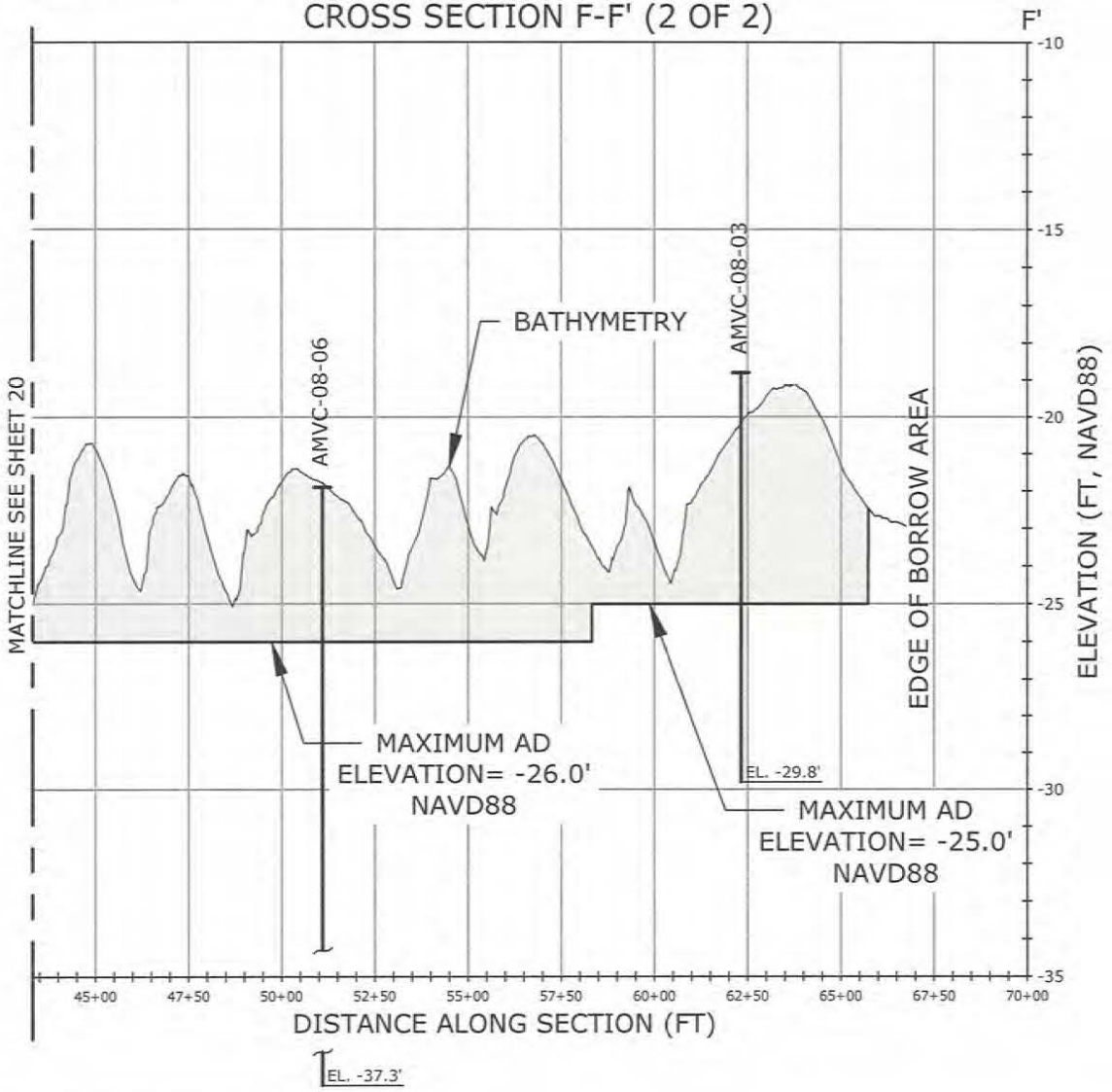
KRISTINA McCOY, P.G. NO. PG2718

KRISTINA McCOY LICENSE NO. PG2718 STATE OF FLORIDA REGISTERED GEOLOGIST

DATE 7/6/19

CROSS SECTION F-F' (2 OF 2)



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GRAPHIC SCALE IN FT

VERTICAL SCALE
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GRAPHIC SCALE IN FT

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DESCRIPTION	BY	DATE

SHEET:	COMM NO.:	BY:	DATE:
21	6312940585	GK	6/26/19

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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2008 AMI BORROW AREA CROSS SECTION F-F'

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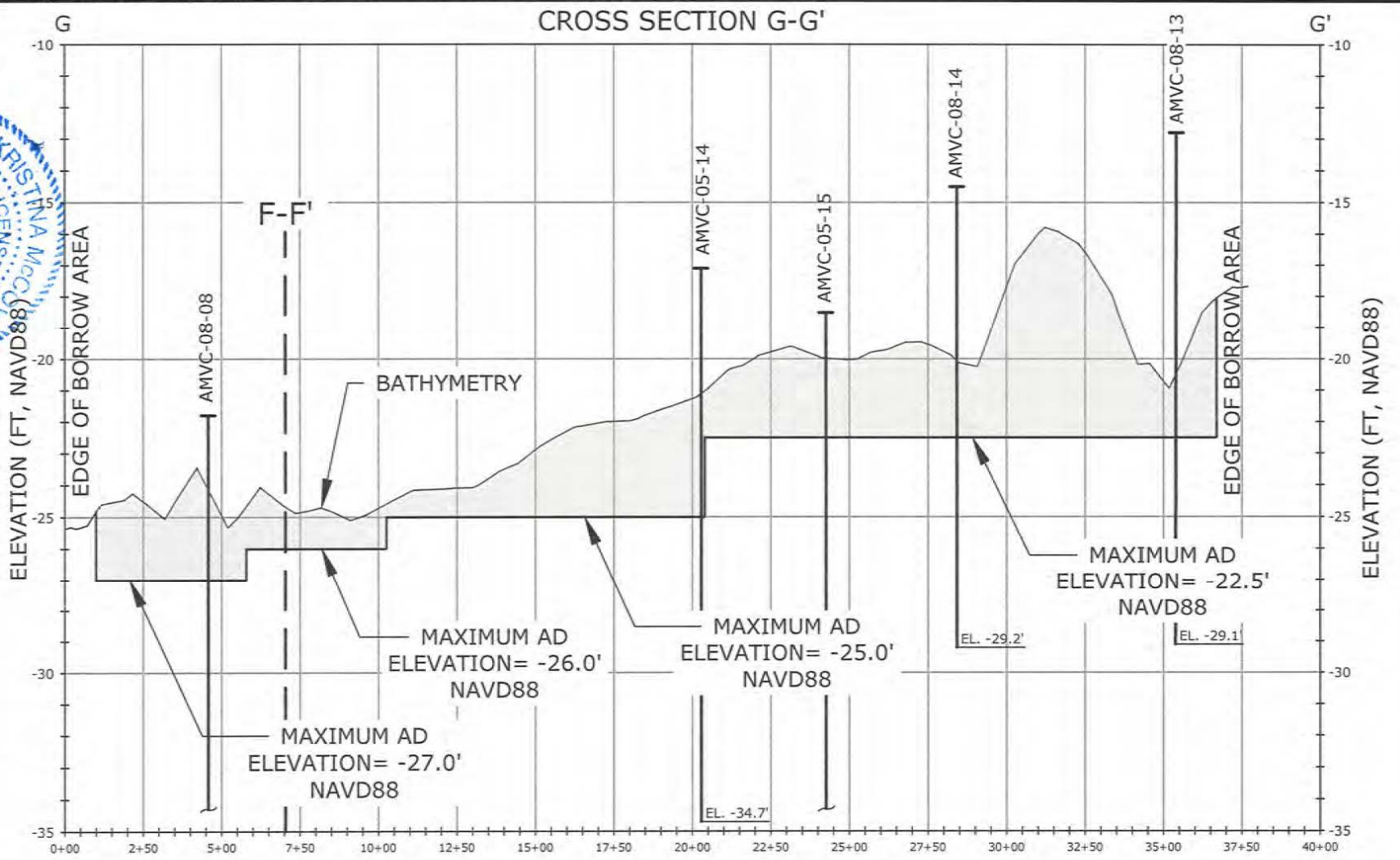
KRISTINA MCCOY, P.G. NO. PG2718
DATE 7/6/19

CROSS SECTION G-G'



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HORIZONTAL SCALE
0 250 500
GRAPHIC SCALE IN FT

VERTICAL SCALE
0 2.5 5
GRAPHIC SCALE IN FT

REVISIONS		
DESCRIPTION	BY	DATE

SHEET: 22	COMM NO.: 6312940585	BY: GK	DATE: 6/26/19

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC
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COQUINA BEACH NOURISHMENT PROJECT
MANATEE COUNTY, FLORIDA
2008 AMI BORROW AREA CROSS SECTION G-G'

ATTACHMENT 2

FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

October 9, 2019

Angie Dunn, Chief
Environmental Branch
Jacksonville District
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, Florida 32207

and

Charlie Hunsicker
Manatee County
Parks and Natural Resources Department
5502 33rd Ave Dr. W
Bradenton, Florida 34209

c/o

Michelle Pfeiffer
APTIM
2481 NW Boca Raton Blvd.
Boca Raton, Florida 33431

Permit Modification No. 0039378-018-JN
Permit No. 0039378-010-JC, Manatee County
Manatee County Beach Nourishment Project

Dear Ms. Dunn, Mr. Hunsicker and Ms. Pfeiffer:

Your request to modify Permit No. 0039378-010-JC was received on July 2, 2019 and has been reviewed by Florida Department of Environmental Protection (Department) staff. The proposed permit modification is to incorporate a Biological Monitoring Plan for the Central Beach Project; to authorize another one-time use of the 2013 AMI Borrow Area 1; and to authorize the one-time placement on the Coquina Beach template using the borrow area that was previously permitted in Permit No. 00281452-005-JN. The General Conditions, which are applicable to Manatee County,

were inadvertently left out of Permit No. 0039378-016-JN, will be included. Updates will also be made to the water quality monitoring conditions, the physical monitoring conditions and the fish and wildlife protection conditions.

PERMIT HISTORY

On August 28, 2013, The Department issued Permit No. 0039378-010-JC to the U.S. Army Corps of Engineers (Corps) for the Manatee County Beach Nourishment Project. The permit authorized the Corps to place beach compatible sand along 4.7 miles of shoreline of Anna Maria Island utilizing an offshore borrow area as a sand source. A Variance for a mixing zone, measuring 200 meters offshore and 2,000 meters down current was requested at the time of application. Since there was insufficient supporting data to justify the size of the proposed mixing zone, the Variance request was later withdrawn.

For additional background, please see the ***Consolidated Notice of Intent to Issue Joint Coastal Permit and Authorization To Use Sovereign Submerged Lands*** for Permit No. 0039378-010-JC at the following website:

ftp://ftp.dep.state.fl.us/pub/ENV-PRMT/manatee/issued/0039378_%20Anna%20Maria%20Nourishment/010-JC%20Manatee%20County%20Nourishment/

On November 26, 2013, the Department issued Modification No **0039378-011-JN**, which revised Permit No 0039378-010-JC to extend the mixing zone for the first turbidity event only.

On March 22, 2016, the Department issued Modification No **0039378-016-JN**, which added Manatee County as a Co-Permittee.

STAFF ASSESSMENT AND JUSTIFICATION

Biological Monitoring Plan

The modification incorporates a Department approved Hardbottom Biological Monitoring Plan (HBMP), dated August 2019, as a binding attachment to the Permit. Though impacts to resources are not expected, inclusion of the nearshore hardbottom and mitigative artificial reef biological monitoring set forth in the HBMP provides the Department with reasonable assurance that, if they occur, any project related unpermitted direct and/or secondary adverse impacts to hardbottom or mitigative reef resources would be documented so they may be offset by mitigation. Specific Conditions 32 and 33 have been revised to incorporate the approved HBMP specific monitoring and reporting required by the HBMP and clarify impact requirements (if they occur).

Additional One Time Use of the 2013 AMI Borrow Area 1
The modification was requested to allow the federally authorized ("Central Beach") project to include an additional one-time use of the previously authorized borrow area. The Department's review indicated that the one-time only limitation on dredging this borrow area was not a consequence of geotechnical, physical or resource specific concerns. Based upon the need to construct the supplemental funding project and the limitation to only dredge the remaining material within the previously approved borrow area the Department will authorize the continued use of the borrow area.

Authorization to fill the Coquina Beach Segment and to dredge both the 2013 AMI Borrow Area II and the 2008 AMI Borrow Area (previously authorized by Permit No 0281452-001-JC)
Anna Maria Island, located in Manatee County, Florida, experiences historic chronic beach erosion. In response to this erosion, two established beach nourishment projects are maintained on the island: the federally authorized Central Beach Nourishment Project (R-12 to R-36) and the locally sponsored Coquina Beach Nourishment Project (R-33 to R-41 +305). Through supplemental federal funding, the Central Beach Nourishment project has been designated $14.3 million, with a 30-year period for cost-share reimbursement. The Corps must construct the project on their expedited schedule, currently scheduled for January 2020, or risk losing the funding. At the request of the County, the Corps plans to incorporate the Coquina Beach project into the bidding of the Central Beach project. These projects were constructed back-to-back in 2014 using the same dredging contractor, reducing costs by millions of dollars by eliminating a separate dredge mobilization fee. The County and the Corps are coordinating combined construction of these projects in early 2020 to maximize cost savings again. Since the previous permit for the Coquina Beach Project (Permit No. 0281452-001-JC) has expired, the Department recommended that Permit No. 0039378-010-JC for the Central Project also be modified to allow a one-time construction of the non-federal Coquina Beach Nourishment Project using the previously permitted Passage Key Inlet borrow areas. The two project templates overlap between R- 33 and R-36, for the purposes of the upcoming event, the template will use the Central Beach template at R-33 and adopt the Coquina Beach template from R-34 to R-36.

Staff has determined that the fill material to be obtained from the borrow areas is similar to the native beach sediment in terms of color, grain size, sorting, and shell content and that the silt content meets Department standards. Placement of material in the beach project area is expected to maintain the general character and functionality of the coastal system. The Department's review also indicated that limiting the authorization of the dredging of these borrow areas to one-time only was not a consequence of resource specific concerns. Based upon the need to construct the supplemental funding project and the limitation to only dredge the remaining material within the previously approved borrow area, the Department granted relief from the requirement of Permit No. 0281452-001-JC to establish an inlet management study/plan prior to subsequent use of the borrow areas. Consequently prior to future use (subsequent to the upcoming event) the establishment of an inlet management study/plan will still be required.

Updating Specific Conditions
The Department and the Florida Fish & Wildlife Conservation Commission (FWC) have refined the language of Specific Conditions to reduce ambiguity. These changes clarify common misinterpretations and update requirements. As such, updates have been made throughout the permit.

Water Quality
A review of the limited turbidity monitoring data from the previous construction event supports the idea that the project may be constructed with less than a 1000-meter mixing zone. During the previous event intermediate turbidity samples were collected at 150 meters, 300 meters, 500 meters and 750 meters. An analysis of the intermediate turbidity samples indicated that none of those samples exceeded the compliance threshold of 29 NTU above background. However, because of the short duration and limited data to support a properly calibrated mixing zone less than 1000 meters, the Department will retain the 1000-meter mixing zone with intermediate monitoring.

Physical monitoring
The modification incorporates a Department approved Physical Monitoring Plan (PMP), dated July 2019, as a binding attachment to the Permit which replaces the previously approved PMP. The Department has updated the physical monitoring requirements requiring surveys be conducted one year after construction and continue every two years thereafter (i.e., one-year post-construction, three-year post-construction, five-year post-construction, etc.) until the next beach nourishment event or the expiration of the project design life, whichever occurs first. The monitoring area will include profile surveys at each of the Department Reference Monuments within the bounds of the beach fill area and along at least 5,000 feet of the adjacent shoreline.

The proprietary authorization shall be revised as follows (~~strikethroughs~~ are deletions, <u>underlines</u> are additions):

PROPRIETARY AUTHORIZATION:
This activity also requires a proprietary authorization, as the activity is located on sovereign submerged lands held in trust by the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees), pursuant to Article X, Section 11 of the Florida Constitution, and Sections 253.002 and 253.77, F.S. The activity is not exempt from the need to obtain a proprietary authorization. The Board of Trustees delegated, to the Department, the responsibility to review and take final action on this request for proprietary authorization in accordance with Section 18-21.0051, F.A.C., and the Operating Agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C. This proprietary authorization has been reviewed in accordance with Chapter 253, Chapter 18-21 F.A.C., and the policies of the Board of Trustees.

As staff to the Board of Trustees, the Department has reviewed the project described above, and has determined that the one-time use of the ~~new~~ <u>three</u> offshore borrow area and the placement of sand on the beach qualify for a Letter of Consent to use sovereign, submerged lands, as long as

the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein. Therefore, consent is hereby granted to Manatee County, the project's local sponsor, pursuant to Chapter 253.77, F.S., to perform the activity on the specified sovereign submerged lands.

The project description shall be revised as follows (~~strikethroughs~~ are deletions, underlines are additions):

> The project consists of the placement of beach compatible sand along 4.7 miles of shoreline of Anna Maria Island, utilizing an offshore borrow area as a sand source. The beach fill template (Central Beach) will have a berm elevation of 4.0 feet North American Vertical Datum ~~88~~ (NAVD) and a foreshore construction slope of 1:14 (vertical:horizontal). The project also entails the **one-time only** placement of beach compatible sand along 1.1 miles of shoreline at Coquina Beach located on Anna Maria Island. The Coquina beach fill template will have a berm elevation of +4.0 feet NAVD, and a foreshore construction slope of 1:15 (vertical:horizontal).

The project location shall be revised as follows (~~strikethroughs~~ are deletions, underlines are additions):

> The Central ~~b~~Beach nourishment site is located between DEP Reference Monuments R-12 and R-36, ~~along 4.7 miles of shoreline of Anna Maria Island,~~ in Manatee County, Sections 20, 29, 28, 33, 04 and 09, Township 34 South, Range 16 East, extending into the Gulf of Mexico, Class III Waters. The 2013 AMI ~~b~~Borrow ~~a~~Area I is located 0.7 miles offshore, at the northern end of Anna Maria Island, ~~in Manatee County, Section 18, Township 34 South, Range 16 East,~~ in the Gulf of Mexico, Class III Waters.
>
> The Coquina Beach nourishment site is located between DEP Reference Monuments R-33 and R-41+305, in Manatee County, Sections 4, 9, 10 and 18, Township 34 and 35 South, Range 16 East. The 2013 AMI Borrow Area II and the 2008 AMI Borrow Area are located on the Passage Key Inlet ebb tidal shoal, approximately 2,000 feet offshore of the north end of Anna Maria Island, in the Gulf of Mexico, Class III Waters.

The general conditions for use by the Corps shall be remain as follows:

GENERAL CONDITIONS (for Army Corps of Engineers):

1. This permit, including its general and specific conditions, must be construed in light of the February 28, 2006 Interagency Coordination Agreement for Civil Works Projects (ICA) between the Department and the Corps. As recognized in the ICA, the Department

has the authority to include reasonable conditions in this permit. All of the conditions in this permit, both general and specific, are enforceable to the extent sovereign immunity has been waived under 33 U.S.C. §§ 1323 and 1344(t). The ICA is incorporated herein by reference.

2. All activities approved shall be implemented as set forth in the drawings incorporated by reference and in compliance with the conditions and requirements of this document. The Corps shall notify the Department in writing of any anticipated changes in:

a) operational plans;
b) project dimensions, size or location;
c) ability to adhere to permit conditions;
d) project description included in the permit;
e) monitoring plans.

If the Department determines that a modification to the permit is required then the Corps shall apply for and obtain the modification. Department approval of the modification shall be obtained prior to implementing the change, unless the change is determined by the Department to reduce the scope of work from that authorized under the original permit, and will not affect compliance with permit conditions or monitoring requirements.

3. If, for any reason, the Corps does not comply with any condition or limitation specified herein, the Corps shall immediately provide the Department with a written report containing the following information:

a) a description of and cause of noncompliance;
b) the period of noncompliance, including dates and times;
c) impacts resulting or likely to result from the non-compliance;
d) steps being taken to correct the non-compliance; and
e) the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

Compliance with the provisions of this condition shall not preclude the Department from taking any enforcement action allowed under state law with respect to any non-compliance.

4. The Corps shall obtain any applicable licenses, permits, or other authorizations which may be required by federal, state, local or special district laws and regulations. Nothing herein constitutes a waiver or approval of other Department permits or authorizations that may be required for other aspects of the total project.

5. Nothing herein conveys to the Corps or creates in the Corps any property right, any interest in real property, any title to land or water, constitutes State recognition or acknowledgment of title, or constitutes authority for the use of Florida's sovereign submerged lands seaward of the mean high-water line or an established erosion control line, unless herein provided, and the necessary title, lease, easement, or other form of consent authorizing the proposed use has been obtained from the State.

6. Any delineation of the extent of a wetland or other surface water submitted as part of the application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this authorization or a formal determination under section 373.421(2), F.S., provides otherwise.

7. Nothing herein authorizes any entrance upon or activities on property which is not owned or controlled by the Corps or local sponsor or conveys any vested rights or any exclusive privileges.

8. This document or a copy thereof, complete with all conditions, attachments, modifications, and time extensions shall be kept at the work site of the authorized activity. The Corps shall require the contractor to review this document prior to commencement of the authorized activity.

9. The Corps specifically agrees to allow Department personnel with proper identification, at reasonable times and in compliance with Corps specified safety standards access to the premises where the authorized activity is located or conducted for the purpose of ascertaining compliance with the terms of this document and with the rules of the Department and to have access to and copy any records that must be kept; to inspect the facility, equipment, practices, or operations regulated or required; and to sample or monitor any substances or parameters at any location reasonably necessary to assure compliance. Reasonable time may depend on the nature of the concern being investigated.

10. At least forty-eight (48) hours prior to the commencement of authorized activity, the Corps shall submit to the Department a written notice of commencement of activities indicating the anticipated start date and the anticipated completion date.

11. If historic or archaeological artifacts such as, but not limited to, Indian canoes, arrow heads, pottery or physical remains, are discovered at any time on the project site, the Corps shall immediately stop all activities in the immediate area which disturb the soil and notify the Department and the State Historic Preservation Officer. In the event that unmarked human remains are encountered during permitted activities, all work shall stop in the immediate area and the proper authorities notified in accordance with Section 872.05, *Florida Statutes.*

12. Within a reasonable time after completion of construction activities authorized by this permit, the Corps shall submit to the Department a written statement of completion. This statement shall notify the Department that the work has been completed as authorized and shall include a description of the actual work completed. The Department shall be provided, if requested, a copy of any as-built drawings required of the contractor or survey performed by the Corps.

The general conditions for use by the County shall be added as follows (underlines are additions):

GENERAL CONDITIONS (for Manatee County):

1. All activities authorized by this permit shall be implemented as set forth in the project description, permit drawings, plans and specifications approved as a part of this permit, and all conditions and requirements of this permit. The permittee shall notify the Department in writing of any anticipated deviation from the permit prior to implementation so that the Department can determine whether a modification of the permit is required pursuant to Rule 62B-49.008, F.A.C.

2. If, for any reason, the permittee does not comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department and the appropriate District office of the Department with a written report containing the following information: a description of and cause of noncompliance; and the period of noncompliance, including dates and times; and, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

3. This permit does not eliminate the necessity to obtain any other applicable licenses or permits that may be required by federal, state, local or special district laws and regulations. This permit is not a waiver or approval of any other Department permit or authorization that may be required for other aspects of the total project that are not addressed in this permit.

4. Pursuant to Sections 253.77 and 373.422, F.S., prior to conducting any works or other activities on state-owned submerged lands, or other lands of the state, title to which is vested in the Board of Trustees, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees shall not be considered received until it has been fully executed.

5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

6. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee. The issuance of this permit does not convey any vested rights or any exclusive privileges.

7. This permit or a copy thereof, complete with all conditions, attachments, plans and specifications, modifications, and time extensions shall be kept at the work site of the permitted activity. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

8. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel with proper identification and at reasonable times, access to the premises where the permitted activity is located or conducted for the purpose of ascertaining compliance with the terms of the permit and with the rules of the Department and to have access to and copy any records that must be kept under conditions of the permit; to inspect the facility, equipment, practices, or operations regulated or required under this permit; and to sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

9. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall electronically submit to the Department, by email at JCPCompliance@dep.state.fl.us, and the appropriate District office of the Department a written notice of commencement of construction indicating the actual start date and the expected completion date and an affirmative statement that the permittee and the contractor, if one is to be used, have read the general and specific conditions of the permit and understand them.

10. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, shipwreck remains or anchors, dugout canoes or other physical remains that could be associated with Native American cultures, or early Colonial or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at (850)245-6333 or (800)847-7278, as well as the appropriate permitting agency office. Project activities shall not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, F.S.

11. Within 30 days after completion of construction or completion of a subsequent maintenance event authorized by this permit, the permittee shall electronically submit to the Department, by email at JCPCompliance@dep.state.fl.us, and the appropriate District

office of the Department a written statement of completion and certification by a registered professional engineer. This certification shall state that all locations and elevations specified by the permit have been verified; the activities authorized by the permit have been performed in compliance with the plans and specifications approved as a part of the permit, and all conditions of the permit; or shall describe any deviations from the plans and specifications, and all conditions of the permit. When the completed activity differs substantially from the permitted plans, any substantial deviations shall be noted and explained on as-built drawings electronically submitted to the Department, by email at JCPCompliance@dep.state.fl.us.

For clarity and comprehensiveness, the specific conditions in the existing permit shall be replaced in entirety; ~~strikethroughs~~ and underlines will not be used. This minor modification, hereafter referred to as Permit No. 0039378-018-JN, supersedes Permit No. 0039378-010-JC.

The specific conditions shall be revised as follows (~~strikethroughs~~ are deletions, underlines are additions):

The following Specific Conditions (1-36) shall be met by at least one of the co-Permittees, according to their respective construction obligations, as indicated below. When the U.S. Army Corps of Engineers (Corps) is administering the dredging contract, the Corps shall be responsible for Specific Conditions 1-15, 17- 24, 27- 31and 35 (not including any out-year post-construction biological monitoring or beach maintenance) and Manatee County will be responsible for Specific Conditions 16, 25-26, and 32 -34. When Manatee County (County) is administrating the dredging contract, the County shall be responsible for Specific Conditions 1-36. Neither the Corps nor the County shall be responsible for meeting such conditions for work undertaken by the other pursuant to this permit.

1. The Permittee shall conduct a pre-construction conference to review the specific conditions and monitoring requirements of this permit with Permittee's contractors, the engineer of record, those responsible for protected species monitoring, staff representatives of the Fish and Wildlife Conservation Commission (FWC) and the JCP Compliance Officer (or designated alternate) prior to each construction event. In order to ensure that appropriate representatives are available, at least twenty-one (21) days prior to the intended commencement date for the permitted construction, the Permittee is advised to contact the Department, and the other agency representatives listed below:

   JCP Compliance Officer
   e-mail: JCP Compliance@dep.state.fl.us

DEP Southwest District Office
~~Submerged Lands & Environmental~~
~~Resources 13051 N. Telecom Parkway~~
~~Temple Terrace, Florida~~
~~33637 phone: 813-632-7600~~
~~fax: 813-632-7665~~ e-mail SW_ERP@dep.state.fl.us

FWC Imperiled Species Management Section
~~Florida Fish & Wildlife Conservation~~
~~Commission 620 South Meridian Street~~
~~Tallahassee, Florida 32399-1600~~
~~phone: (850) 922-4330~~
~~fax: (850) 921-4369 or~~ e-mail: marineturtle@myfwc.com

FWC Regional Biologist
Contact list: http://myfwc.com/conservation/you-conserve/wildlife/shorebirds/

The Permittee is also advised to schedule the pre-construction conference at least a week prior to the intended commencement date. At least seven (7) days in advance of the pre- construction conference, the Permittee shall provide written notification, advising the participants (listed above) of the **agreed-upon** date, time and location of the meeting, and also provide a meeting agenda and a teleconference number. If the actual construction start date is different from the expected start date proposed during the preconstruction conference, at least 48 hours prior to the commencement of each dredging event, the Permittee shall ensure that notification is sent to the FWC indicating the actual start date and the expected completion date to ImperiledSpecies@myfwc.com. The Permittee shall also ensure that all contracted workers and observers are provided a copy of all permit conditions.

2. During all dredging operations, the Permittee shall require the dredging contractor to have electronic positioning equipment that continuously measures the vertical and horizontal location of the cutterhead, diagrams, dustpan or clamshell at all times during operations. The horizontal positioning equipment shall be installed on the dredge so as to monitor the actual location of the dredge equipment and be interfaced with the depth monitoring device. This equipment shall provide a permanent record of the equipment's position referenced to State Plane Coordinates and NAVD~~88~~. As a part of the final report the Permittee shall provide a daily record of the position of the dredge equipment that includes the dredge area limits with actual and maximum authorized dredge depth referenced to state plane coordinates and NAVD~~88~~. Vertical and horizontal accuracy of the

positioning equipment shall also be reported.

3. All reports or notices relating to this permit shall be sent to the Department's JCP Compliance Officer (e-mail address: JCP Compliance@dep.state.fl.us), unless otherwise specified in the specific conditions.

4. The Permittee shall not store or stockpile tools, equipment, materials, etc., within littoral zones or elsewhere within surface waters of the state without prior written approval from the Department. Storage, stockpiling or access of equipment on, in, over or through seagrass (or other aquatic vegetation) beds or wetlands is prohibited unless within a work area or ingress/egress corridor specifically approved by this permit. Anchoring or spudding of vessels and barges within beds of aquatic vegetation or over hardbottom areas is also prohibited.

5. The Permittee shall not conduct project operations or store project-related equipment in, on or over dunes, or otherwise impact dune vegetation, outside the approved staging, beach access and dune restoration areas designated in the permit drawings.

6. ~~In the event that the Manatee County, the local sponsor for this project, does not conduct all necessary marine turtle protection and monitoring requirements, the Permittee is still responsible for those marine turtle protection measures specified by the applicable U. S. Fish and Wildlife Service (FWS) Biological Opinion and the local sponsor agreement for this project~~.

Pre-Construction Submittals. No work shall be conducted under this permit until the Permittee has submitted the following at least 15 days (unless otherwise specified below) prior to the date of the pre-construction conference (required in specific condition 1):

a. ***Final Plans and Specifications***: an electronic copy of the final plans and specifications for this project, which must be consistent with the project description, conditions and approved drawings of this permit. The Permittee shall point out any deviations from the project description or the approved permit drawings, and any significant changes that would require a permit modification. The plans and specifications shall be accompanied by a letter indicating the project name, the permit number, the type of construction activity, the specific type of equipment to be used, the anticipated volume of material to be moved (if applicable) and the anticipated schedule. Further, the Permittee shall specify any anticipated

sites that will be used (such as staging areas, access areas, anchorage areas, etc.) and appropriate contact information for those facilities.

b. ***Benthic Resource Monitoring Qualifications.*** To ensure that individuals conducting monitoring of benthic resources have appropriate expertise / experience in surveying hardbottom resources, the Permittee shall submit the names and qualifications of individuals performing biological monitoring at least *30 days prior to the initiation of monitoring tasks required by the approved Hardbottom Biological Monitoring Plan (per Specific Condition 33)*. Individuals performing biological monitoring shall be certified SCUBA divers, shall have a BS degree or higher in the study of marine biology or a comparable field, shall have scientific knowledge of local benthic marine hardbottom habitats and their flora and fauna, and shall have professional experience in conducting hardbottom monitoring. The Department will review this information and confirm that monitors are capable of meeting the requirements. The Department will provide written comments regarding any perceived deficits in qualifications or experience. If additional monitoring team(s) are subcontracted, or new staff are added to the monitoring team, proposed changes and qualifications of individuals shall be submitted at least *30 days prior to the proposed individuals participating in any HBMP required monitoring*.

c. ***Pre-construction nearshore hardbottom monitoring results.*** All raw data collected during the pre-construction (baseline) nearshore hardbottom monitoring event (see **Section 5.2 of the HBMP**).

d. ***Turbidity Monitoring Qualifications:*** The names, credentials (demonstrating experience and qualifications) and contact information for the individuals who will conduct the turbidity monitoring. Turbidity monitors shall have prior training in water quality monitoring and experience in turbidity monitoring for major dredging projects. The turbidity monitors shall be independent of the design engineer and the dredging/construction contractor. **.**

e. ***Turbidity Scope of Work:*** A Scope of Work for the turbidity monitoring shall be provided to ensure that the right equipment is available and that monitoring protocols will be sufficient to conduct the monitoring correctly at any location, and under any conditions.

f. ***Draft turbidity sampling map.*** An example of the geo-referenced map that will be provided with turbidity reports, including aerial photography and the boundaries for benthic resources (pursuant to Specific Condition 36).

g. ***Fish & Wildlife Monitoring Qualification*:** To ensure that individuals conducting monitoring of fish and wildlife resources have appropriate qualifications, the Permittee shall provide documentation demonstrating expertise / experience in surveying the types of resources that are present in the project. The Department and FWC will review this information for confirmation that the monitors are capable of meeting the requirements in Specific Conditions 7 through 26. This documentation shall include the following:

i. *Marine Turtle Protection:* A list of the names and permit numbers for the Marine Turtle Permit Holders;

ii. *Shorebird Protection:* A list of Bird Monitors with their contact information, summary of qualifications including bird identification skills, and avian survey experience, proposed locations of shorebird survey routes, and the locations of travel routes.

The following conditions are required to minimize impacts to marine turtles:

7. ***Manatee, Marine Turtle, and Shorebird Protection Conditions***. During all construction authorized by this permit, and based on the authorization of incidental take by the National Marine Fisheries Service (NMFS) and the FWS, in accordance with Chapters 161.041 (5) and 379.2431 (1), F.S., the Permittee shall comply with the following conditions intended to protect manatees, marine turtles and shorebirds from direct project effects:

a. ~~All personnel associated with the project shall be instructed~~ The Permittee shall instruct all personnel associated with the project about the presence of marine turtles, manatees and manatee speed zones, and the need to avoid collisions with (and injury to) these protected marine species. The Permittee shall be responsible for harm to these resources and shall require their contractors to 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 and for killing marine turtles, which are protected under the Endangered Species Act and the Florida Marine Turtle Protection 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 shall follow routes of deep water whenever possible.

c. Siltation or turbidity barriers, if used, shall be made of material in which manatees and marine turtles cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid entanglement or entrapment. Barriers must not impede manatee or marine turtle movement.

d. ~~All on-site project personnel are responsible for observing water-related activities for the presence of marine turtles and manatee(s).~~The Permittee shall require all on-site project personnel to observe water-related activities for the presence of marine turtles and manatee(s). **All in-water operations, including vessels, shall be shutdown if a marine turtle or manatee comes within 50 feet of the operation.** For unanchored vessels, operators shall disengage the propeller and drift out of the potential impact zone. If drifting would jeopardize the safety of the vessel then idle speed may be used to leave the potential impact zone. Activities shall not resume until the animal(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the animal(s) has not reappeared within 50 feet of the operation. Animals shall not be herded away or harassed into leaving.

e. Any collision with or injury to a marine turtle or manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922, and to FWC at ImperiledSpecies@myFWC.com. ~~Collision and/or injury should also be reported to the FWS in Jacksonville at 1-904-731-3336~~. Any collision with (and/or injury to) a marine turtle shall also be reported immediately to the Sea Turtle Stranding and Salvage Network (STSSN) at SeaTurtleStranding@myfwc.com.

f. Temporary signs concerning manatees shall be posted prior to and during all in- water project activities at sufficient locations to be regularly and easily viewed by all personnel engaged in water-related activities. All signs ~~are to~~ shall be removed by the Permittee upon completion of the project. Two temporary signs that have already been approved for this use by the FWC ~~must~~ shall be used at each location. One sign which reads "*Caution Boaters – Watch for Manatees*" ~~must~~ shall be posted. A second sign measuring at least 8 ½" by 11" shall explain~~ing~~ the requirements for "Idle Speed/No Wake" and the ~~shut down~~

shutdown of in-water operations ~~must be posted in a location prominently visible to all personnel engaged in water-related activities~~. ~~Signs already approved by the FWC~~ These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to ImperiledSpecies@myFWC.com~~the email address listed above~~.

g. All personnel associated with the project shall be instructed about the potential presence of ~~nesting shorebirds~~ protected species and the need to avoid Take of (including injury and disturbance to) these protected species.

h. ***Beach Driving.*** All vehicles shall be operated in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (http://myfwc.com/conservation/you-conserve/wildlife/beach-driving/). Specifically, the vehicle must be operated at a speed <6 mph and run at or below the high-tide line.

Fish and Wildlife Protection Conditions for Dredging Activities:

8. ***Hopper Dredging.*** In the event a hopper dredge is utilized, the following requirements shall be met in addition to the Terms and Conditions of the applicable NMFS Regional Biological Opinion for Hopper Dredging (Gulf of Mexico):

a. Handling of captured sea turtles or sea turtle shall be conducted only by persons with prior experience and training in these activities ~~and~~ who are duly authorized to conduct such activities through a valid Marine Turtle Permit issued by the FWC, pursuant to Chapter 68E-1, F.A.C, or as a National Marine Fisheries Service (NMFS)-approved marine turtle observer, or by persons who have submitted documentation to the Corps of meeting the FWC Marine Turtle Conservation Guidelines specific to stranding activities. The Corps shall forward documentation of these qualifications to FWC for review, as required in Specific Condition 6. Corps staff or their designee who transport live or dead marine turtles or marine turtle parts into, out of, or within, the state of Florida shall notify FWC in writing, specifying the number of transported specimens, species of turtle, type of specimen, and the destination after transport is complete. Before transport, if the turtle is believed to be alive, Corps staff or their designee shall coordinate with FWC to determine the appropriate facility to receive live marine turtles for rehabilitation. Corps staff or their designee shall abide by the State of Florida's

FWC Marine Turtle Conservation Guidelines (https://myfwc.com/media/3133/fwc-mtconservationhandbook.pdf) specific to transport of live stranded turtles.

b. ~~Dredging pumps shall be disengaged by the operator, or the draghead bypass value shall be open and in use when the dragheads are not firmly on the bottom, to minimize impingement or entrainment of sea turtles within the water column. This precaution is especially important during the cleanup phase of dredging operations.~~ In order to minimize impingement or entrainment of marine turtles within the water column, when initiating dredging, suction through the drag heads shall be allowed just long enough to prime the pumps, then the drag heads shall be placed firmly on the bottom. When lifting the drag heads from the bottom, suction through the drag heads shall be allowed just long enough to clear the lines, and then shall cease while maneuvering or during travel to/from the placement area. When possible, dredging pumps shall be disengaged by the operator when the drag heads are not firmly on the bottom

c. A state-of-the-art rigid deflector draghead shall be used on all hopper dredges, in all channels, at all times of the year.

d. The Sea Turtle Stranding and Salvage Network (STSSN) Coordinator shall be notified at Allen.Foley@myfwc.com at the start-up and completion of hopper dredging operations. In the event of capturing or recovering sea turtles or sea turtle parts, the STSSN should be contacted at SeaTurtleStranding@myfwc.com.

e. Relocation trawling or non-capture trawling (if conducted) shall be implemented in accordance with the applicable NMFS Biological Opinion and Incidental Take authorization. Any activity involving the use of nets to harass and/or to capture and handle marine turtles in Florida waters requires a Marine Turtle Permit from FWC.

i. The Permittee or their contractor shall e-mail (MTP@MyFWC.com) weekly reports to the Imperiled Species Management section on Friday each week that trawling is conducted in Florida waters. These weekly reports shall include: the species and number of turtles captured in Florida waters, general health, and release information. A summary of all trawling activity (including non-capture trawling) shall be submitted to

MTP@myfwc.com by January 15 of the following year or at the end of the project. The summary shall be provided on the ~~(~~FWC-provided Excel spreadsheet (available at http://myfwc.com/media/3168/Trawl-Report-Template.pdf) ~~of all trawling activity, including non-capture trawling,~~ and shall list all turtles captured in Florida waters, including all measurements, the location of captures (latitude and longitude ~~(~~in decimal degrees) ~~of captures~~ ~~and~~ the location of tow start-stop points(latitude and longitude in decimal degrees), and times for the start-stop points of the tows, including those tows on which no turtles are captured~~, shall be submitted to MTP@myfwc.com by January 15 of the following year or at the end of the project~~.

Fish and Wildlife Protection Conditions for Nearshore and Beach Placement of Dredge Material:

9. ***Beach Maintenance.*** ~~All derelict concrete, metal, and coastal armoring material and other debris shall be removed from the beach to the maximum extent practicable prior to any material placement. If debris removal activities will take place during shorebird breeding or sea turtle nesting seasons, the work shall be conducted during daylight hours only and shall not commence until completion of daily seabird, shorebird or sea turtle surveys each day. All excavations and temporary alterations of the beach topography shall be filled or leveled to the natural beach profile prior to 9 p.m. each day unless otherwise authorized~~. The Permittee shall require their contractor and protected species monitors to inspect all work areas that have excavations and temporary alterations of beach topography each day, to determine which areas have deviations (such as depressions, ruts, holes and vehicle tracks) capable of trapping flightless shorebird chicks or marine turtle hatchlings. If so, the deviations shall be filled or leveled from the natural beach profile prior to 9:00 p.m. each day. The beach surface shall also be inspected subsequent to completion of the project, and all tracks, mounds, ridges or impressions, etc. left by construction equipment on the beach shall be smoothed and leveled. All debris, including derelict construction or coastal armoring material, concrete and metal, found on the beach placement site, shall be removed from the beach to the maximum extent practicable prior to any placement of fill material. If debris removal activities will take place during protected species nesting seasons, the work shall be conducted during daylight hours only, and shall not commence until completion of daily monitoring surveys.

~~10. ***Pre-Construction Meeting.*** A meeting between representatives of the~~

~~contractor, the FWS, the FWC, the permitted sea turtle surveyor and Bird Monitors, as appropriate, shall be held prior to commencement of work on projects. At least 10 business days advance notice must be provided prior to conducting this meeting. The meeting will provide an opportunity for explanation and/or clarification of the protection measures as well as additional guidelines when construction occurs during nesting season, such as staging equipment and reporting within the work area, as well as follow up meetings during construction.~~

~~11~~10. ~~**Nesting Seabird and**~~ **Shorebird Protection Conditions.** *The term "shorebird" is used here to refer to all solitary nesting shorebirds and colonial nesting seabirds that nest on Florida's beaches. These conditions are intended to avoid direct impacts associated with the construction of the project and may not address all potential take incidental to the operation and use related to this authorization.* The Permittee shall adhere to the shorebird protection conditions during the shorebird breeding cycle, which includes nesting.

a. Shorebird breeding season dates for this project area are February 15 through September 1 (note that while most species have completed the breeding cycle by September 1, flightless young may be present through September and must be protected if present).

b. Any parts of the project where "project activities" on the beach take place *entirely outside the breeding season*, do not require shorebird surveys. The term "project activities" includes operation of vehicles on the beach, movement or storage of equipment on the beach, sand placement or sand removal, and other similar activities that may harm or disturb shorebirds. Bird survey routes must be established and monitored throughout the entire breeding season in any parts of the project area where: 1) potential shorebird breeding habitat occurs, and 2) project activities are expected to occur at any time within the breeding season. Breeding season surveys shall begin on the first day of the breeding season or 10 days prior to project commencement (including survey activities and other pre-construction presence on the beach), whichever is later.

c. Bird surveys shall be conducted in all potential beach-nesting bird habitats within the project boundaries that may be impacted by construction or pre-construction activities. One or more shorebird survey routes shall be established by the Permittee to cover project areas which require shorebird surveys. These routes shall be determined in coordination with the FWC Regional Biologist prior to the initiation of construction. Routes shall not be modified without

prior notification to FWC.

d. During the pre-construction and construction activities associated with the project, the Permittee shall ensure that surveys for detecting breeding activity and the presence of flightless chicks shall be completed **on a daily basis** by a qualified bird monitor. This shall be completed prior to movement of equipment, operation of vehicles, or other activities that could potentially disrupt breeding behavior or cause harm to the birds or their eggs or young. If all project activities are completed and all personnel and equipment have been removed from the beach prior to the end of the breeding season, route surveys shall continue to be conducted at least weekly through the end of the breeding season. If breeding or nesting behavior is confirmed by the presence of a scrape, eggs or young, the Permittee (or their designee) shall establish a 300-foot buffer around the site and shall notify the FWC Regional Biologist within 24 hours. The posts and materials for the shorebird buffer zones shall be removed once all breeding or nesting behavior has ceased.

e. The Permittee shall require the Bird Monitor to conduct a shorebird education and identification program (and/or provide educational materials) with the on-site staff to ensure protection of precocial (mobile) chicks. All personnel are responsible for watching for shorebirds, nests, eggs and chicks. If the Bird Monitor finds that shorebirds are breeding within the project area, the Permittee shall place and maintain a bulletin board in the construction staging area with the location map of the construction site showing the bird breeding areas and a warning, clearly visible, stating that "NESTING BIRDS ARE PROTECTED BY LAW INCLUDING THE FLORIDA ENDANGERED AND THREATENED SPECIES ACT AND THE STATE and FEDERAL MIGRATORY BIRD ACTS".

~~Nesting seabird and shorebird (collectively referred to as shorebird) surveys shall be conducted by trained, dedicated individuals (Bird Monitor) with proven shorebird identification skills and avian survey experience. A list of candidate Bird Monitors shall be provided to FWC, along with their contact information, summary of qualifications, including bird identification skills, and avian survey experience. This information shall be submitted to the FWC regional biologist (contact information attached) prior to any construction or hiring for shorebirdsurveys for revision and consultation. Bird Monitors shall use the following survey protocols:~~

~~a. Bird Monitors shall review and become familiar with the general~~

information, employ the data collection protocol, and implement data entry procedures outlined on the FWC's Florida Shorebird Database (FSD) website (www.FLShorebirdDatabase.org). An outline of data to be collected, including downloadable field data sheets, is available on the website.

b. Breeding season varies by species. Most species have completed the breeding cycle by September 1, but flightless young may be present through September. The following breeding season date range is based on the best available information regarding ranges and habitat use by species:

All Gulf Coast counties: February 15 – September 1

Breeding season surveys shall begin on the first day of the breeding season, or 10 days prior to project commencement (including surveying activities and other pre- construction presence on the beach), whichever is later. Surveys shall be conducted through August 31st, or until all breeding activity has concluded, whichever is later.

c. Breeding season surveys shall be conducted in all potential beach-nesting bird habitats within the project boundaries that may be impacted by construction or pre-construction activities. Portions of the project in which there is no potential for project-related activity during the nesting season may be excluded. One or more shorebird survey routes shall be established in the FSD website to cover these areas.

d. During the pre-construction and construction phases of the project, surveys for detecting breeding activity and the presence of flightless chicks shall be completed on a daily basis prior to movement of equipment, operation of vehicles, or other activities that could potentially disrupt breeding behavior or cause harm to the birds or their eggs or young.

e. Surveys shall be conducted by walking the length of the project area and visually surveying for the presence of shorebirds exhibiting breeding behavior, shorebird/seabird chicks, or shorebird/seabird juveniles as outlined in the FSD *Breeding Bird Protocol for Shorebirds and Seabirds*. Use of binoculars is required.

i. If an all-terrain vehicle or other vehicle is needed to cover large project areas, operators shall adhere to the FWC's Best

~~Management Practices for Operating Vehicles on the Beach (http://myfwc.com/conservation/you-conserve/wildlife/beach-driving/). Specifically, the vehicle must be operated at a speed <6 mph and run at or below the high-tide line. The Bird Monitor shall stop at no greater than 200 meter intervals to visually inspect for breeding activity.~~

~~f. Once breeding is confirmed by the presence of a scrape, eggs, or young, the Bird Monitor shall notify the FWC Regional Species Conservation Biologist (contact information attached) within 24 hours. All breeding activity shall be reported to the FSD website within one week of data collection.~~

11. **Shorebird Monitor Requirements.**

a. The Permittee shall ensure that nesting and breeding shorebird surveys are conducted by trained, dedicated individuals (Bird Monitors) with proven shorebird identification skills and avian survey experience.

b. Bird Monitor(s) shall be required to review and become familiar with the general information, employ the data collection protocol, and implement data entry procedures outlined on the FWC's FSD website (http://www.flshorebirddatabase.org or Florida Shorebird Database). They shall use the data-collection protocol and implement data entry procedures as outlined in that website.

c. The Permittee shall submit a list of Bird Monitors, with their contact information and a summary of qualifications, including bird identification skills and avian survey experience to the FWC Regional Biologist and JCPCompliance@dep.state.fl.us, prior to any construction or shorebird surveys. The determination that the selected Bird Monitor(s) meet the required qualifications shall be coordinated between the Permittee and the FWC Regional Biologist. Once approved, the Permittee shall submit the names and contact information of the Bird Monitor(s) who have been approved by FWC to JCPCompliance@dep.state.fl.us, prior to any construction or shorebird surveys. The Bird Monitor(s) shall meet the following minimum qualifications:

i. Has previously participated in beach-nesting shorebird surveys in Florida (provide references or resume). Experience with previous projects must document the ability to 1) identify all species of beach-nesting birds by sight and sound, 2) identify breeding/territorial

behaviors, and find nests of shorebirds that occur in the project area, and 3) identify habitats preferred by shorebirds nesting in the project area.

ii. Have a clear working knowledge of, and adhere to, the *Breeding Bird Protocol for Florida's Seabirds and Shorebirds.* https://publictemp.myfwc.com/crossdoi/shorebirds/resources.aspx.

iii. Have completed full-length webinars: Route-Surveyor Training and Rooftop Monitoring Training, including the annual refresher training. Training resources can be found on the *Florida Shorebird Database* (FSD) website. https://publictemp.myfwc.com/crossdoi/shorebirds/index.aspx.

iv. Familiar with FWC beach driving guidelines. (https://myfwc.com/conservation/you-conserve/wildlife/beach-driving/).

v. Experience posting beach-nesting bird sites, consistent with *Florida Shorebird Alliance (FSA) Guidelines.* http://flshorebirdalliance.org/resources/instructions-manuals.aspx

vi. Has registered as a contributor to the FSD.

12. **Shorebird Survey Protocols.** Bird survey protocols, including downloadable field data sheets, are available on the FSD website. All breeding activity shall be reported to the FSD website within one week of data collection. If the use of this website is not feasible for data collection, the FWC Regional Biologist shall be contacted for alternative methods of reporting. The Permittee shall ensure that the Bird Monitors use the following survey protocols:

a. Surveys shall be conducted by walking the length of all survey routes and visually surveying for the presence of shorebirds exhibiting breeding behavior, shorebird chicks or shorebird juveniles, as outlined in the FSD Breeding Bird Protocol for Shorebirds and Seabirds. Use of binoculars (minimum 8x40) is required and use of a spotting scope may be necessary to accurately survey the area. If an ATV or other vehicle is needed to cover large survey routes, the Bird Monitor shall stop at intervals of no greater than 600 feet to visually inspect for breeding activity.

b. Once breeding or nesting behavior is confirmed by the presence of a scrape, eggs or young, the Permittee (or their designee) shall notify the

FWC Regional Biologist within 24 hours.

~~12~~13. ***~~Seabird and~~*** **Shorebird Buffer Zones and Travel Corridors.** The Permittee shall require the Bird Monitor(s) and Contractor(s) to meet the following:

a. The Bird Monitor(s) ~~Within the project area, the Permittee~~ shall establish a disturbance-free buffer zone around any location where shorebirds have been engaged in breeding behavior, including territory defense. A 300- foot-wide buffer shall be established around each nest or around the perimeter of each colonial nesting area. A 300-foot buffer shall also be placed around the perimeter of areas where shorebirds are seen digging nest scrapes or defending nest territories. All construction activities, movement of vehicles, stockpiling of equipment, and pedestrian traffic are prohibited in the buffer zone. Travel corridors shall be designated and marked outside the buffer areas for pedestrian, equipment or vehicular traffic. ~~Is considered adequate based on published studies. However, a smaller, site-specific buffer may be implemented upon approval by the FWC Regional Species Conservation Biologist (contact information attached) as needed. All sources of human disturbance (including pedestrians, pets, and vehicles) shall be prohibited in the buffer zone~~.

b. The Bird Monitor shall keep breeding sites under sufficient surveillance to determine if birds appear agitated or disturbed by construction or other activities in adjacent areas. If birds ~~do~~ appear to be agitated or disturbed by these activities, then the width of the buffer zone shall be increased immediately to a sufficient size to protect breeding birds.

c. ~~Reasonable and traditional~~ The Bird Monitor(s) shall ensure that reasonable and traditional pedestrian access ~~should~~ is not ~~be~~ blocked, in situations where breeding birds will tolerate pedestrian traffic. This is generally the case with lateral movement of beach-goers walking parallel to the beach at or below the highest tide line. Pedestrian traffic may also be ~~tolerated~~ allowed when breeding was initiated within 300 feet of an established beach access pathway. ~~The Permittee~~ The Bird Monitor(s) shall work with the FWC Regional ~~Species Conservation~~ Biologist to determine if pedestrian access can be accommodated without compromising nesting success. These site-specific buffers must be determined in coordination with the FWC Regional Biologist

d. ~~Designated buffer zones shall me marked~~ The Bird Monitor(s) shall ensure that the perimeters of designated buffer zones shall be marked according to FSA Posting Guidelines with posts, twine and FWC-approved signs stating "Do Not Enter, Important Nesting Area" or similar language around the perimeter. ~~that includes the name and a phone number of the entity responsible for posting~~. Posts ~~should~~ shall not exceed 3 feet in height once installed. Symbolic fencing (twine, string or rope) should be placed between all posts at least 2.5 feet above the ground and rendered clearly visible to pedestrians. If pedestrian pathways are approved by the FWC Regional ~~Species Conservation~~ Biologist within the 300-foot buffer zone, these should be clearly marked. The **posting shall be maintained in good repair until no active nests, eggs, or flightless young are present** ~~breeding is completed or terminated~~. Although solitary nesters may leave the buffer zone with their chicks, the posted area continues to provide a potential refuge for the family until breeding is complete. Breeding is not considered to be completed until all chicks have fledged.

e. The Permittee shall ensure that no ~~No~~ construction activities, pedestrians, movement of vehicles, or stockpiling of equipment ~~shall be~~ are allowed within the buffer area.

f. The Permittee shall ensure that the Bird Monitor(s) designate and mark travel corridors ~~Travel corridors shall be designated and marked~~ outside the buffer areas so as not to cause disturbance to breeding birds. Heavy equipment, other vehicles, or pedestrians may transit past breeding areas in these corridors. However, other activities such as stopping or turning shall be prohibited within the designated travel corridors adjacent to the breeding site.

g. When flightless chicks are present within or adjacent to travel corridors, ~~movement of~~ construction related vehicles shall not transit through the corridor unless a ~~be accompanied by the~~ Bird Monitor is present to adequately monitor the travel corridor ~~who shall~~ to ensure no chicks are in the path of the moving vehicle. The Permittee shall also require the contractor with the oversight of the Bird Monitor(s), to level any ~~and no~~ tracks ruts or holes capable of trapping flightless chicks ~~result~~.

h. *Notification.* Any injury or death of a shorebird (including crushing eggs or young) resulting from project activities shall be reported immediately to the FWC Regional Biologist.

~~13~~14. To discourage nesting within the travel corridor, it is recommended that the Permittee should maintain some activity within these corridors on a daily basis, without disturbing any nesting shorebirds documented on site or interfering with sea turtle nesting, especially when those corridors are established prior to commencement of construction.

~~14. ***Notification.*** If shorebird breeding occurs within the project area, a bulletin board shall be placed and maintained in the construction staging area with the location map of the construction site showing the bird breeding areas and a warning, clearly visible, stating that "NESTING BIRDS ARE PROTECTED BY LAW INCLUDING THE FLORIDA ENDANGERED AND THREATENED SPECIES ACT AND THE STATE and FEDERAL MIGRATORY BIRD ACTS".~~

15. ***Marine Turtle Nest Surveys and Relocation.*** Sand placement may occur during the marine turtle nesting season, May 1 through October 31, provided the following marine turtle protection conditions are met, except where such work is prohibited by the managing agency or under applicable local land use codes.

16. For sand placement projects that occur during the period from May 1 through October 31, daily early morning ~~(before 9 a.m.)~~ surveys shall be conducted, and marine turtle eggs shall be relocated per the requirements below (a. to c.)(*Note: sea turtle monitors shall not enter posted shorebird buffer areas to conduct monitoring or to relocate nests*.).

    Marine turtle nesting surveys shall be initiated 65 days prior to sand placement activities or by April 15, whichever is later, shall continue through September 30 or the end of the project, whichever is earlier, and shall comply with the following requirements:

    a. Nesting surveys and nest marking shall only be conducted by persons with prior experience and training in these activities and who are authorized to conduct such activities through a valid permit issued by FWC, pursuant to Chapter 68E-1, F.A.C. Please contact FWC's Marine Turtle Management Program in Tequesta at MTP@myfwc.com for information on the permit holder in the project area. ~~Nesting surveys shall be conducted daily between sunrise and 9 a.m. (this is for all time zones). The contractor shall not initiate work until daily notice has been received from the marine turtle permit holder that the morning survey has been completed. Surveys shall be performed in such a manner so as to ensure that~~

~~construction activity does not occur in any location prior to completion of the necessary marine turtle protection measures~~. Daily nesting surveys shall be conducted beginning ½ hour prior to sunrise, and no construction activity may commence until completion of the marine turtle survey each day.

b. Only those nests in the area where sand placement occurs shall be relocated. Nest relocation shall not occur upon completion of sand placement. Nests requiring relocation shall be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site, in a secure setting where artificial lighting will not interfere with hatchling orientation. The relocation site shall be determined in conjunction with and approved by FWC prior to nest relocations. Relocated nests shall not be placed in organized groupings. Relocated nests shall be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, or that are subject to artificial lighting. Nest relocations in association with construction activities shall cease when sand placement activities no longer threaten nests.

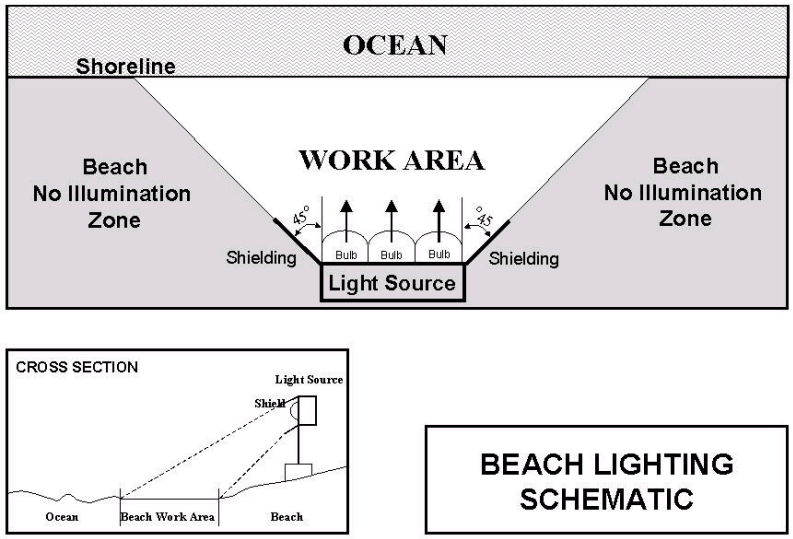
c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days, or nests laid in the nourished berm prior to tilling, shall be marked and left in place unless other factors threaten the success of the nest. The Marine Turtle Permit Holder shall install on-beach markers at the nest site to establish a minimum 5-foot radius around the approximate clutch location and shall also install a secondary marker at a point as far landward as possible to assure that the nest can be located should the on-beach marker be lost. ~~The turtle permit holder shall install an on-beach marker at the nest site and/or a secondary marker at a point as far landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost.~~ No activity shall occur within this area nor shall any activities occur that could result in impacts to the nest. Nest sites shall be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the project activity.

17. ***Marine Turtle or Nest Encounters.*** Upon locating a dead or injured ~~sea~~marine turtle adult, hatchling or egg that may have been harmed or destroyed as a direct or indirect result of the project, the Permittee shall be responsible for notifying STSSN at SeaTurtleStranding@myfwc.com. Care

shall be taken in handling injured ~~sea~~ marine turtles or eggs to ensure effective treatment or disposition, and in handling dead specimens to preserve biological materials in the best possible state for later analysis. In the event a ~~sea~~ marine turtle nest is excavated during construction activities, the permitted person responsible for egg relocation for the project shall be notified immediately so the eggs can be moved to a suitable relocation site.

18. ***Equipment Storage and Placement.*** All construction pipes that are placed on the beach shall be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Pipes placed parallel to the dune shall be no farther seaward than 5 to 10 feet away from the toe of the dune. Nighttime storage of construction equipment that is not in use shall be located off the beach. If staging and storage areas off the beach are not possible, then additional marine turtle and shorebird protective measures shall be implemented. Such protective measures shall be determined in coordination with the Department and FWC prior to beginning of construction. ~~Temporary storage of pipes shall be off the beach to the maximum extent possible. If it is necessary to extend construction pipes past a known shorebird nesting site or over-wintering area for piping plovers, then whenever possible those pipes shall be placed landward of the site before birds are active in that area.~~ No pipe or sand shall be placed seaward of a shorebird nesting site during the shorebird nesting season.

19. ***Project Lighting.*** Direct lighting of the beach and nearshore waters shall be limited to the immediate construction area during the sea turtle nesting season and shall comply with safety requirements. Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the water's surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting equipment shall be reduced to the minimum standard required by OSHA for General Construction areas, in order not to misdirect sea turtles. Shields shall be affixed to the light housing on dredge and on land-based lights and be large enough to block light from all lamps from being transmitted outside the construction area (**Figure below**).



20. ***Fill Restrictions.*** During the sea turtle nesting season, the contractor shall not extend the beach fill more than 500 feet along the shoreline between dusk and the following day until the daily nesting survey has been completed and the beach cleared for fill advancement. An exception to this may occur if there is permitted sea turtle surveyor present on-site to ensure no nesting and hatching sea turtles are present within the extended work area. If the 500 feet is not feasible for the project, the Permittee may submit a request for an alternate distance to FWC, and FWC shall decide if that distance is acceptable during the pre-construction meeting. Once the beach has been cleared and the necessary nest relocations have been completed, the contractor shall be allowed to proceed with the placement of fill during daylight hours until dusk, at which time the 500-foot length limitation shall apply.

21. ***Compaction Sampling.*** Sand compaction shall be monitored in the area of sand placement immediately after completion <u>of the nourishment event, and two weeks prior to the beginning of marine turtle nesting season,</u> ~~of the project and prior to April 15th~~ for three (3) subsequent years. Compaction shall be monitored in accordance with a protocol agreed to by the FWS, FWC and the Permittee. The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Out-year compaction monitoring and remediation are not required if placed material no longer remains on the beach.

At a minimum, the protocol provided below shall be followed. If the average

value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area shall be tilled immediately prior to the beginning of marine turtle nesting season. ~~the following dates listed above.~~ If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the FWC or FWS shall be required to determine if tilling is required. A request for a tilling waiver based on these compaction values shall be submitted to the FWC at marineturtle@myfwc.com. If a few values exceeding 500 psi are present randomly within the project area, tilling shall not be required.

a. Compaction sampling stations shall be located at 500-foot intervals along the project area. One station shall be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station shall be midway between the dune line and the high water line (normal wrack line).

b. At each station, the cone penetrometer shall be pushed to a depth of 6, 12 and 18 inches, three times at each depth (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates shall be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth shall be averaged to produce final values for each depth at each station. Reports shall include all 18 values for each transect line and the final 6 averaged compaction values.

c. No compaction sampling shall occur within 300 feet of any shorebird nest.

d. Any vehicles operated on the beach in association with compaction surveys shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (http://myfwc.com/conservation/you- conserve/wildlife/beach-driving/).

22. ***Tilling Requirements.*** If tilling is required as specified above, the area shall be tilled to a depth of 36 inches. All tilling activity shall be completed prior to the marine turtle nesting season. If tilling occurs during shorebird nesting season (See Specific Condition 11.b., above), shorebird surveys prior to

tilling shall be required per the shorebird conditions included within this document. It is the responsibility of the contractors to avoid tilling, scarp removal, or dune vegetation planting in areas where nesting birds are present. Each pass of the tilling equipment shall be overlapped to allow thorough and even tilling. If the project is completed during the marine turtle nesting season, tilling shall not be performed in areas where nests have been left in place or relocated. If compaction measurements are taken, a report on the results of the compaction monitoring shall be submitted electronically to FWC at marineturtle@myfwc.com prior to any tilling actions being taken.

a. No tilling shall occur within 300 feet of any shorebird nest.

b. If flightless shorebird young are observed within the work zone or equipment travel corridor, a Bird Monitor shall be present during the operation to ensure that equipment does not operate within 300 feet of the flightless young.

c. A relatively even surface, with no deep ruts or furrows, shall be created during tilling. To do this, chain-linked fencing or other material shall be dragged over those areas as necessary after tilling.

d. Tilling shall occur landward of the wrack line and avoid all vegetated areas 3 square feet or greater, with a 3-foot buffer around the vegetated areas. The slope between the mean high water line and the mean low water line must be maintained in such a manner as to approximate natural slopes.

e. Any vehicles operated on the beach in association with tilling shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (http://myfwc.com/conservation/you-conserve/wildlife/beach-driving/).

23. ***Escarpment Surveys.*** Visual surveys for escarpments along the project area shall be made immediately after completion of the sand placement project, weekly during sea turtle nesting season, and during March 15 to April 15, for three (3) subsequent years if sand from the project still remains on the beach. Weekly reports shall be submitted by Friday each week to marineturtle@myfwc.com.

Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of at least 100 feet shall be leveled and the beach profile shall be reconfigured to minimize scarp formation by April 15. Any

escarpment removal shall be reported relative to R- monument location to FWC at marineturtle@myfwc.com, with a copy sent to the JCP Compliance Officer. ~~to FWC by location~~ If the project is completed during the sea turtle nesting and hatching season, FWC may require the Permittee to level escarpments immediately, while protecting nests that have been relocated or left in place. If, during the nesting and hatching season, there is any subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet, the Permittee shall immediately contact FWC to determine the appropriate action to be taken. ~~If it is determined that escarpment leveling is required during the nesting or hatching season, the FWS or FWC shall provide a brief written authorization that describes methods to be used to reduce the likelihood of impacting existing nests.~~ The Permittee shall provide locations and measurements of the escarpments to the closest R monument as well as the coordinates for the location of marine turtle nests located within 20 feet of the escarpments (latitude and longitude in decimal degrees), with photographs when possible. Upon written notification by FWC that the escarpment needs to be leveled, the Permittee shall level the escarpment. If nests are located nearby, to minimize impacts to any existing nest the Permittee shall also coordinate with the marine turtle permit holder prior to leveling the escarpments. An annual summary of escarpment surveys and actions taken shall be submitted electronically to marineturtle@myfwc.com along with the annual summary as described below. If escarpment removal occurs during shorebird breeding season (See Specific Condition 11.b.), shorebirds surveys shall be required prior to escarpment removal per the shorebird conditions included within this document. (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the dry beach.)

a. No heavy equipment shall operate within 300 feet of any shorebird nest.

b. If flightless shorebird young are observed within the work zone or equipment travel corridor, a Bird Monitor shall be present during the operation to ensure that equipment does not operate within 300 feet of the flightless young. It is the responsibility of the Permittee to ensure that their contractors avoid tilling, scarp removal or dune vegetation planting in areas where nesting birds are present.

c. Any vehicles operated on the beach in association with escarpment surveys or removal shall operate in accordance with the FWC's Best Management Practices for Operating Vehicles on the Beach (http://myfwc.com/conservation/you- conserve/wildlife/beach-driving/).

24. All Terms and Conditions in the FWS Programmatic Piping Plover Biological Opinion, dated May 22, 2013, shall be met as required in that document.

~~**Post-construction Shorebird Protection Conditions:**~~

~~25. If beach cleaning will occur on the nourished beach, a minimum of 30% of the biotic material within the wrack line shall be left on the beach post-cleaning at the strand line in a natural configuration to ensure that the nourished beach re-establishes its function as foraging habitat for shorebirds. This shall occur for as long as the placed sand remains on the beach.~~

Post-construction Monitoring and Reporting Marine Turtle Protection Conditions:

25. For each nourishment event, reports on all marine turtle nesting activity shall be provided for the initial marine turtle nesting (***May 1 through September 15***) and hatching (***through October 31***) season and for two full nesting seasons post construction in accordance with the Table 1 (below). If nesting and reproductive success is less than the criteria in the table below, an additional year of monitoring and reporting may be required. If criteria is not met, additional conditions prior to the next sand placement on this beach may be required by the Department and FWC ~~up to three additional seasons as follows~~.:

    a. For the initial nesting season and the following year, the number and type of emergences (nests or false crawls) shall be reported per species in accordance with **Table 1 below**. An additional year of nesting surveys may be required if nesting success for any species on the nourished beach is less than 40%.

    b. For the initial nesting season, reproductive success shall be reported per species in accordance with **Table 1 below**. Reproductive success shall be reported for all sea turtle nests if possible. Otherwise a statistically significant number of nests for each species shall be reported.

    c. In the event that the reproductive success documented by species meets or exceeds required criteria (outlined in **Table 1 below**) for each species, monitoring for reproductive success shall be recommended, but not required for the second year post-construction.

    d. Monitoring of nesting activity in the seasons following construction

shall include daily surveys and any additional measures authorized by the FWC. Summaries shall include all crawl activity, nesting success rates, hatching success of all relocated nests, hatching success of a representative sampling of nests left in place (if any) by species, project name, applicable project permit numbers and dates of construction.

Data shall be reported for the nourished areas in accordance with **Table 1 below** and shall include number of nests lost to erosion or washed out. Summaries of nesting activity shall be submitted in electronic format (Excel spreadsheets) to the FWC Imperiled Species Management section at MTP@myfwc.com. All summaries shall be submitted by January 15 of the following year. The FWC Excel spreadsheet is available upon request from MTP@myfwc.com.

Table 1. Marine Turtle Monitoring:

Metric	Duration	Variable	Criterion
Nesting Success	Year of in-season construction and two entire nesting seasons post construction, with possible additional year[1] & 2	Number of nests and non-nesting emergences by day by species	40% or greater
Hatching Success	Year of in-season construction and one entire nesting season post construction, with possible additional year[1] & 2	Number of hatchlings by species to hatch from egg	60 percent or greater (a statistically valid number of loggerhead and green nests)
Emergence Success	Year of in-season construction and one entire nesting season post construction, with possible additional year[1] & 2	Number of hatchlings by species to emerge from nest onto beach	Average must not be significantly different than the average hatching success
Disorientation	Year of in-season construction and two entire nesting seasons	Number of nests and individuals that misorient or	

Metric	Duration	Variable	Criterion
	post construction[1]	disorient	
Nests affected by erosion or inundation	Year of construction and two years post construction if placed sand remains on the beach	Number of nests lost and/or affected, by species	
Lighting Surveys	Two in-season surveys the year following construction; First survey between May 1 and May 15 and second survey between July 15 and August 1[1]	Number, location and photographs of lights visible from nourished berm, corrective actions recommended and notifications made	Lighting survey and possible meeting resulting with plan for reduction in lights visible from nourished berm
Compaction	Three nesting seasons beginning with the year of construction. Not required if the beach is tilled prior to nesting seasons[1]	Shear resistance	Less than 500 psi
Escarpment Surveys	Weekly during nesting season for three years beginning with year of construction[1]	Number of scarps 18 inches or greater extending for more than 100 feet that persist for more than 2 weeks	Successful remediation of all persistent scarps as needed

[1] If placed sand remains on the beach
[2] Additional years may be required if variable does not meet criterion based on previous year

26. **Post-Construction Lighting Surveys**. The Permittee shall ensure that lighting surveys be conducted from the renourished berm and the following actions taken to address potential adverse impacts expected with artificial lights visible from any dry portion of the newly elevated beach. The surveys

shall be conducted from the top of the foreshore slope (i.e., the seaward edge of the filled berm before it slopes into the water), facing landward. The survey shall follow standard techniques for such a survey, such as including the number and type of visible lights, location of lights, and photo documentation (see additional techniques as per the 2015 USFWS Statewide Programmatic Biological Opinion).

a. The first survey shall be conducted between May 1 and May 15 for the first nesting season following construction. For each visible light source, the Permittee shall document that the property owners have been notified and has been provided with recommendations for correcting the light as soon as possible. Recommendations shall be in accordance with local lighting ordinances. A report summarizing all visible lights and the recommendations for correcting the light shall be forwarded to local code enforcement. If no lighting ordinances exist, the recommendations to the property owners shall be consistent with FWC lighting guidelines, which include no lights or light sources shall be visible from the newly elevated beach. The second survey shall be conducted between July 15 and August 1 to assess any remaining visible lights requiring corrective action.

b. A summary report of the surveys and what corrective actions or local enforcement actions have been taken shall be submitted to FWC at marineturtle@myfwc.com and copied to JCPCompliance@dep.state.fl.us by December 31 of the year in which surveys are conducted. Upon request by the FWC, the Permittee shall set up and hold a meeting with the those responsible for code enforcement (when applicable), FWC and the USFWS to discuss the report and potential additional corrective action needed, as well as any documented marine turtle disorientations in or adjacent to the project area.

~~The Contractor shall use the approved sea turtle sub-contractor to perform the two lighting surveys. A nighttime survey shall be conducted of all lighting visible from the beach placement area by the Contractor, using standard techniques for such a survey, both immediately prior to and after construction. During the nighttime lighting surveys, a surveyor shall walk the length of the beach placement area looking for light from artificial sources. During the nighttime lighting surveys, a complete census shall be made of the number, types, locations, and custodians of artificial light sources that emit light visible from the beach. Because problem lighting will be most visible on the darkest nights, lighting inspections are to be conducted when there is no moon visible. Descriptions of light sources identified during the survey should be detailed enough so that~~

~~anyone can locate the lighting. In addition to a general description of each luminaire (e.g., HPS floodlight directed seaward at top northeast corner of the building at 123 Ocean Street), photographs or sketches of the lighting may be necessary. Descriptions should also include an assessment of how the specific lighting problem can be resolved (e.g., needs turning off; should be redirected 90° to the east, etc.). A summary report of the survey shall be submitted to the Corps' Contracting Officer.~~

27. Sediment quality shall be assessed as outlined in the Sediment Quality Assurance/Quality Control (QA/QC) plan (approved on ~~July 19, 2013~~ July 26, 2019). Any occurrences of placement of material not in compliance with the Plan shall be handled according to the protocols set forth in the Sediment QA/QC plan. The sediment testing result shall be submitted to the

JCP Compliance Officer within 90 days following the completion of beach construction. The Sediment QA/QC plan includes the following:

a. If during construction, the Permittee or Engineer determines that the beach fill material does not comply with the sediment compliance specifications, measures shall be taken to avoid further placement of noncompliant fill, and the sediment inspection results shall be reported to the JCP Compliance Officer.

b. The Permittee shall submit post-construction sediment testing results and an analysis report as outlined in the Sediment QA/QC plan to the JCP Compliance Officer within 90 days following beach construction. A summary table of the sediment samples and test results for the sediment compliance parameters, as outlined in Table 1 of the Sediment QA/QC plan, shall accompany the complete set of laboratory testing results. A statement of how the placed fill material compares to the sediment analysis and volume calculations from the geotechnical investigation shall be included in the sediment testing results report.

c. A post-remediation report containing the site map, sediment analysis, and volume of noncompliant fill material removed and replaced shall be submitted to the JCP Compliance Officer within 7 days following completion of remediation activities.

d. Adherence to the maximum large shell content (material retained on the ¾ inch sieve) and carbonate content, as specified in the approved Plan, are **not** a condition of the permit. The fill material

shall adhere to the requirements contained in Rule 62B-41.007(2)(j), F.A.C., for these sediment parameters.

28. Construction at the project site shall be monitored closely to assure that turbidity levels do not exceed the compliance standards established in this permit. Accordingly, an individual familiar with beach construction techniques and turbidity monitoring shall be present at all times when fill material is discharged on the beach. This individual shall serve as site supervisor and shall have authority to alter construction techniques or shut down the dredging or beach construction operations if turbidity levels exceed the compliance standards established in this permit. The names and qualifications of those individuals performing these functions, along with 24-hour contact information, shall be submitted for approval to the JCP Compliance Officer in Tallahassee, with a copy to the Department's Southwest District Office. Any individual who performs this function shall be approved by the Department before beginning to serve in this capacity.

29. ***Water Quality Monitoring*.**

Parameter: Turbidity - Nephelometric Turbidity Units (NTUs)

Frequency: Three (3) times per day, at least 4 hours apart, during all dredging and filling operations. Sampling shall be conducted **while the highest project-related turbidity levels are crossing the edge of the mixing zone**. Since turbidity levels can be related to pumping rates, the dredge pumping rates shall be recorded, and provided to the Department upon request. If pumping rates are highest at night, then night-time turbidity monitoring would be required. The compliance samples and the corresponding background samples shall be collected at approximately the same time, i.e., one shall immediately follow the other.

Location: Background: At surface, mid-depth, and (for sites with depths greater than 25 feet) 2 meters above the bottom, clearly outside the influence of any artificially generated turbidity plume or the influence of an outgoing inlet plume.

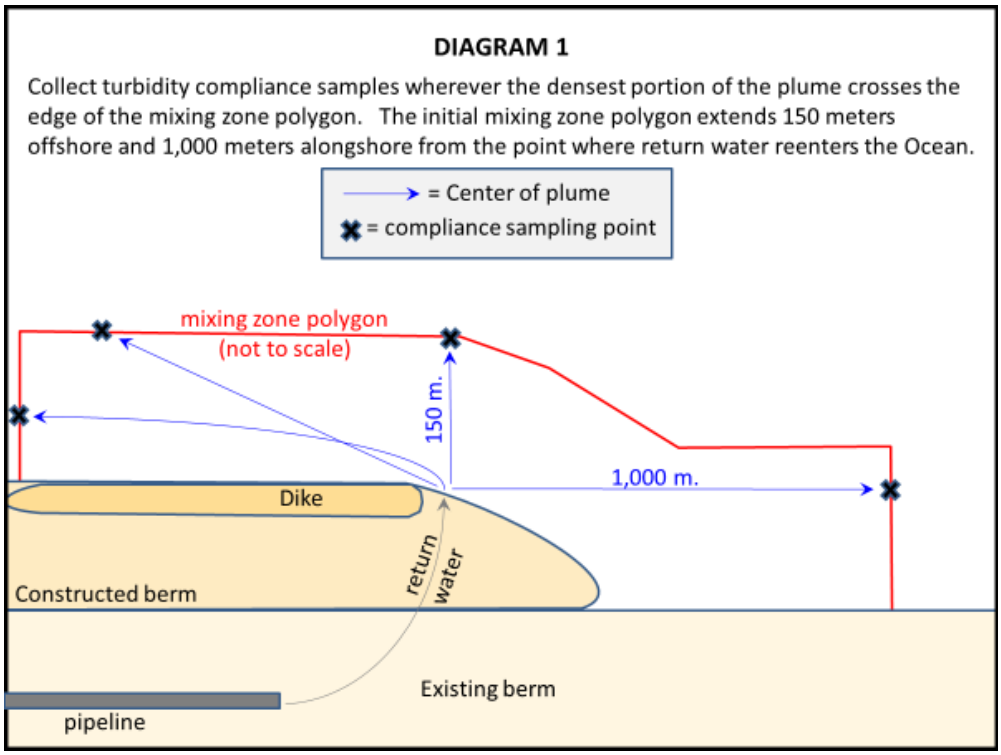
Borrow Site: Samples shall be collected at least 300 meters up- current from the source of turbidity at the dredge site.

Beach Site: Samples shall be collected at least 500 meters up- current from any portion of the beach that has been, or is being, filled during the current construction event, at the same distance offshore as the associated compliance sample.

Compliance: At surface, mid-depth, and (for sites with depths greater than 25 feet) 2 meters above the bottom, within the densest portion of any visible turbidity plume generated by this project. If no plume is visible, follow the likely direction of flow.

Borrow Site: Samples shall be collected 150 meters down-current from the source of turbidity at the dredge, which may include the cutterhead or hopper dredge overflow.

Beach Site: Samples ~~for the 2013 nourishment event~~ shall be collected where the densest portion of the turbidity plume crosses the edge of the mixing zone polygon, which measures up to 150 meters down-current offshore and up to 1,000 meters alongshore from the point where the return water from the dredged discharge reenters the Gulf of Mexico~~, but shall not extend south of R-36.5~~ or at the location of the nearest hardbottom edge, whichever is less. *Note: If the plume flows offshore, the densest portion of the plume cross the mixing zone polygon at a distance less than 1,000 meters alongshore, and if it flows parallel to the shoreline, the densest portion of the plume may cross the edge of the mixing zone polygon at a distance less than less than 150 meters offshore. In that case, it may be necessary to access the sampling location from the shore, in water that is too shallow for a boat. See Diagram 1.*



Intermediate Monitoring: (required when using a mixing zone that exceeds 150 meters in size): Samples shall be collected in the densest portion of the turbidity plume, at the surface, mid-depth and (for sites with depths greater than 25 feet) 2 meters from the bottom. The Intermediate sampling points shall be approximately 150 meters, 300 meters, 500 meters, and 750 meters down-current from the point where the return water from the dredged discharge reenters the Gulf of Mexico (if those points are located inside the mixing zone). These measurements will be used to calibrate the size of the mixing zone for future nourishment events. After the 2013 nourishment event, and prior to subsequent nourishment events, the Permittee shall use the intermediate turbidity monitoring data to support a recommendation for appropriately sized mixing zone dimensions. This information shall be submitted to the Department as part of an application for a permit modification to establish a mixing zone for the next nourishment event.

Calibration: The instruments used to measure turbidity shall be fully calibrated with primary standards within one month of the

commencement of the project, and at least once a month throughout the project. Calibration with secondary standards shall be verified each morning prior to use, after each time the instrument is turned on, and after field sampling using two secondary turbidity "standards" that bracket the anticipated turbidity samples. If the post-sampling calibration value deviates more than 8% from the previous calibration value, results shall be reported as estimated and a description of the problem shall be included in the field notes.

Analysis of turbidity samples shall be performed in compliance with the Department's standard operating procedure (SOP) DEP-SOP-001/01 FT 1600 Field Measurement of Turbidity. A link to the SOP is below:
http://publicfiles.dep.state.fl.us/dear/sas/sopdoc/2008sops/ft1600.pdf

If the turbidity monitoring protocol specified above prevents the collection of accurate data, the person in charge of the turbidity monitoring shall contact the JCP Compliance Officer to establish a more appropriate protocol. Once approved in writing by the Department, the new protocol shall be attached to the permit and shall be implemented without the need for a formal permit modification.

30. The compliance locations given above shall be considered the limits of the temporary mixing zone for turbidity allowed during construction. If monitoring reveals turbidity levels at the compliance sites that are greater than 29 NTUs above the corresponding background turbidity levels, construction activities shall **cease immediately** and not resume until corrective measures have been taken and turbidity has returned to acceptable levels. Any such occurrence shall also be immediately reported to the JCP Compliance Officer in Tallahassee via email at JCPCompliance@dep.state.fl.us and include in the subject line, "TURBIDITY EXCEEDANCE", along with the Project Name and Permit Number. Also notify the Department's Southwest District office.

Any project-associated turbidity source other than dredging or fill placement for beach nourishment (e.g., scow or pipeline leakage) shall be monitored as close to the source as possible. If the turbidity level exceeds 29 NTUs above background, the construction activities related to the exceedance shall **cease immediately** and not resume until corrective measures have been taken and turbidity has returned to acceptable levels. This turbidity monitoring shall continue every hour until background turbidity levels are restored or until otherwise directed

by the Department. The Permittee shall notify the Department, by separate email to the JCP Compliance Officer, of such an event within 24 hours of the time the Permittee first becomes aware of the discharge. The subject line of the email shall state "PROJECT- ASSOCIATED DISCHARGE-OTHER".

a. When reporting a turbidity exceedance, the following information shall also be included:

~~a~~i. the Project Name;

~~b~~ii. the Permit Number;

~~c~~iii. location and level (NTUs above background) of the turbidity exceedance;

~~d~~iv. the time and date that the exceedance occurred; and

~~e~~v. the time and date that construction ceased.

b. Prior to re-commencing the construction, a report shall be emailed to the Department with the same information that was included in the "Exceedance Report", plus the following information:

~~a~~i. turbidity monitoring data collected during the shutdown documenting the decline in turbidity levels and achievement of acceptable levels;

~~b~~ii. corrective measures that were taken; and

~~c~~iii. cause of the exceedance.

31. **Turbidity Reports.** All turbidity monitoring data shall be submitted within one week of analysis. The data shall be presented in tabular format, indicating the measured turbidity levels at the compliance sites for each depth, the corresponding background levels at each depth and the number of NTUs over background at each depth. Any exceedances of the turbidity standard (29 NTUs above background) shall be highlighted in the table. In addition to the raw and processed data, the reports shall also contain the following information:

a. time of day samples were taken;

b. dates of sampling and analysis;

c. GPS location of sample and source. When possible, coordinates should be provided in decimal degrees with a 5 decimal level of precision (i.e., 0.000001). Please also indicate the datum;

d. depth of water body;

e. depth of each sample;

f. antecedent weather conditions, including wind direction and velocity;

g. tidal stage and direction of flow;

h. water temperature;

i. a geo-referenced map, overlaid on an aerial photograph, indicating the sampling locations, dredging and discharge locations, the visible plume pattern and direction of flow. The map shall also include the boundaries of any benthic resources and/or OFW. A sample map shall be reviewed by the Department prior to construction;

j. a statement describing the methods used in collection, handling, storage and analysis of the samples;

k. a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, calibration of the meter, accuracy of the turbidity data and precision of the GPS measurements;

l. When samples cannot be collected, include an explanation in the report. If unable to collect samples due to severe weather conditions, include a copy of a current report from a reliable, independent source, such as an online weather service.

Monitoring reports shall be submitted by email to the JCP Compliance Officer. In the subject line of the reports, on the cover page to the submittal and at the top of each page, include the Project Name, Permit Number and the dates of the monitoring interval. Failure to submit reports in a timely manner constitutes grounds for revocation of the permit.

32. ***Hardbottom Monitoring.*** ~~The nearshore hardbottom adjacent to this project shall be monitored for possible secondary impacts. Prior to the second~~

~~nourishment event that is authorized by this permit, a baseline hardbottom survey shall be conducted by divers according to Department-approved protocol. The Survey shall cover all hardbottom within 300 meters seaward of the equilibrium toe of fill (ETOF) as well as 300 meters updrift and downdrift of the project. Thereafter, monitoring shall be conducted for 3 years after each nourishment event, and shall be compared to the baseline survey to identify any secondary impacts to hardbottom. Prior to implementation of the monitoring, the Permittee shall develop a Monitoring Plan and shall submit it to the Department for approval.~~

Biological monitoring shall be conducted to provide the Department with reasonable assurance that any unpermitted, project-related, persistent or temporary, negative impacts (direct or indirect) to hardbottom resources will be documented, if they occur. The Permittee shall adhere to the current, Department-approved Hardbottom Biological Monitoring Plan (HBMP), which is a binding part of this permit. The Permittee is responsible for ensuring that their selected contractor(s) / subcontractor(s) are knowledgeable of all permit conditions pertaining to monitoring requirements (including the HBMP); not just the scope of work in the contract prepared by the Permittee / contractor. The Permittee shall acquire written approval from the Department prior to implementing any revisions to the HBMP. Sub-conditions 33a-33d and **Table 2** (below), summarize monitoring and reporting requirements detailed the HBMP.

a. **Nearshore Hardbottom Monitoring.** Nearshore hardbottom adjacent to the fill template, beyond the permitted ETOF, shall be monitored (see **Section 2.0 of the HBMP**). A single pre-construction monitoring event shall be conducted prior to fill placement. This pre-construction monitoring event shall serve as the baseline for all post-construction monitoring. An immediate post-construction monitoring event (within six months of project completion) and three annual post-construction monitoring events (Years 1, 2, and 3 post-construction) shall be conducted following each fill placement event conducted under this Permit. Unless otherwise approved in writing by Department staff, all monitoring events shall be conducted during summer months (May through September), as close as practicable to the date the baseline monitoring event was conducted. Standard operating procedures shall be used during each monitoring event to provide consistent and repeatable collection of data.

b. **Mitigative Artificial Reef Monitoring.** The three (3) mitigative artificial reefs adjacent to the fill template, beyond the permitted

ETOF, shall be monitored in association with the one-time only fill placement event (see **Section 3.0 of the HBMP**). The December 2013/January 2014 pre-construction monitoring event for the 2014 Coquina Beach Project Nourishment Project (FDEP Permit No. 0281452-001-JC and Modification No. 0281452-005-JN) shall serve as the baseline monitoring event for the 1993, 2005, and 2011 mitigative artificial reefs. Three annual post-construction monitoring events (Years 1, 2, and 3 post-construction) shall be conducted following the one-time only fill placement event conducted under Permit Modification No. 0039378-018-JN. Unless otherwise approved in writing by Department staff, all post-construction monitoring events shall be conducted during summer months (May through September) in conjunction with post-construction biological monitoring events for nearshore hardbottom. Standard operating procedures shall be used during each monitoring event to provide consistent and repeatable collection of data.

c. **Reporting Requirements.** Reporting requirements are summarized below. See **Section 5.0 of the HBMP** for all reporting requirements.

i. **Notification of commencement, progress, and completion of work.** Commencement dates of monitoring events shall be reported via email to the JCP Compliance Officer (JCPCompliance@dep.state.fl) and to staff in the Beaches, Inlets, and Ports program roughly seven (7) days prior to the start of monitoring and the day that monitoring begins. Brief monitoring progress reports shall be submitted (emailed) weekly to the JCP Compliance Officer until completion of each monitoring event. As soon as monitoring activities have ended, the JCP compliance officer shall be notified that the monitoring event has been completed.

ii. **Pre-construction (baseline) nearshore hardbottom monitoring submissions.** At least 30 days prior to construction, the monitoring firm shall submit all raw data collected during the baseline hardbottom monitoring event directly and concurrently to the JCP Compliance Officer, the Permittee, and the Agent (e.g., on portable hard drives or via an FTP site).

iii. **Post-construction nearshore hardbottom and mitigative artificial reef monitoring data submissions**. Within 45 days

of completing each required post-construction monitoring event, all raw monitoring data shall be submitted directly and concurrently by the monitoring firm to the JCP Compliance Officer, the Permittee, and the Agent (e.g., on portable hard drives or via an FTP site).

iv. **Post-construction nearshore hardbottom and mitigative artificial reef monitoring report submissions**. Within 90 days of completing each required post-construction monitoring event, a written report shall be provided to the JCP Compliance Officer in electronic format. The report shall be submitted by the monitoring firm directly and concurrently to the Department, Permittee, and the Agent (e.g., by email, on a portable hard drive, or via an FTP site).

d. **Monitoring Summary.** Biological monitoring of natural hardbottom for beach fill placement (nourishment) shall include in-situ nearshore hardbottom edge mapping and permanent transect monitoring (**Table 2**). Mitigative artificial reef monitoring shall include the collection of physical monitoring data (in-situ boundary delineation and net acreage estimation) (**Table 2**). All monitoring events shall be conducted during summer months (May through September), unless otherwise approved by Department staff. Monitoring data and reports are required to be submitted following each monitoring event, according to the HBMP (see **Section 5.0 of the HBMP** and see Specific Condition No. 33.c).

Table 2. Monitoring Summary

Monitoring Area	Survey	Survey Type	Monitoring Period & Number of Events	Deliverables
Nearshore Hardbottom (between R-22 and R-24)	Biological Monitoring Permanent Transects (Biological (3) and Sediment Only (2))	Line-Intercept (all transects)	**Pre-Construction** (N=1): Once prior to fill placement event (Baseline). **Post-Construction** (N=4 per fill placement event): Immediately (within 6 months) and annually for 3 years (years 1, 2, and 3).	Excel spreadsheet, PDF of field sheets
		Interval Sediment Depth (all transects)		Excel spreadsheet, PDF of field sheets
		Qualitative Video (only biological transects)		Video
		Quadrat Sampling (only biological transects)		Excel spreadsheet, PDF of field sheets
	Hardbottom Edge	*In-situ* Edge Delineation (from R-22 to R-24)		Shapefiles
Mitigative Reefs (1993, 2005, 2011) (between R-36 and R-39)	Physical Monitoring	*In-situ* Boundary Delineation	**Post-Construction** (N=3 following the one time only Coquina Beach fill event): annually for 3 years (years 1, 2, and 3).	Shapefiles
		Line-Intercept (all transects)		Excel spreadsheet, PDF of field sheets

33. **This permit does not authorize any impacts to hardbottom resources.** If the hardbottom monitoring identifies any unpermitted, project-related, persistent or temporary, negative impacts (direct or indirect) to hardbottom or mitigative reef resources, ~~secondary impacts from this project,~~then the Permittee would be responsible for offsetting those impacts. Impacts and their mitigation may be handled through compliance and enforcement action, and the amount of mitigation may be determined according to the

Department's UMAM assessment.

34. ***Physical Monitoring.*** Pursuant to Chapter 62B-41.005(16), F.A.C., physical monitoring of the project shall be required through acquisition of project-specific data to include, at a minimum, topographic and bathymetric surveys of the beach, offshore, and borrow site areas, and engineering analysis. The monitoring data are necessary in order for both the project sponsor and the Department to regularly observe and assess, with quantitative measurements, the performance of the project, any adverse effects that have occurred, and the need for any adjustments, modifications, or mitigative response to the project. The scientific monitoring process also provides the project sponsor and the Department with information necessary to plan, design and optimize subsequent follow-up projects, potentially reducing the need for and costs of unnecessary work, as well as potentially reducing any environmental impacts that may have occurred or would be expected.

Monitoring and reporting of the permitted project shall be conducted in accordance with the Physical Monitoring Plan dated July 2019, and with the conditions of this permit. ~~**Prior to construction, the Permittee shall submit an acceptable Monitoring Plan subject to review by the Department.** The Monitoring Plan shall include project drawings that depict the survey profiles and survey grid lines for the beach-offshore profiles on Anna Maria Island and for the bathymetric survey of the entire shoal complex at the north end of Anna Maria Island~~.

The approved Monitoring Plan can be revised at any later time by written request of the Permittee and with the written approval of the Department. If, subsequent to approval of the Monitoring Plan, there is a request for modification of the permit, the Department may require revised or additional monitoring requirements as a condition of approval of the permit modification.

The approved ~~An acceptable~~ plan ~~shall generally~~ contains the following items:

a. Topographic and bathymetric profile surveys of the beach and offshore shall be conducted within 90 days prior to commencement of construction, and within 60 days following completion of construction of the project. Thereafter, monitoring surveys shall be conducted one year after construction and ~~annually for a period of three (3) years; then biennially~~ continue every two years thereafter (i.e., one-year post-construction, three-year post-construction, five-year post-construction, etc.) until the next beach nourishment event or the expiration of the project design life, whichever occurs first. The

monitoring surveys shall be conducted during a spring or summer month and repeated as close as practicable during that same month of the year. If the time period between the immediate post-construction survey and the first annual monitoring survey is less than six months, then the Permittee may request a postponement of the first monitoring survey until the following spring/summer. A postponement request should be submitted as part of the cover letter for the post-construction report. A prior design survey of the beach and offshore may be submitted for the pre-construction survey if consistent with the other requirements of this condition.

The monitoring area shall include profile surveys at each of the Department reference monuments within the bounds of the beach fill area and along at least 5,000 feet of the adjacent shoreline, on both sides of the beach fill area (R-1 to R- 41, inclusive). For those project areas that contain erosion control structures, such as groins or breakwaters, additional profile lines shall be surveyed at a sufficient number of intermediate locations to accurately identify patterns of erosion and accretion within this subarea (R-33 to R-41, inclusive). All work activities and deliverables shall be conducted in accordance with the latest update of the Department's ~~Beaches, Inlets and Ports Program (BIPP)~~ *Monitoring Standards for Beach Erosion Control Projects, Sections 01000 and 01100*.

b. Bathymetric surveys of the borrow area(s) shall be conducted within 90 days prior to commencement of construction, and within 60 days following completion of construction of the project concurrently with the beach and offshore surveys required above. Borrow sites located in tidal inlet shoals or in nearshore waters, above the depth of closure for littoral transport processes, shall be surveyed at two (2) year intervals concurrently with the beach and offshore surveys required above ~~(i.e., one-year post-construction, three-year post-construction, five-year post-construction, etc.)~~. A prior design survey of the borrow area may be submitted for the pre-construction survey, if consistent with the other requirements of this condition.

Survey grid lines across the borrow area(s) shall be spaced to provide sufficient detail for accurate volumetric calculations but spaced not more than a maximum of 500 feet apart and shall extend a minimum of 500 feet beyond the boundaries of the borrow site. For borrow sites located in tidal inlet shoals, bathymetric surveys of the entire shoal complex, including any attachment bars, shall be conducted unless otherwise specified by the Department based upon

the size of the shoal and the potential effects of the dredging on inlet processes. In all other aspects, work activities and deliverables shall be consistent with the Department's ~~BIPP~~ *Monitoring Standards for Beach Erosion Control Projects, Section 01200.*

c. The Permittee shall submit an engineering report and the monitoring data to the JCP Compliance Officer within 90 days following completion of the post- construction survey and each annual or biennial monitoring survey.

The report shall summarize and discuss the data, the performance of the beach fill project, and identify erosion and accretion patterns within the monitored area. In addition, the report shall include a comparative review of project performance to performance expectations and identification of adverse impacts attributable to the project. The report shall specifically state the percentage of volume remaining and the project berm width or shoreline width remaining. Indicate the volume remaining both above and below the mean high water line.

Appendices shall include plots of survey profiles and graphical representations of volumetric and shoreline position changes for the monitoring area. Results shall be analyzed for patterns, trends, or changes between annual surveys and cumulatively since project construction.

d. One electronic copy of the monitoring report and one electronic copy of the survey data shall be submitted to the JCP Compliance Officer in Tallahassee. Failure to submit reports and data in a timely manner constitutes grounds for revocation of the permit. When submitting any monitoring information, please include a transmittal cover letter clearly labeled with the following at the top of each page: **"This monitoring information is submitted in accordance with Item No. [XX] of the approved Monitoring Plan for Permit No. [XX] for the monitoring period [XX].**

35. ***Cultural Resources.*** If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project area, the permitted project should **cease all activities** involving subsurface disturbance in the immediate vicinity of such discoveries. The Permittee, or other designee, shall contact the Florida

Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245- 6333 or (800) 847-7278, and the JCP Compliance Officer if cultural resources are encountered. Project activities shall not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, **all work shall stop** immediately, and the proper authorities shall be notified in accordance with Section 872.05, F.S.

The set of approved permit drawings shall be revised as follows:

The 2019-2020 permit drawings (40 pages, dated June 26, 2019 and certified July 19, 2019) shall be appended to the permit file and shall **only** be applicable for the upcoming event.

The list of Permit Attachments shall be revised as follows:

Hardbottom Biological Monitoring Plan for Manatee County Beach Nourishment Project (20 pages, dated and approved August 2019) shall be appended to the permit file.

QA/QC Plan (approved July 2019) shall replace the QA/QC Plan approved July 2013)

Physical Monitoring Plan (approved July 2019), shall replace the Physical Monitoring Plan dated October 30, 2013

After thorough review of your application, staff finds that the proposed modification is not expected to adversely affect water quality or be contrary to the public interest. Staff has also determined that the proposed alteration does not increase the potential for adverse impact on the coastal system, public beach access seaward of the mean high water line or nesting marine turtles and hatchlings and their habitat, and that the proposed alteration does not reduce the design adequacy of the project. Since the proposed modification is not expected to result in any adverse environmental impact or water quality degradation the **permit is hereby modified** as stated above. By copy of this letter and the attached drawings and the attached plan, we are notifying all necessary parties of the modification.

This letter of approval does not alter the **August 28, 2028** expiration date of the permit. The only Specific Conditions of the permit that are altered by this modification are those stated above. This letter and the attached drawings and the attached plan must be attached to the original permit.

This permit is hereby modified unless a sufficient petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, Florida Statutes (F.S.), as provided below. The

procedures for petitioning for a hearing are set forth below. Mediation under Section 120.573, F.S., is not available for this proceeding.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the application.

Petition for Administrative Hearing
A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rules 28-106.201 and 28-106.301, F.A.C., a petition for an administrative hearing must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency_Clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition
In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant and persons entitled to written notice under Section 120.60(3), F.S., must be filed within **14** days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within **14** days of publication of the notice or within 14 days of receipt of the written notice, whichever occurs first. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time
Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency_Clerk@dep.state.fl.us, before the deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation
Mediation is not available in this proceeding.

FLAWAC Review
The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when this order is filed with the Clerk of the Department.

Judicial Review
Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Florida Rules of Appellate Procedure 9.110 and 9.190 with the Clerk of the Department in the Office of General

Counsel (Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000) and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within 30 days from the date this action is filed with the Clerk of the Department.

If you have any questions regarding this matter, please contact Sean Greenby email at Sean.O.Green@dep.state.fl.us or by telephone at (850) 245-7667.

EXECUTION AND CLERKING:

Executed in Tallahassee, Florida.
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Gregory W. Garis
Program Administrator
Beaches, Inlets and Ports Program
Division of Water Resource Management

Attachments:

1. 2019-2020 Permit Drawings (40 pages, signed June 26, 2019 and certified July 19, 2019).
2. Hardbottom Biological Monitoring Plan for Manatee County Beach Nourishment Project (dated and approved August 2019).
3. Sediment QA/OC Plan (8 pages, approved July 26, 2019)

CERTIFICATE OF SERVICE
The undersigned duly designated deputy clerk hereby certifies that this permit and all attachments were sent on the filing date below to the following listed persons:

cc: Ivana KennyCarmola, DWRM
Brendan Biggs, DWRM
Jennifer Steele, DWRM
Robert Brantly, DWRM
Vincent George, DWRM
Megan Mills, FDEP, South District
Vladimir Kosmynin, DWRM
JCP Compliance Officer, DWRM
Luke Davis, FWC
Morgan Parks, FWC
Sam Lynch, FWC
ConservationPlanningServices@myfwc.com,
MarineTurtle@MyFWC.com
BIPP Permit File
Laurel Reichold, USACE, Jacksonville;
Michael Hollingsworth, USACE, Jacksonville;
Paul Karch, USACE, Jacksonville;

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to Section 120.52, F. S., with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ October 9, 2019
Clerk **Date**

ATTACHMENT 3

COMMENCEMENT NOTIFICATION

Within ten (10) days of initiating the authorized work, submit this form via electronic mail to saj-rd-enforcement@usace.army.mil (preferred, not to exceed 15 MB) ***or*** *by standard mail to U.S. Army Corps of Engineers, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232-0019.*

1. **Department of the Army Permit Number**: SAJ-2000-03874 (SP-CSH)

2. **Permittee Information**:

   Name: _____

   Email: _____

   Address: _____

   _____

   Phone: _____

3. **Construction Start Date**: _____

4. **Contact to Schedule Inspection**:

   Name: _____

   Email: _____

   Phone: _____

_____
Signature of Permittee

_____
Printed Name of Permittee

_____
Date

ATTACHMENT 4

AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER

*Within sixty (60) days of completion of the authorized work, submit this form and one set of as-built engineering drawings via electronic mail to saj-rd-enforcement@usace.army.mil (preferred, but not to exceed 15 MB) **or** by standard mail to U.S. Army Corps of Engineers, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232-0019. If you have questions regarding this requirement, please contact the Enforcement Branch at 904-232-3131.*

1. Department of the Army Permit Number: SAJ-2000-03874 (SP-CSH)

2. Permittee Information:

Name: _____

Address: _____

_____

3. Project Site Identification (physical location/address):

_____

_____

_____

4. As-Built Certification: I hereby certify that the authorized work, including any mitigation required by Special Conditions to the permit, has been accomplished in accordance with the Department of the Army permit with any deviations noted below. This determination is based upon on-site observation, scheduled and conducted by me or by a project representative under my direct supervision. I have enclosed one set of as-built engineering drawings.

_____ _____
Signature of Engineer Name (*Please type*)

_____ _____
(FL, PR, or VI) Reg. Number Company Name

_____ _____ _____
City State ZIP

(Affix Seal)

_____ _____
Date Telephone Number

Date Work Started:_____ Date Work Completed:_____

Identify any deviations from the approved permit drawings and/or special conditions (attach additional pages if necessary):

_____

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ATTACHMENT 5

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 shutdown 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 in Vero Beach (1-772-562-3909) for south Florida, and emailed 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 8½ " 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 http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm. Questions concerning these signs can be forwarded 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:

1-888-404-FWCC(3922)

cell *FWC or #FWC

ATTACHMENT 6

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

ATTACHMENT 7

United States Department of the Interior
U. S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
FWS Log No. 41910-2009-F-0456

November 16, 2009

Colonel Alfred A. Pantano, Jr. District Engineer
Department of the Army
Jacksonville District Corps of Engineers
Tampa Regulatory Office
10117 Princess Palm Drive, Suite 120
Tampa, FL 33610

Dear Colonel Pantano:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the proposed sand placement on two segments of the beach: Coquina Beach and the City of Anna Maria Island, in Manatee County, Florida, and its effects on the Florida manatee (*Trichechus manatus*), piping plover (*Charadrius melodus*), and loggerhead (*Caretta caretta*) and green (*Chelonia mydas)* sea turtles in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq*.). Your July 10, 2009, request for formal consultation was received on July 27, 2009.

This BO is for sand placement along Manatee County on the southern end of the island at Coquina Beach between Florida Department of Environmental Protection (FDEP) monuments R-35 + 790 feet and R-41 + 365 feet, and a portion of the beach in the City of Anna Maria at the northern end of the island between FDEP monuments R-7 to R-10.

The Corps determined that the proposed project may affect but was not likely to adversely affect, the Florida manatee and piping plover. The Corps also amended their determination for the loggerhead and green sea turtles. The Corps determined that the proposed project "may affect and is likely to adversely affect the loggerhead and green sea turtles. The Service concurred with these determinations.

Florida manatee

The Service concurs that, if the Standard Manatee Construction Conditions are implemented, then these activities are not likely to adversely affect the Florida manatee. We also conclude that these activities will not adversely modify its critical habitat. These

findings fulfill section 7 requirements of the Act in regard to manatees. In addition, because no incidental take of manatees is anticipated, no such authorization under the Marine Mammal Protection Act (MMPA) is needed.

Piping plover

The project area has not been consistently surveyed for wintering piping plovers per the Service's monitoring protocol. During the 1991 Florida Winter Piping Plover Census and incidental sighting in October 2009, non-breeding piping plovers were documented in areas within the proximity of the proposed project in Manatee County, Florida.

Natural organic material deposited on the beach (wrack) provides important foraging and roosting habitat for piping plovers and other shorebirds. It also serves to protect important shorebird habitat by helping stabilize beaches through reduction in erosive processes such as eolian sand transport. Protection of wrack can help to offset the direct and indirect impacts associated with beach nourishment and ensuing human disturbance.

The Service met with the applicant and FWC on September 8, 2009, to discuss areas within the project areas where natural organic material (wrack) can remain along the shoreline year-round.

The applicant agreed to the following conservation measures within the proposed project action:

1. The natural accumulation of wrack will remain on the south end of Anna Maria Island year-round (the area of beach along the no-swim area at the southern end of the island, south of R-40 + 410 feet). An exception to this will apply when the health of humans may be affected by events such as red tide and macro-algae blooms. The Service will be contacted when these issues need to be addressed. The Service and FWC will meet with Manatee County to discuss other options for minimizing the wrack removal within the project area if the above option is no longer feasible.

2. Vehicles including all-Terrain Vehicles (ATVs) traversing the beach, used by beach life-guards, beach maintenance employees, turtle watch volunteers and law enforcement will avoid the soft sand areas in the wrack protection zone and follow the FWC's Beach Driving Best Management Practices: (http://www.myfwc.com/CONSERVATION/ConservationYouLiving_w_Wildlife_BeachDriving.htm). Emergency vehicles shall have full access to the beach including the wrack protection zone.

3. Educational signs will be installed highlighting the importance of beach habitats to wildlife and explaining the importance of the wrack along the shoreline. The FWC will provide examples of the information to include on these signs.

Based on the preceding, the Service has determined that the proposed project "may affect but is not likely to adversely affect" the piping plover provided that applicant modified their

project plans to include the above measures to preserve piping plover feeding and roosting habitat within the project area.

Sea Turtles

The Service has determined that the proposed project may affect and is likely to adversely affect nesting loggerhead and green sea turtles. The Service has therefore completed the following BO that addresses the effects of the proposed action on the loggerhead and green sea turtles.

Consultation History

In 1992/93, approximately 2.32 million cubic yards of sand was placed along a 4.6 mile segment of the Anna Maria Island Coastline between FDEP monuments R-12 and R-36.

On June 27, 2001, the Service issued a BO for a Beach Nourishment Project at Anna Maria Island.
From March to May 2002, the first Anna Maria Island Beach Renourishment Project placed approximately 1.9 million cubic yards of sand along 5.2 miles of the Anna Maria Island shoreline. The 2002 project limits included the original 4.6 mile federally authorized and federally funded project area located between FDEP monuments R-12 and R-36. The County also nourished an additional 3,000 feet (previously unnourished) of beach within the City of Anna Maria between FDEP monuments R-7 and R-10.

On October 20, 2002 the Corps issued Permit Number 200003874 (IP-MN) for the city of Anna Maria Beach Renourishment Project extending between FDEP monuments R-7 and R-10.

In 2004, four hurricanes impacted the State of Florida. Two of the four hurricanes had a direct impact on Anna Maria Island. The wind and wave conditions associated with these storms accelerated the natural beach erosion process. The Corps, under Public Law 84-99 (PL 84-99), allocated emergency funds throughout the State of Florida for beach fill placement to replace the beach fill lost during the severe 2004 hurricane season.

On June 15, 2005, the Service issues a BO (05-1227) for the renourishment of 4.7 miles of beach on Anna Maria Island from FDEP monument R-12 to R-36. On December 7, 2005, the Service modified this BO to include 3000 linear feet of additional nourishment from FDEP monument R-7 to R-10 (41910-2006-F-0079).

On July 27, 2009, the Service received a letter from the Corps requesting concurrence of a "may affect, not likely to adversely affect" for nesting sea turtles. On August 6, 2009, the Service responded via email to the Corps, with an explanation of the impacts of nourishments to nesting and hatching sea turtles. On August 14, 2009, the Service received an email from the Corps, amending their determination to "may affect, likely to adversely affect" sea turtles. The Service concurred with this determination.

On September 8, 2009, the Service, FWC, applicant, and the Corps met on-site to discuss the specifics of the project.

The Service had sufficient information to issue this BO for the proposed project. Information for this BO was obtained by email correspondence, meetings, site visits, telephone conversations and other sources of information. A complete administrative record of this consultation is on file at the Service's Jacksonville Field Office.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Applicant has proposed to place approximately 169,000 cubic yards (cy) of beach compatible material along approximately 1.0 mile of Coquina Beach and to place approximately 25,000 cy of beach quality material along 0.6 miles of the City of Anna Maria segment of beach. The constructed beached will include a berm elevation of +4 feet NAVD on a slope of 1 foot vertical to 15 feet horizontal. The County proposes to use sand from a borrow area located approximately 3,000 feet west of the north end of Anna Maria Island. The borrow area contains sediment similar to the existing beach sediment.

The Applicant proposes to use sand taken from Longboat Pass navigation channel and ebb tidal shoal for the Coquina Beach segment of the project; and sand from the previously authorized borrow area at the north end of the island being used as the source of material for the City of Anna Maria project. CPE will conduct a detailed geophysical investigation, including sub-bottom profiling, at the proposed Longboat Pass sand sources in the near future to support the request for sand source delineation.

Material transport from the borrow areas to the project site will occur through a series of submerged, floating and shore-supported pipelines connected to a hydraulic cutterhead dredge. Once deposition of material occurs at the fill site, the contractor will move the sand using heavy equipment to shape the beach to the design cross-sections.

Conservation Measures

Sea Turtles

1. FWC and the local sponsor have an agreement to conduct sea turtle monitoring for a minimum of two additional nesting seasons after nourishment event if placed sand remains.

STATUS OF THE SPECIES/CRITICAL HABITAT

The Service has responsibility for implementing recovery of sea turtles when they come ashore to nest. This BO addresses nesting sea turtles, their nests and eggs, and hatchlings as they emerge from the nest and crawl to the sea. The National Oceanic and Atmospheric

Administration's National Marine Fisheries Service (NMFS) has jurisdiction over sea turtles in the marine environment.

Loggerhead Sea Turtle

The loggerhead sea turtle was federally listed as a threatened species on July 28, 1978 (43 FR 32800). The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans.

The loggerhead sea turtle grows to an average weight of about 200 pounds and is characterized by a large head with blunt jaws. Adults and subadults have a reddish-brown carapace. Scales on the top of the head and top of the flippers are also reddish-brown with yellow on the borders. Hatchlings are a dull brown color (NMFS 2002a). The loggerhead feeds on mollusks, crustaceans, fish, and other marine animals.

The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. It may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Coral reefs, rocky places, and ship wrecks are often used as feeding areas.

Within the Northwest Atlantic, the majority of nesting activity occurs from April through September, with a peak in June and July (Williams-Walls *et al.* 1983, Dodd 1988, Weishampel *et al.* 2006). Nesting occurs within the Northwest Atlantic along the coasts of North America, Central America, northern South America, the Antilles, Bahamas, and Bermuda, but is concentrated in the southeastern U.S. and on the Yucatán Peninsula in Mexico on open beaches or along narrow bays having suitable sand (Sternberg 1981, Ehrhart 1989, Ehrhart *et al.* 2003, NMFS and FWS 2008).

No critical habitat has been designated for the loggerhead sea turtle.

Green Sea Turtle

The green sea turtle was federally listed as on July 28, 1978 (43 FR 32800). Breeding populations of the green turtle in Florida and along the Pacific Coast of Mexico are listed as endangered; all other populations are listed as threatened. The green sea turtle has a worldwide distribution in tropical and subtropical waters.

The green sea turtle grows to a maximum size of about 4 feet and a weight of 440 pounds. It has a heart-shaped shell, small head, and single-clawed flippers. The carapace is smooth and colored gray, green, brown and black. Hatchlings are black on top and white on the bottom (NMFS 2002b). Hatchling green turtles eat a variety of plants and animals, but adults feed almost exclusively on seagrasses and marine algae.

Major green turtle nesting colonies in the Atlantic occur on Ascension Island, Aves Island, Costa Rica, and Surinam. Within the U.S., green turtles nest in small numbers in the U.S. Virgin Islands and Puerto Rico, and in larger numbers along the east coast of Florida,

particularly in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties (NMFS and Service 1991a). Nesting also has been documented along the Gulf coast of Florida from Escambia County through Franklin County in northwest Florida and from Pinellas County through Collier County in southwest Florida (FWC Statewide Nesting Beach Survey database). Green turtles have been known to nest in Georgia, but only on rare occasions (Georgia Department of Natural Resources statewide nesting database). The green turtle also nests sporadically in North Carolina and South Carolina (North Carolina Wildlife Resources Commission statewide nesting database; South Carolina Department of Natural Resources statewide nesting database). Unconfirmed nesting of green turtles in Alabama has also been reported (Bon Secour National Wildlife Refuge nesting reports).

Green sea turtles are generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The green turtle is attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting.

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys.

Life history

Loggerhead Sea Turtle

Loggerheads are long-lived, slow-growing animals that use multiple habitats across entire ocean
basins throughout their life history. This complex life history encompasses terrestrial, nearshore, and open ocean habitats. The three basic ecosystems in which loggerheads live are the:

1. Terrestrial zone (supralittoral) - the nesting beach where both oviposition (egg laying) and embryonic development and hatching occur.

2. Neritic zone - the inshore marine environment (from the surface to the sea floor) where water depths do not exceed 656 feet . The neritic zone generally includes the continental shelf, but in areas where the continental shelf is very narrow or nonexistent, the neritic zone conventionally extends to areas where water depths are less than 656 feet.

3. Oceanic zone - the vast open ocean environment (from the surface to the sea floor) where water depths are greater than 656 feet.

Maximum intrinsic growth rates of sea turtles are limited by the extremely long duration of the juvenile stage and fecundity. Loggerheads require high survival rates in the juvenile and adult stages, common constraints critical to maintaining long-lived, slow-growing species, to achieve positive or stable long-term population growth (Congdon et al. 1993; Heppell 1998; Crouse 1999; Heppell et al. 1999, 2003; Musick 1999).

The generalized life history of Atlantic loggerheads is shown in Figure 1 (from Bolten 2003).

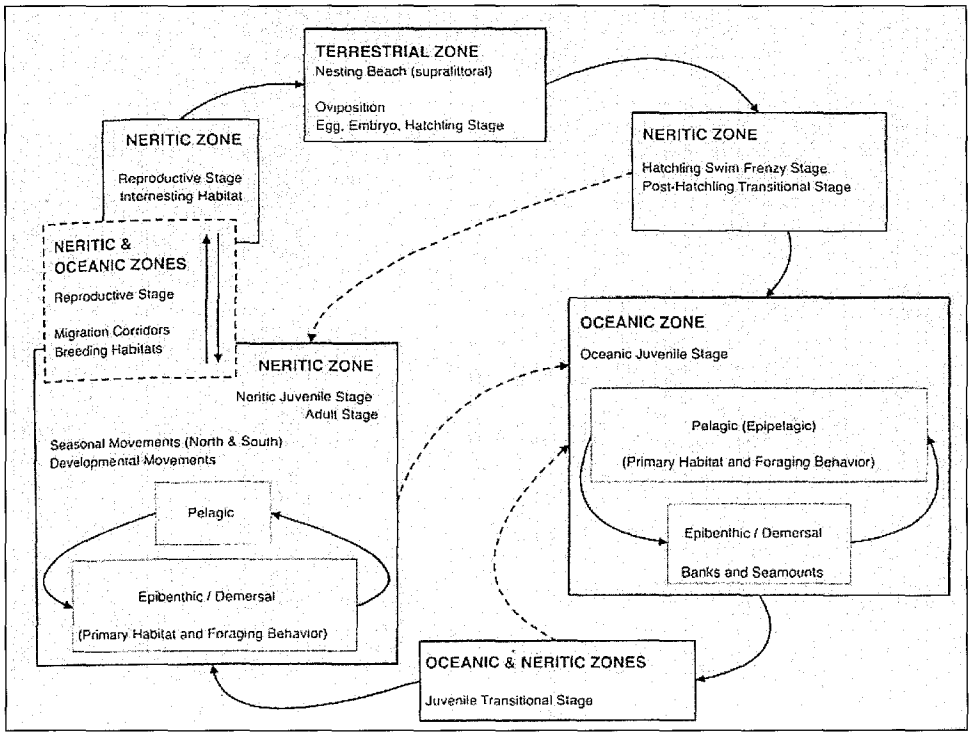

Figure 1. Life history stages of a loggerhead turtle. The boxes represent life stages and the corresponding ecosystems, solid lines represent movements between life stages and ecosystems, and dotted lines are speculative (Bolten 2003).

Numbers of nests and nesting females are often highly variable from year to year due to a number of factors including environmental stochasticity, periodicity in ocean conditions, anthropogenic effects, and density-dependent and density-independent factors affecting survival, somatic growth, and reproduction (Meylan 1982, Hays 2000, Chaloupka 2001, Solow et al. 2002). Despite these sources of variation, and because female turtles exhibit strong nest site fidelity, a nesting beach survey can provide a valuable assessment of changes in the adult female population, provided that the study is sufficiently long and effort and methods are standardized (Meylan 1982, Gerrodette and Brandon 2000, Reina et al. 2002). Table 1 summarizes key life history characteristics for loggerheads nesting in the U.S.

Table 1. Typical values of life history parameters for loggerheads nesting in the U.S. (NMFS and Service 2008).

Life History Trait	Data
Clutch size (mean)	100-126 eggs[1]
Incubation duration (varies depending on time of year and latitude)	Range = 42-75 days[2,3]
Pivotal temperature (incubation temperature that produces an equal number of males and females)	29.0°C[5]
Nest productivity (emerged hatchlings/total eggs) x 100 (varies depending on site specific factors)	45-70percent[2,6]
Clutch frequency (number of nests/female/season)	3-4 nests[7]
Internesting interval (number of days between successive nests within a season)	12-15 days[8]
Juvenile (<87 cm CCL) sex ratio	65-70percent female[4]
Remigration interval (number of years between successive nesting migrations)	2.5-3.7 years[9]
Nesting season	late April-early September
Hatching season	late June-early November
Age at sexual maturity	32-35 years[10]
Life span	>57 years[11]

[1] Dodd 1988.
[2] Dodd and Mackinnon (1999, 2000, 2001, 2002, 2003, 2004).
[3] B. Witherington, FWC, pers. comm. 2006 (information based on nests monitored throughout Florida beaches in 2005, n=865).
[4] National Marine Fisheries Service (2001); A. Foley, FWC, pers. comm. 2005.
[5] Mrosovsky (1988).
[6] B. Witherington, FWC, pers. comm. 2006 (information based on nests monitored throughout Florida beaches in 2005, n=1,680).
[7] Murphy and Hopkins (1984); Frazer and Richardson (1985); Ehrhart, unpublished data; Hawkes *et al.* 2005; Scott 2006; Tony Tucker, Mote Marine Laboratory, personal communication, 2008.
[8] Caldwell (1962), Dodd (1988).
[9] Richardson et al. (1978); Bjorndal et al. (1983); Ehrhart, unpublished data.
[10] M. Snover, NMFS, pers. comm. 2005.
[11] Dahlen et al. (2000).

Loggerheads nest on ocean beaches and occasionally on estuarine shorelines with suitable sand. Nests are typically laid between the high tide line and the dune front (Routa 1968,

Witherington 1986, Hailman and Elowson 1992). Wood and Bjorndal (2000) evaluated four environmental factors (slope, temperature, moisture, and salinity) and found that slope had the greatest influence on loggerhead nest-site selection on a beach in Florida. Loggerheads appear to prefer relatively narrow, steeply sloped, coarse-grained beaches, although nearshore contours may also play a role in nesting beach site selection (Provancha and Ehrhart 1987).

The warmer the sand surrounding the egg chamber, the faster the embryos develop (Mrosovsky and Yntema 1980). Sand temperatures prevailing during the middle third of the incubation period also determine the sex of hatchling sea turtles (Mrosovsky and Yntema 1980). Incubation temperatures near the upper end of the tolerable range produce only female hatchlings while incubation temperatures near the lower end of the tolerable range produce only male hatchlings.

Loggerhead hatchlings pip and escape from their eggs over a 1- to 3-day interval and move upward and out of the nest over a 2- to 4-day interval (Christens 1990). The time from pipping to emergence ranges from 4 to 7 days with an average of 4.1 days (Godfrey and Mrosovsky 1997). Hatchlings emerge from their nests en masse almost exclusively at night, and presumably using decreasing sand temperature as a cue (Hendrickson 1958, Mrosovsky 1968, Witherington et al. 1990). Moran *et al.* (1999) concluded that a lowering of sand temperatures below a critical threshold, which most typically occurs after nightfall, is the most probable trigger for hatchling emergence from a nest. After an initial emergence, there may be secondary emergences on subsequent nights (Carr and Ogren 1960, Witherington 1986, Ernest and Martin 1993, Houghton and Hays 2001).

Hatchlings use a progression of orientation cues to guide their movement from the nest to the marine environments where they spend their early years (Lohmann and Lohmann 2003). Hatchlings first use light cues to find the ocean. On naturally lighted beaches without artificial lighting, ambient light from the open sky creates a relatively bright horizon compared to the dark silhouette of the dune and vegetation landward of the nest. This contrast guides the hatchlings to the ocean (Daniel and Smith 1947, Limpus 1971, Salmon et al. 1992, Witherington 1997, Witherington and Martin 1996, Stewart and Wyneken 2004).
Loggerheads in the Northwest Atlantic display complex population structure based on life history stages. Based on mtDNA, oceanic juveniles show no structure, neritic juveniles show moderate structure, and nesting colonies show strong structure (Bowen *et al.* 2005). In contrast, a survey using microsatellite (nuclear) markers showed no significant population structure among nesting populations (Bowen *et al.* 2005), indicating that while females exhibit strong philopatry, males may provide an avenue of gene flow between nesting colonies in this region.

Green Sea Turtle

Green turtles deposit from one to nine clutches within a nesting season, but the overall average is about 3.3 nests. The interval between nesting events within a season varies around a mean of about 13 days (Hirth 1997). Mean clutch size varies widely among

populations. Average clutch size reported for Florida was 136 eggs in 130 clutches (Witherington and Ehrhart 1989). Only occasionally do females produce clutches in successive years. Usually two, three, four or more years intervene between breeding seasons (NMFS and Service 1991a). Age at sexual maturity is believed to be 20 to 50 years (Hirth 1997).

Population dynamics

Loggerhead Sea Turtle

The loggerhead occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. However, the majority of loggerhead nesting is at the western rims of the Atlantic and Indian Oceans. The most recent reviews show that only two loggerhead nesting beaches have greater than 10,000 females nesting per year (Baldwin et al. 2003, Ehrhart et al. 2003, Kamezaki et al. 2003, Limpus and Limpus 2003, Margaritoulis et al. 2003): South Florida (U.S.) and Masirah (Oman). Those beaches with 1,000 to 9,999 females nesting each year are Georgia through North Carolina (U.S.), Quintana Roo and Yucatán (Mexico), Cape Verde Islands (Cape Verde, eastern Atlantic off Africa), and Western Australia (Australia). Smaller nesting aggregations with 100 to 999 nesting females annually occur in the Northern Gulf of Mexico (U.S.), Dry Tortugas (U.S.), Cay Sal Bank (Bahamas), Sergipe and Northern Bahia (Brazil), Southern Bahia to Rio de Janerio (Brazil), Tongaland (South Africa), Mozambique, Arabian Sea Coast (Oman), Halaniyat Islands (Oman), Cyprus, Peloponnesus (Greece), Island of Zakynthos (Greece), Turkey, Queensland (Australia), and Japan.

The loggerhead is commonly found throughout the North Atlantic including the Gulf of Mexico, the northern Caribbean, the Bahamas archipelago, and eastward to West Africa, the western Mediterranean, and the west coast of Europe.

The major nesting concentrations in the U.S. are found in South Florida. However, loggerheads nest from Texas to Virginia. Total estimated nesting in the U.S. has fluctuated between 49,000 and 90,000 nests per year from 1999-2008 (FWC, unpublished data; GDNR, unpublished data; SCDNR, unpublished data; NCWRC, unpublished data). About 80 percent of loggerhead nesting in the southeast U.S. occurs in six Florida counties (Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties). Adult loggerheads are known to make considerable migrations between foraging areas and nesting beaches (Schroeder et al. 2003, Foley et al. 2008). During non-nesting years, adult females from U.S. beaches are distributed in waters off the eastern U.S. and throughout the Gulf of Mexico, Bahamas, Greater Antilles, and Yucatán.

From a global perspective, the U.S. nesting aggregation is of paramount importance to the survival of the species as is the population that nests on islands in the Arabian Sea off Oman (Ross 1982, Ehrhart 1989). The status of the Oman loggerhead nesting population, reported to be the largest in the world (Ross 1979), is uncertain because of the lack of long-term standardized nesting or foraging ground surveys and its vulnerability to increasing development pressures near major nesting beaches and threats from fisheries interaction on

foraging grounds and migration routes (E. Possardt, Service, personal communication 2005). The loggerhead nesting aggregations in Oman and the U.S. account for the majority of nesting worldwide.

Green Sea Turtle

About 150 to 3,000 females are estimated to nest on beaches in the continental U.S. annually (FWC 2005). In the U.S. Pacific, over 90 percent of nesting throughout the Hawaiian archipelago occurs at the French Frigate Shoals, where about 200 to 700 females nest each year (NMFS and Service 1998a). Elsewhere in the U.S. Pacific, nesting takes place at scattered locations in the Commonwealth of the Northern Marianas, Guam, and American Samoa. In the western Pacific, the largest green turtle nesting aggregation in the world occurs on Raine Island, Australia, where thousands of females nest nightly in an average nesting season (Limpus et al. 1993). In the Indian Ocean, major nesting beaches occur in Oman where 30,000 females are reported to nest annually (Ross and Barwani 1995).

Status and Distribution

Loggerhead Sea turtle

Five recovery units (subpopulations) have been identified in the Northwest Atlantic based on genetic differences and a combination of geographic distribution of nesting densities and geographic separation (NMFS and FWS 2008):

1. Northern Recovery Unit (NRU) - defined as loggerheads originating from nesting beaches from the Florida-Georgia border through southern Virginia (the northern extent of the nesting range).

2. Peninsula Florida Recovery Unit (PFRU) - defined as loggerheads originating from nesting beaches from the Florida-Georgia border through Pinellas County on the west coast of Florida, excluding the islands west of Key West, Florida.

3. Dry Tortugas Recovery Unit (DTRU) - defined as loggerheads originating from nesting beaches throughout the islands located west of Key West, Florida.

4. Northern Gulf of Mexico Recovery Unit (NGMRU) - defined as loggerheads originating from nesting beaches from Franklin County on the northwest Gulf coast of Florida through Texas.

5. Greater Caribbean Recovery Unit (GCRU) - composed of loggerheads originating from all other nesting assemblages within the Greater Caribbean (Mexico through French Guiana, The Bahamas, Lesser Antilles, and Greater Antilles).

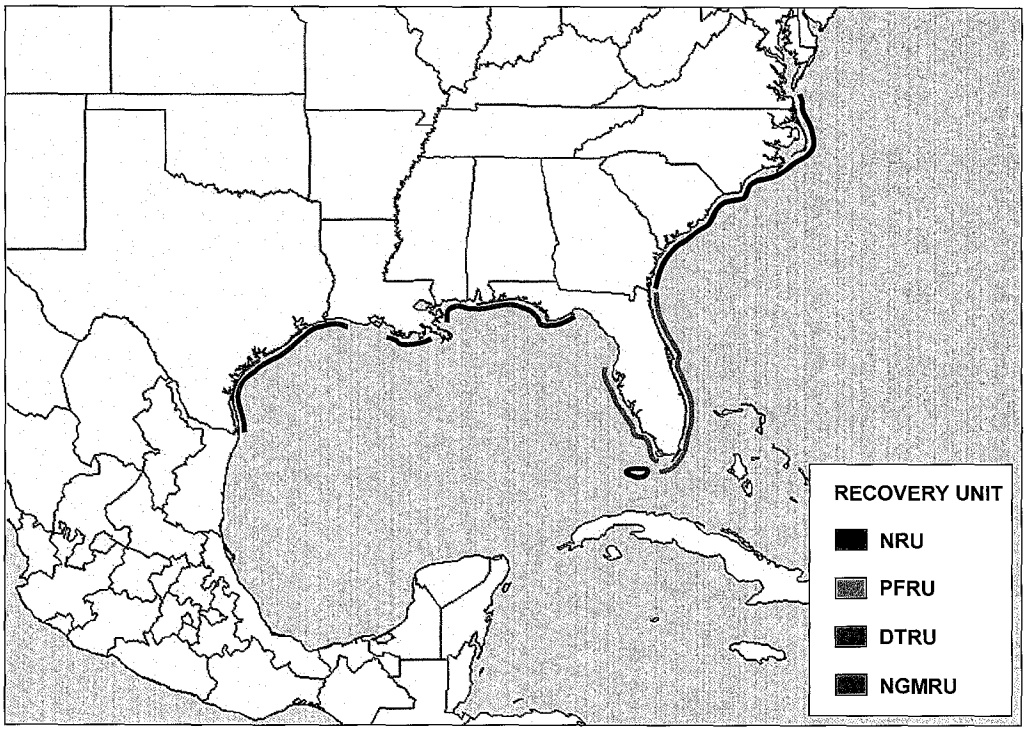

Figure 2. Map of the distribution of the loggerhead recovery units.

Mitochondrial DNA analyses show that there is limited exchange of females among these recovery units (Ehrhart 1989; Foote et al., 2000; Hawkes et al. 2005; J. Richardson, personal communication cited in NMFS 2001). Based on the number of haplotypes, the highest level of loggerhead mtDNA genetic diversity in the Northwest Atlantic has been observed in females of the Greater Caribbean Recovery Unit that nest at Quintana Roo, Mexico (Encalada et al. 1999; Nielsen et al. in press).

Nuclear DNA analyses show that there are no substantial subdivisions across the loggerhead nesting colonies in the southeastern United States. Male-mediated gene flow appears to be keeping the subpopulations genetically similar on a nuclear DNA level (Francisco-Pearce 2001).

Historically, the literature has suggested that the northern U.S. nesting beaches (NRU and NGMRU) produce a relatively high percentage of males and the more southern nesting beaches (PFRU, DTRU, and GCRU) a relatively high percentage of females (e.g., Hanson et al. 1998; NMFS 2001; Mrosovsky and Provancha 1989). The NRU and NGMRU were believed to play an important role in providing males to mate with females from the more female-dominated subpopulations to the south. However, in 2002 and 2003, researchers studied loggerhead sex ratios for two of the U.S. nesting subpopulations, the northern and

southern subpopulations (NGU and PFRU, respectively) (Blair 2005; Wyneken et al. 2005). The study produced interesting results. In 2002, the northern beaches produced more females and the southern beaches produced more males than previously believed. However, the opposite was true in 2003 with the northern beaches producing more males and the southern beaches producing more females in keeping with prior literature. Wyneken et al. (2005) speculated that the 2002 result may have been anomalous; however, the study did point out the potential for males to be produced on the southern beaches. Although this study revealed that more males may be produced on southern recovery unit beaches than previously believed, the Service maintains that the NRU and NGMRU play an important role in the production of males to mate with females from the more southern recovery units.

The NRU is the second largest loggerhead nesting aggregation in the Northwest Atlantic. Annual nest totals from northern beaches averaged 5,215 nests from 1989-2008, a period of near-complete surveys of NRU nesting beaches (Georgia Department of Natural Resources, unpublished data; North Carolina Wildlife Resources Commission, unpublished data, South Carolina Department of Natural Resources, unpublished data), representing approximately 1,272 nesting females per year (4.1 nests per female, Murphy and Hopkins 1984). The loggerhead nesting trend from daily beach surveys showed a significant decline of 1.3percent annually. Nest totals from aerial surveys conducted by the South Carolina Department of Natural Resources showed a 1.9percent annual decline in nesting in South Carolina since 1980. Overall, there is strong statistical data to suggest the NRU has experienced a long-term decline.

The PFRU is the largest loggerhead nesting assemblage in the Northwest Atlantic. A near-complete nest census of the PFRU undertaken from 1989 to 2007 reveals a mean of 64,513 loggerhead nests per year representing approximately 15,735 females nesting per year (4.1 nests per female, Murphy and Hopkins 1984) (Commission, unpublished data). This near-complete census provides the best statewide estimate of total abundance, but because of variable survey effort, these numbers cannot be used to assess trends. Loggerhead nesting trends are best assessed using standardized nest counts made at Index Nesting Beach Survey (INBS) sites surveyed with constant effort over time. An analysis of these data has shown a decline in nesting from 1989-2008 (Witherington et al. 2009). The analysis that reveals this decline uses nest-count data from 345 representative Atlantic-coast index zones (total length = 301 km) and 23 representative zones on Florida's southern Gulf coast (total length = 23 km). The spatial and temporal coverage (annually, 109 days and 368 zones) accounted for an average of 70percent of statewide loggerhead nesting activity between 1989 and 2008. Negative binomial regression models that fit restricted cubic spline curves to aggregated nest-counts were used in trend evaluations. Results of the analysis indicated that there had been a decrease of 26 percent over the 20-year period and a 41 percent decline since 1998. The mean annual rate of decline for the 20-year period was 1.6 percent.

The NGMRU is the third largest nesting assemblage among the four U.S. recovery units. Nesting surveys conducted on approximately 300 km of beach within the NGMRU (Alabama and Florida only) were undertaken between 1995 and 2007 (statewide surveys in Alabama began in 2002). The mean nest count during this 13-year period was 906 nests per year, which equates to about 221 females nesting per year (4.1 nests per female, Murphy

and Hopkins 1984) (Commission, unpublished data). Evaluation of long-term nesting trends for the NGMRU is difficult because of changed and expanded beach coverage. Loggerhead nesting trends are best assessed using standardized nest counts made at INBS sites surveyed with constant effort over time. There are 12 years (1997-2008) of Florida INBS data for the NGMRU (Commission, unpublished data). A log-linear regression showed a significant declining trend of 4.7percent annually.

The DTRU, located west of the Florida Keys, is the smallest of the identified recovery units. A near-complete nest census of the DTRU undertaken from 1995 to 2004, excluding 2002, (9 years surveyed) reveals a mean of 246 nests per year, which equates to about 60 females nesting per year (4.1 nests per female, Murphy and Hopkins 1984) (Commission, unpublished data). Surveys after 2004 did not include principal nesting beaches within the recovery unit (i.e., Dry Tortugas National Park). The nesting trend data for the DTRU are from beaches that are not part of the INBS program but are part of the Statewide Nesting Beach Survey (SNBS) program. There are 9 years of data for this recovery unit. A simple linear regression accounting for temporal autocorrelation revealed no trend in nesting numbers. Because of the annual variability in nest totals, a longer time series is needed to detect a trend.

The GCRU is composed of all other nesting assemblages of loggerheads within the Greater Caribbean. Statistically valid analyses of long-term nesting trends for the entire GCRU are not available because there are few long-term standardized nesting surveys representative of the region. Additionally, changing survey effort at monitored beaches and scattered and low-level nesting by loggerheads at many locations currently precludes comprehensive analyses. The most complete data are from Quintana Roo andYucatán, Mexico, where an increasing trend was reported over a 15-year period from 1987-2001 (Zurita et al. 2003). However, since 2001, nesting has declined and the previously reported increasing trend appears not to have been sustained (Julio Zurita, personal communcation, 2006). Other smaller nesting populations have experienced declines over the past few decades (e.g., Amorocho 2003).

Recovery Criteria

DEMOGRAPHIC RECOVERY CRITERIA:

1. Number of Nests and Number of Nesting Females
   - **a.** Northern Recovery Unit
     - (1) There is statistical confidence (95percent) that the annual rate of increase over a generation time of 50 years is 2percent or greater resulting in a total annual number of nests of 14,000 or greater for this recovery unit (approximate distribution of nests is NC=14percent [2,000], SC=66percent [9,200], and GA=20percent [2,800]).
     - (2) This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

b. Peninsular Florida Recovery Unit

(1) There is statistical confidence (95percent) that the annual rate of increase over a generation time of 50 years is statistically detectable (1percent) resulting in a total annual number of nests of 106,100 or greater for this recovery unit.

(2) This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

c. Dry Tortugas Recovery Unit

(1) There is statistical confidence (95percent) that the annual rate of increase over a generation time of 50 years is 3percent or greater resulting in a total annual number of nests of 1,100 or greater for this recovery unit.

(2) This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

d. Northern Gulf of Mexico Recovery Unit

(1) There is statistical confidence (95percent) that the annual rate of increase over a generation time of 50 years is 3percent or greater resulting in a total annual number of nests of 4,000 or greater for this recovery unit (approximate distribution of nests (2002-2007) is FL= 92percent [3,700] and AL=8percent [300]).

(2) This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

e. Greater Caribbean Recovery Unit

(1) The total annual number of nests at a minimum of three nesting assemblages, averaging greater than 100 nests annually (e.g., Yucatán, Mexico; Cay Sal Bank, The Bahamas) has increased over a generation time of 50 years.

(2) This increase in number of nests must be a result of corresponding increases in number of nesting females (estimated from nests, clutch frequency, and remigration interval).

2. <u>Trends in Abundance on Foraging Grounds</u>

A network of in-water sites, both oceanic and neritic, distributed across the foraging range is established and monitoring is implemented to measure abundance. There is statistical confidence (95percent) that a composite estimate of relative abundance from these sites is increasing for at least one generation.

3. <u>Trends in Neritic Strandings Relative to In-water Abundance</u>

Stranding trends are not increasing at a rate greater than the trends in in-water relative abundance for similar age classes for at least one generation.

LISTING FACTOR RECOVERY CRITERIA:

1. **Present or Threatened Destruction, Modification, or Curtailment of a Species Habitat or Range**
   a. **Terrestrial**
      (1) Beach armoring, shoreline stabilization structures, and all other barriers to nesting are categorized and inventoried for areas under U.S. jurisdiction. A peer-reviewed strategy is developed and implemented to ensure that the percentage of nesting beach free of barriers to nesting is stable or increasing relative to baseline levels.
      (2) Beach sand placement projects conducted in areas under U.S. jurisdiction are in compliance with state and FWS criteria and are conducted in a manner that accommodates loggerhead needs and does not degrade or eliminate nesting habitat.
      (3) At least 982 miles of loggerhead nesting beaches and adjacent uplands (current amount as identified in Appendix 4) under U.S. jurisdiction are maintained within conservation lands in public (Federal, state, or local) or private (NGO and private conservation lands) ownership that are managed in a manner compatible with sea turtle nesting.
      (4) A peer-reviewed model is developed that describes the effects of sea level rise on loggerhead nesting beaches, and steps have been taken to mitigate such effects.
      (5) Nesting beaches outside U.S. jurisdiction are managed for compatibility with loggerhead nesting.
   b. **Marine (estuarine, neritic, and oceanic)**
      A peer-reviewed, comprehensive strategy is developed and implemented to identify, prioritize, and protect marine habitats (e.g., feeding, migratory, inter-nesting) important to loggerheads.

2. **Overutilization for Commercial, Recreational, Scientific, or Educational Purposes**
   a. Legal harvest (both commercial and subsistence) in the Caribbean, Atlantic, and Mediterranean is identified and quantified. A strategy is developed and implemented to eliminate legal harvest through international agreements.
   b. A scientifically based nest management plan outlining strategies for protecting nests (under U.S. jurisdiction) from natural and manmade impacts is developed and implemented.

3. **Disease or Predation**
   a. Ecologically sound predator control programs are implemented to ensure that the annual rate of mammalian predation on nests (under U.S. jurisdiction) is 10percent or below within each recovery unit based on standardized surveys.
   b. A peer-reviewed strategy is developed to recognize, respond to, and investigate mass/unusual mortality or disease events.

4. **Inadequacy of Existing Regulatory Mechanisms**
   a. Light management plans, which meet minimum standards identified in the Florida Model Lighting Ordinance (Florida Administrative Code Rule 62B-55), are developed, fully implemented, and effectively enforced on nesting beaches under U.S. jurisdiction. Annual percentage of total nests with hatchlings disoriented or misoriented by artificial lighting does not exceed 10percent based on standardized surveys.
   b. Specific and comprehensive Federal legislation is developed, promulgated, implemented, and enforced to ensure long-term (including post-delisting) protection of loggerheads and their terrestrial and marine habitats, including protection from fishery interactions.
   c. State and local legislation is developed and/or maintained, promulgated, implemented, and enforced to ensure long-term (including post-delisting) protection of loggerheads and their terrestrial and marine habitats, including protection from fishery interactions.
   d. Foreign nations with significant loggerhead foraging or migratory habitat have implemented national legislation and have acceded to international and multi-lateral agreements to ensure long-term protection of loggerheads and their habitats. Nations that have important foraging or migratory habitat include Canada, Mexico, Cuba, The Bahamas, Turks and Caicos Islands, Nicaragua, Panama, Colombia, Spain, Portugal, Morocco, and Cape Verde Islands.
   e. Nations that conduct activities affecting loggerheads in foraging or migratory habitats in the North Atlantic Basin and the western Mediterranean have implemented national legislation and have acceded to international and multi-lateral agreements to ensure long-term protection of loggerheads and their habitats throughout the high seas and in foreign EEZs.

5. **Other Natural or Manmade Factors Affecting Its Continued Existence**
   a. A peer-reviewed strategy is developed and fully implemented to minimize fishery interactions and mortality for each domestic commercial fishing gear type that has loggerhead bycatch.
   b. A peer-reviewed strategy is developed and fully implemented in cooperation with relevant nations to minimize fishery interactions and mortality of loggerheads in foreign EEZs and on the high seas.
   c. A peer-reviewed strategy is developed and fully implemented to quantify, monitor, and minimize effects of trophic changes on loggerheads (e.g., diet, growth rate, fecundity) from fishery harvests and habitat alterations.
   d. A peer-reviewed strategy is developed and fully implemented to quantify, monitor, and minimize the effects of marine debris ingestion and entanglement in U.S. territorial waters, the U.S. EEZ, foreign EEZs, and the high seas.
   e. A peer-reviewed strategy is developed and fully implemented to minimize vessel strike mortality in U.S. territorial waters and the U.S. EEZ.

Green Turtle

Nesting data collected as part of the Florida SNBS program (2000-2006) show that a mean of approximately 5,600 nests are laid each year in Florida. Nesting occurs in 26 counties with a peak along the east coast, from Volusia through Broward Counties. The green turtle nesting population of Florida (Florida green turtle) is increasing based on 19 years (1989-2007) of INBS data from throughout the state. The increase in nesting in Florida is likely a result of several factors, including: (1) a Florida statute enacted in the early 1970s that prohibited the killing of green turtles in Florida; (2) the species listing under the ESA in 1973, affording complete protection to eggs, juveniles, and adults in all U.S. waters; (3) the passage of Florida's constitutional net ban amendment in 1994 and its subsequent enactment, making it illegal to use any gillnets or other entangling nets in state waters; (4) the likelihood that the majority of Florida adult green turtles reside within Florida waters where they are fully protected; (5) the protections afforded Florida green turtles while they inhabit the waters of other nations that have enacted strong sea turtle conservation measures (e.g., Bermuda); and (6) the listing of the species on Appendix I of Convention on International Trade of Endangered Species (CITES), which stopped international trade and reduced incentives for illegal trade from the U.S.

Recovery Criteria

The U.S. Atlantic population of green sea turtles can be considered for delisting when, over a period of 25 years the following conditions are met:

1. The level of nesting in Florida has increased to an average of 5,000 nests per year for at least six years. Nesting data shall be based on standardized surveys.

2. At least 25 percent (65 miles) of all available nesting beaches (260 miles) are in public ownership and encompass at least 50 percent of the nesting activity.

3. A reduction in stage class mortality is reflected in higher counts of individuals on foraging grounds.

4. All priority one tasks identified in the recovery plan have been successfully implemented.

The current "Recovery Plan for the U.S. Population of Atlantic Green Turtle (Chelonia mydas)" was completed in 1991, the Recovery Plan for U.S. Pacific Populations of the Green Turtle (Chelonia mydas)" was completed in 1998, and the "Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle (*Chelonia mydas*)" was completed in 1998. The recovery criteria contained in the plans, while not strictly adhering to all elements of the Recovery Planning Guidelines (Service and NOAA), are a viable measure of the species status.

Common threats to sea turtles in Florida

Anthropogenic (human) factors that impact hatchlings and adult female turtles on land, or the success of nesting and hatching include: beach erosion, armoring and nourishment; artificial lighting; beach cleaning; increased human presence; recreational beach equipment; beach driving; coastal construction and fishing piers; exotic dune and beach vegetation; and poaching. An increased human presence at some nesting beaches or close to nesting beaches has led to secondary threats such as the introduction of exotic fire ants, feral hogs, dogs, and an increased presence of native species (*e.g.*, raccoons, armadillos, and opossums), which raid and feed on turtle eggs. Although sea turtle nesting beaches are protected along large expanses of the western North Atlantic coast, other areas along these coasts have limited or no protection.

Anthropogenic threats in the marine environment include oil and gas exploration and transportation; marine pollution; underwater explosions; hopper dredging, offshore artificial lighting; power plant entrainment and/or impingement; entanglement in debris; ingestion of marine debris; marina and dock construction and operation; boat collisions; poaching and fishery interactions.

Fibropapillomatosis, a disease of sea turtles characterized by the development of multiple tumors on the skin and internal organs, is also a mortality factor, particularly for green turtles. This disease has seriously impacted green turtle populations in Florida, Hawaii, and other parts of the world. The tumors interfere with swimming, eating, breathing, vision, and reproduction, and turtles with heavy tumor burdens may die.

Climate change is evident from observations of increases in average global air and ocean temperatures, widespread melting of snow and ice, and rising sea level, according to the Intergovernmental Panel on Climate Change Report (IPCC 2007a). The IPCC Report (2007) describes changes in natural ecosystems with potential wide-spread effects on many organisms, including marine mammals and migratory birds. The potential for rapid climate change poses a significant challenge for fish and wildlife conservation. Species' abundance and distribution are dynamic, relative to a variety of factors, including climate. As climate changes, the abundance and distribution of fish and wildlife will also change. Highly specialized or endemic species are likely to be most susceptible to the stresses of changing climate. Based on these findings and other similar studies, the Department of the Interior (DOI) requires agencies under its direction to consider potential climate change effects as part of their long-range planning activities (Service 2007).

Temperatures are predicted to rise from 2°C to 5°C for North America by the end of this century (IPCC 2007a,b). Other processes to be affected by this projected warming include rainfall (amount, seasonal timing and distribution), storms (frequency and intensity), and sea level rise.

Climatic changes in Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management. Global warming will be a particular challenge for endangered, threatened,

and other "at risk" species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. The Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (Service 2006). As the level of information increases concerning the effects of global climate change on sea turtles, the Service will have a better basis to address the nature and magnitude of this potential threat and will more effectively evaluate these effects to the range-wide status of sea turtles.

Analysis of the species/critical habitat likely to be affected

The proposed action has the potential to adversely affect nesting females, nests, and hatchlings within the proposed project area. The effects of the proposed action on sea turtles will be considered further in the remaining sections of this biological opinion. Potential effects include destruction of nests deposited within the boundaries of the proposed project, harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities, disorientation of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting, behavior modification of nesting females due to escarpment formation within the project area during a nesting season resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs. The quality of the placed sand could affect the ability of female turtles to nest, the suitability of the nest incubation environment, and the ability of hatchlings to emerge from the nest.

Critical habitat has not been designated in the continental United States; therefore, the proposed action would not result in an adverse modification.

ENVIRONMENTAL BASELINE

Status of the species within the action area

Loggerhead Sea Turtle

The loggerhead sea turtle nesting and hatching season for Southern Gulf of Mexico beaches extends from April 1 through November 30. Incubation ranges from about 45 to 95 days.

The Manatee County project area has a significant number of loggerhead nests. The project lies within the Anna Maria Island area. Between 97 and 179 loggerhead nests were deposited annually on the Anna Maria Island beaches from 2003 through 2008.

Green Sea Turtle

The green sea turtle nesting and hatching season for Southern Gulf of Mexico beaches extends from May 15 through October 31. Incubation ranges from about 45 to 75 days.

The Manatee County project lies within the Anna Maria Island beaches area. One green turtle nest was deposited on Anna Maria Island in 2002. No green turtles were reported on Anna Maria Island from 2003 through 2008.

Factors affecting the species environment within the action area

Coastal Development

Loss of nesting habitat related to coastal development has had the greatest impact on nesting sea turtles in Florida. Beachfront development not only causes the loss of suitable nesting habitat, but can result in the disruption of powerful coastal processes accelerating erosion and interrupting the natural shoreline migration (National Research Council 1990a). This may in turn cause the need to protect upland structures and infrastructure by armoring, groin placement, beach emergency berm construction and repair, and beach nourishment which cause changes in, additional loss or impact to the remaining sea turtle habitat.

Hurricanes

Hurricanes were probably responsible for maintaining coastal beach habitat upon which sea turtles depend through repeated cycles of destruction, alteration, and recovery of beach and dune habitat. Hurricanes generally produce damaging winds, storm tides and surges, and rain and can result in severe erosion of the beach and dune systems. Overwash and blowouts are common on barrier islands. Hurricanes and other storms can result in the direct or indirect loss of sea turtle nests, either by erosion or washing away of the nests by wave action or inundation or "drowning" of the eggs or hatchlings developing within the nest or indirectly by loss of nesting habitat. Depending on their frequency, storms can affect sea turtles on either a short-term basis (nests lost for one season and/or temporary loss of nesting habitat) or long term, if frequent (habitat unable to recover). How hurricanes affect sea turtle nesting also depends on its characteristics (winds, storm surge, rainfall), the time of year (within or outside of the nesting season), and where the northeast edge of the hurricane crosses land.

Because of the limited remaining nesting habitat, frequent or successive severe weather events could threaten the ability of certain sea turtle populations to survive and recover. Sea turtles evolved under natural coastal environmental events such as hurricanes. The extensive amount of pre-development coastal beach and dune habitat allowed sea turtles to survive even the most severe hurricane events. It is only within the last 20 to 30 years that the combination of habitat loss to beachfront development and destruction of remaining habitat by hurricanes has increased the threat to sea turtle survival and recovery. On developed beaches, typically little space remains for sandy beaches to become re-established after periodic storms. While the beach itself moves landward during such storms, reconstruction or persistence of structures at their pre-storm locations can result in a major loss of nesting habitat.

Erosion

The designation of a Critically Eroded Beach is a planning requirement of the State's Beach Erosion Control Funding Assistance Program. A segment of beach shall first be designated as critically eroded in order to be eligible for State funding. A critically eroded area is a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded areas may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or be slightly eroded now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects (FDEP 2005). It is important to note, that for an erosion problem area to be critical, there shall exist a threat to or loss of one of four specific interests – upland development, recreation, wildlife habitat, or important cultural resources. The total of critically eroded beaches statewide in Florida for 2007 is 388 miles of 497 miles of shoreline. Seventy-eight (78) percent of the State's shoreline is considered to be critically eroded.

Beachfront Lighting

Artificial beachfront lighting may cause disorientation (loss of bearings) and misorientation (incorrect orientation) of sea turtle hatchlings. Visual signs are the primary sea-finding mechanism for hatchlings (Mrosovsky and Carr 1967; Mrosovsky and Shettleworth 1968; Dickerson and Nelson 1989; Witherington and Bjorndal 1991). Artificial beachfront lighting is a documented cause of hatchling disorientation and misorientation on nesting beaches (Mann 1977; FWC 2006). The emergence from the nest and crawl to the sea is one of the most critical periods of a sea turtle's life. Hatchlings that do not make it to the sea quickly become food for ghost crabs, birds, and other predators or become dehydrated and may never reach the sea. Some types of beachfront lighting attract hatchlings away from the sea while some lights cause adult turtles to avoid stretches of brightly illuminated beach. Research has documented significant reduction in sea turtle nesting activity on beaches illuminated with artificial lights (Witherington 1992). During the 2007 sea turtle nesting season in Florida, over 64,000 turtle hatchlings were documented as being disoriented (**Table 2**) (FWC/FWRI 2007, http://www.myfwc.com/seaturtle/Lighting/Light_Disorient.htm). Exterior and interior lighting associated with condominiums had the greatest impact causing approximately 42 percent of documented hatchling disorientation/misorientation. Other causes included urban sky glow and street lights (http://www.myfwc.com/seaturtle/Lighting/Light_Disorient.htm).

Table 2. Documented Disorientations along the Florida coast.

Year	Total Number of Hatchling Disorientation Events	Total Number of Hatchlings Involved in Disorientation Events	Total Number of Adult Disorientation Events
2001	743	28,674	19
2002	896	43,226	37
2003	1,446	79,357	18
2004	888	46,487	24
2005	976	41,521	50
2006	1,521	71,798	40
2007	1,410	64,433	25
2008	1192	49,623	62

Predation

Depredation of sea turtle eggs and hatchlings by natural and introduced species occurs on almost all nesting beaches. Depredation by a variety of predators can considerably decrease sea turtle nest hatching success. The most common predators in the southeastern United States are ghost crabs (*Ocypode quadrata*), raccoons (*Procyon lotor*), feral hogs (*Sus scrofa*), foxes (*Urocyon cinereoargenteus* and *Vulpes vulpes*), coyotes (*Canis latrans*), armadillos (*Dasypus novemcinctus*), cats (*Felis catus)*, and fire ants (*Solenopsis* spp.) (Dodd 1988, Stancyk 1995). Raccoons are particularly destructive on the Atlantic coast and may take up to 96 percent of all nests deposited on a beach (Davis and Whiting 1977, Hopkins and Murphy 1980, Stancyk et al. 1980, Talbert et al. 1980, Schroeder 1981, Labisky et al. 1986). As nesting habitat dwindles, it is essential that nest production be naturally maximized so the turtles may continue to exist in the wild.

In response to increasing depredation of sea turtle nests by coyote, fox, hog, and raccoon, multi-agency cooperative efforts have been initiated and are ongoing throughout Florida, particularly on public lands.

Climate Change

Based on the present level of available information concerning the effects of global climate change on the status of sea turtles, the Service acknowledges the potential for changes to occur in the action area, but presently has no basis to evaluate if or how these changes are affecting sea turtles or its designated critical habitat. Nor does our present knowledge allow the Service to project what the future effects from global climate change may be or the magnitude of these potential effects.

EFFECTS OF THE ACTION

This section is an analysis of the beneficial, direct, and indirect effects of the proposed actions on nesting sea turtles, nests, eggs, and hatchling sea turtles within the Action Area. The analysis includes effects interrelated and interdependent of the project activities. An interrelated activity is an activity that is part of a proposed action and depends on the proposed activity. An interdependent activity is an activity that has no independent utility apart from the action.

Factors to be considered

The proposed projects will occur within habitat that is used by sea turtles for nesting and may be constructed during a portion of the sea turtle nesting season. Long-term and permanent impacts could include a change in the nest incubation environment from the restoration/nourishment material. Short-term and temporary impacts to sea turtle nesting activities could result from project work occurring on the nesting beach during the active nesting or hatching period, changes in the physical characteristics of the beach from the placement of the beach restoration/nourishment material and change in the nest incubation environment from the material.

Proximity of action: Sand placement activities would occur within and adjacent to nesting habitat for sea turtles and dune habitats that ensure the stability and integrity of the nesting beach. Specifically, the project would potentially impact loggerhead and green nesting females, their nests, and hatchling sea turtles.

Distribution: Sand placement activities that may impact nesting and hatchling sea turtles and sea turtle nests would occur along Gulf of Mexico and Atlantic Ocean coasts.

Timing: The timing of the sand placement activities could directly and indirectly impact nesting females, their nests, and hatchling sea turtles when conducted between March 1 and November 30.

Nature of the effect: The effects of the sand placement activities may change the nesting behavior of adult female sea turtles or diminish the nesting or nest success, change the behavior of hatchling sea turtles resulting in nests or hatching events being missed during the daily survey of the Action Area. Sand placement can also change the incubation conditions within the nest. Any decrease in productivity and/or survival rates would contribute to the vulnerability of the sea turtles nesting in Florida.

Duration: The sand placement activity may be a one-time activity or a multiple-year activity and each sand placement project may take between 3 and 7 months to complete. Thus, the direct effects would be expected to be short-term in duration. Indirect effects from the activity may continue to impact nesting and hatchling sea turtles and sea turtle nests in subsequent nesting seasons.

Disturbance frequency: Sea turtle populations in Florida may experience decreased nesting success, hatching success and hatchling emerging success that could result from the sand placement activities being conducted at night during one nesting season or during the earlier or latter parts of two nesting seasons.

Disturbance intensity and severity: Depending on the need (including post-disaster work) and the timing of the sand placement activities during sea turtle nesting season, effects to the sea turtle populations of Florida, and potentially the U.S. populations, could be important.

Analyses for effects of the action

Beneficial Effects

The placement of sand on a beach with reduced dry fore-dune habitat may increase sea turtle nesting habitat if the placed sand is highly compatible (i.e., grain size, shape, color, etc.) with naturally occurring beach sediments in the area, and compaction and escarpment remediation measures are incorporated into the project. In addition, a nourished beach that is designed and constructed to mimic a natural beach system may benefit sea turtles more than an eroding beach it replaces.

Adverse Effects

Through many years of research, it has been documented that beach nourishment can have adverse effects on nesting female sea turtles and hatchlings. Results of monitoring sea turtle nesting and beach nourishment activities provide additional information on how sea turtles respond to nourished beaches, minimization measures, and other factors that influence nesting, hatching, and emerging success. Science-based information on sea turtle nesting biology and review of empirical data on beach nourishment monitoring is used to manage beach nourishment activities to eliminate or reduce impacts to nesting and hatchling sea turtles and sea turtle nests so that beach nourishment can be accomplished (**Table 3**). Measures can be incorporated pre-, during, and post-construction to reduce impacts to sea turtles. Because of the long history of sea turtle monitoring in Florida, it is not necessary to require studies on each project beach to document those effects each time.

Table 3. Effects of beach nourishment on sea turtles and minimization measures.

FACTOR	DURING CONSTRUCTION	POST CONSTRUCTION	SEA TURTLE BEHAVIOR	MINIMIZATION		
				PRE	DURING	POST
Barriers - physical and visual	Low nesting success	Abort nesting	Shift nests seaward, abort nesting Barrier to hatching		Equipment stored off the beach at night, project timing outside nesting season in high density nesting areas (Broward to Brevard)	Remove equipment from the beach after project is completed.
Nest relocation	Lower hatching and emergency success		Shift nests seaward	Design	Implement	Reconfigure Natural reworking
Construction lighting	Nest site selection and Disorientation.		Shift nests seaward Misorientation landward rather than seaward	Design	Implement	Reconfigure Natural reworking
Profile		Escarpments Nest site selection Hatchling orientation	Shift nests seaward Misorientation landward rather than seaward	Design	Implement	Reconfigure Natural reworking
Elevation		Nest site selection, Unnatural profile, Disorientation.	Shift nests seaward	Design	Implement	Natural reworking
Barriers - physical and visual		Escarpments	Abort nesting	Design	Implement	Reconfigure Natural reworking
Substrate		Compaction Cementation	Abort nesting Barrier to	Material quality	QA/QC Plan	Tilling Removal of

		Color	hatching Change in incubation length/sex ratio		Limit equipment driving over beach fill	unsuitable material
Lights		Landward development	Confusion of nesting females, Dis- and mis-orientation of hatchlings	Install Wildlife Lighting	Stop gap, lights off during times of nest hatching	Install Wildlife Lighting

Direct Effects

Direct effects are those direct or immediate effects of a project on the species or its habitat. Placement of sand on a beach in and of itself may not provide suitable nesting habitat for sea turtles. Although beach nourishment may increase the potential nesting area, significant negative impacts to sea turtles may result if protective measures are not incorporated during project construction. Nourishment during the nesting season, particularly on or near high density nesting beaches, can cause increased loss of eggs and hatchlings and, along with other mortality sources, may significantly impact the long-term survival of the species. For instance, projects conducted during the nesting and hatching season could result in the loss of sea turtles through disruption of adult nesting activity and by burial or crushing of nests or hatchlings. While a nest monitoring and egg relocation program would reduce these impacts, nests may be inadvertently missed (when crawls are obscured by rainfall, wind, and/or tides) or misidentified as false crawls during daily patrols. In addition, nests may be destroyed by operations at night prior to beach patrols being performed. Even under the best of conditions, about 7 percent of the nests can be misidentified as false crawls by experienced sea turtle nest surveyors (Schroeder 1994).

1. *Nest relocation*

Besides the potential for missing nests during surveys and a nest relocation program, there is a potential for eggs to be damaged by nest movement or relocation, particularly if eggs are not relocated within 12 hours of deposition (Limpus et al. 1979). Nest relocation can have adverse impacts on incubation temperature (and hence sex ratios), gas exchange parameters, hydric environment of nests, hatching success, and hatchling emergence (Limpus et al. 1979; Ackerman 1980; Parmenter 1980; Spotila et al. 1983; McGehee 1990). Relocating nests into sands deficient in oxygen or moisture can result in mortality, morbidity, and reduced behavioral competence of hatchlings. Water availability is known to influence the incubation environment of the embryos and hatchlings of turtles with flexible-shelled eggs, which has been shown to affect nitrogen excretion (Packard et al. 1984), mobilization of calcium (Packard and Packard 1986), mobilization of yolk nutrients (Packard et al. 1985), hatchling size (Packard et al. 1981; McGehee 1990), energy reserves in the yolk at hatching (Packard et al. 1988), and locomotory ability of hatchlings (Miller et al. 1987).

In a 1994 Florida study comparing loggerhead hatching and emergence success of relocated nests with nests in their original location, Moody (1998) found that hatching success was lower in relocated nests at 9 of 12 beaches evaluated. In addition, emergence success was lower in relocated nests at 10 of 12 beaches surveyed in 1993 and 1994. Many of the direct effects of beach nourishment may persist over time. These direct effects include increased susceptibility of relocated nests to catastrophic events, the consequences of potential increased beachfront development, changes in the physical characteristics of the beach, the formation of escarpments, repair/replacement of groins and jetties and future sand migration.

2. *Equipment*

Heavy machinery on beach
The use of heavy machinery on beaches during a construction project may also have adverse effects on sea turtles. Equipment left on the nesting beach overnight can create barriers to nesting females emerging from the surf and crawling up the beach, causing a higher incidence of false crawls and unnecessary energy expenditure.

Driving on the beach for the project
The operation of motor vehicles or equipment on the beach to complete the project work at night affects sea turtle nesting by: interrupting or colliding with a female turtle on the beach; headlights disorienting or misorienting emergent hatchlings; vehicles running over hatchlings attempting to reach the ocean; and vehicle tracks traversing the beach interfering with hatchlings crawling to the ocean. Apparently, hatchlings become diverted not because they cannot physically climb out of the rut (Hughes and Caine 1994), but because the sides of the track cast a shadow and the hatchlings lose their line of sight to the ocean horizon (Mann 1977). The extended period of travel required to negotiate tire tracks and ruts may increase the susceptibility of hatchlings to dehydration and depredation during migration to the ocean (Hosier et al. 1981). Driving directly above or over incubating egg clutches or on the beach can cause sand compaction which may result in adverse impacts on nest site selection, digging behavior, clutch viability, and emergence by hatchlings, decreasing nest success and directly killing pre-emergent hatchlings (Mann 1977; Nelson and Dickerson 1987; Nelson 1988).

Depending on when the dune project is completed dune vegetation may have become established in the vicinity of dune restoration sites. The physical changes and loss of plant cover caused by vehicles on vegetated areas or dunes can lead to various degrees of instability and cause dune migration. As vehicles move over the sand, sand is displaced downward, lowering the substrate. Since the vehicles also inhibit plant growth, and open the area to wind erosion, the beach and dunes may become unstable. Vehicular traffic on the beach or through dune breaches or low dunes may cause acceleration of overwash and erosion (Godfrey et al. 1978). Driving along the beachfront should be between the low and high tide water lines. To minimize the impacts to the beach and recovering dunes, transport and access to the dune restoration sites should be from the road. However, if the work needs to be conducted from the beach, the areas for the truck transport and bulldozer/bobcat equipment to work in should be designated and marked.

3. Artificial lighting

Visual cues are the primary sea-finding mechanism for hatchling sea turtles (Mrosovsky and Carr 1967; Mrosovsky and Shettleworth 1968; Dickerson and Nelson 1989; Witherington and Bjorndal 1991). When artificial lighting is present on or near the beach, it can misdirect hatchlings once they emerge from their nests and prevent them from reaching the ocean (Philibosian 1976; Mann 1977; FWC sea turtle disorientation database). In addition, a significant reduction in sea turtle nesting activity has been documented on beaches illuminated with artificial lights (Witherington 1992). Therefore, construction lights along a project beach and on the dredging vessel may deter females from coming ashore to nest, misdirect females trying to return to the surf after a nesting event, and misdirect emergent hatchlings from adjacent non-project beaches.

The newly created wider and flatter beach berm exposes sea turtles and their nests to lights that were less visible, or not visible, from nesting areas before the beach nourishment leading to a higher mortality of hatchlings. Review of over 10 years of empirical information from beach nourishment projects indicates that the number of sea turtles impacted by lights increases on the post-construction berm. A review of a selected nourished beaches in Florida (South Brevard, North Brevard, Captiva Island, Ocean Ridge, Boca Raton, Town of Palm Beach, Longboat Key, and Bonita Beach) indicated disorientation reporting increased by approximately 300 percent ($\pm$ 282 std. dev.) the first nesting season after project construction and up to 542 percent (+ 872 std. dev.) the second year compared to pre-nourishment reports (Trindell et al. 2005).

Specific examples of increased lighting disorientations after a beach nourishment project include Brevard and Palm Beach counties, Florida. A nourishment project in Brevard County, completed in 2002, showed an increase of 130 percent in disorientations in the nourished area. Disorientations on beaches in the County that were not nourished remained constant (R. Trindell, FWC, personal communication 2007). This same result was also documented in 2003 when another beach in Brevard County was nourished and the disorientations increased by 480 percent (R. Trindell, FWC, personal communication 2007). Installing appropriate beachfront lighting is the most effective method to decrease the number of disorientations on any developed beach including nourished beaches.

A shoreline protection project was constructed at Ocean Ridge in Palm Beach County, Florida between August 1997 and April 1998. Lighting disorientation events increased after nourishment. In spite of continued aggressive efforts to identify and correct lighting violations in 1998 and 1999, 86 percent of the disorientation reports were in the nourished area in 1998 and 66percent of the reports were in the nourished area in 1999 (Howard and Davis 1999).

While the effects of artificial lighting have not been specifically studied on each beach that is nourished in Florida, based on the experience of increased artificial lighting disorientations on other Florida beaches, impacts are expected to potentially occur on all nourished beaches statewide.

Changing to sea turtle compatible lighting can be easily accomplished at the local level through voluntary compliance or by adopting appropriate regulations. Of the 27 coastal counties in Florida where sea turtles are known to nest, 19 have passed beachfront lighting ordinances in addition to 58 municipalities (FWC 2007b, http://myfwc.com/seaturtle/Lighting/Light_Ordinance.htm). Local governments have realized that adopting a lighting ordinance is the most effective method to address artificial lighting along the beachfront.

Indirect Effects

Indirect effects are those effects that are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Effects from the proposed project may continue to affect sea turtle nesting on the project beach and adjacent beaches in future years.

1. *Increased susceptibility to catastrophic events*

Nest relocation within a nesting season may concentrate eggs in an area making them more susceptible to catastrophic events. Hatchlings released from concentrated areas also may be subject to greater predation rates from both land and marine predators, because the predators learn where to concentrate their efforts (Glenn 1998; Wyneken et al. 1998).

2. *Increased beachfront development*

Pilkey and Dixon (1996) state that beach replenishment frequently leads to more development in greater density within shorefront communities that are then left with a future of further replenishment or more drastic stabilization measures. Dean (1999) also notes that the very existence of a beach nourishment project can encourage more development in coastal areas. Following completion of a beach nourishment project in Miami during 1982, investment in new and updated facilities substantially increased tourism there (National Research Council 1995). Increased building density immediately adjacent to the beach often resulted as much larger ones that accommodated more beach users replaced older buildings. Overall, shoreline management creates an upward spiral of initial protective measures resulting in more expensive development which leads to the need for more and larger protective measures. Increased shoreline development may adversely affect sea turtle nesting success. Greater development may support larger populations of mammalian predators, such as foxes and raccoons, than undeveloped areas (National Research Council 1990a), and can also result in greater adverse effects due to artificial lighting, as discussed above.

3. *Changes in the physical environment*

Beach nourishment may result in changes in sand density (compaction), beach shear resistance (hardness), beach moisture content, beach slope, sand color, sand grain size, sand grain shape, and sand grain mineral content if the placed sand is dissimilar from the original beach sand (Nelson and Dickerson 1988a). These changes could result in adverse impacts

on nest site selection, digging behavior, clutch viability, and hatchling emergence (Nelson and Dickerson 1987; Nelson 1988).

Beach nourishment projects create an elevated, wider and unnatural flat slope berm (beach). Sea turtles nest closer to the water the first few years after nourishment because of the altered profile (and perhaps unnatural sediment grain size distribution) (Ernest and Martin 1999, Trindell 2005) (**Figure 3**).

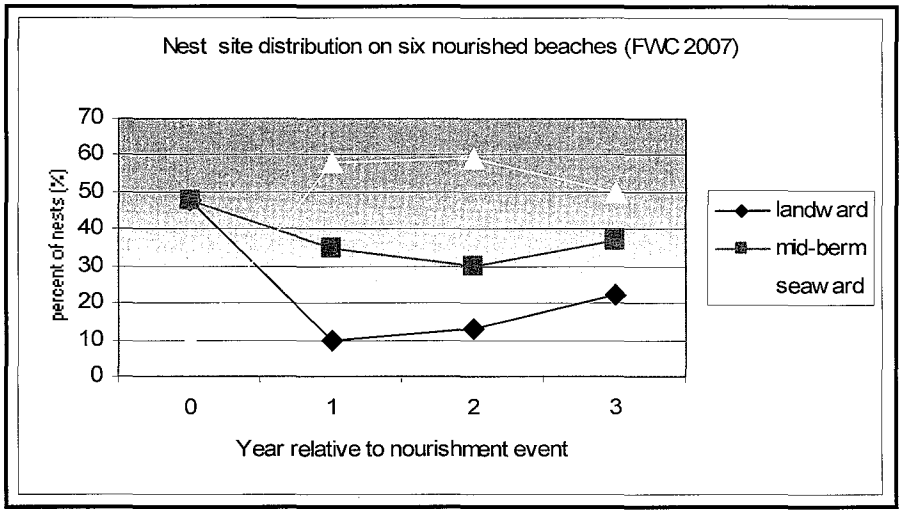

Figure 3. Review of sea turtle nesting site selection following nourishment (Trindell 2005).

Beach compaction and unnatural beach profiles resulting from beach nourishment activities could negatively impact sea turtles regardless of the timing of projects. Very fine sand and/or the use of heavy machinery can cause sand compaction on nourished beaches (Nelson et al. 1987; Nelson and Dickerson 1988a). Significant reductions in nesting success (i.e., false crawls occurred more frequently) have been documented on severely compacted nourished beaches (Fletemeyer 1980; Raymond 1984; Nelson and Dickerson 1987; Nelson et al. 1987), and increased false crawls may result in increased physiological stress to nesting females. Sand compaction may increase the length of time required for female sea turtles to excavate nests and cause increased physiological stress to the animals (Nelson and Dickerson 1988b). Nelson and Dickerson (1988c) concluded that, in general, beaches nourished from offshore borrow sites are harder than natural beaches, and while some may soften over time through erosion and accretion of sand, others may remain hard for 10 years or more.

These impacts can be minimized by using suitable sand and by tilling (minimum depth of 36 inches) compacted sand after project completion. The level of compaction of a beach can be assessed by measuring sand compaction using a cone penetrometer (Nelson 1987). Tilling of a nourished beach with a root rake may reduce the sand compaction to levels comparable to unnourished beaches. However, a pilot study by Nelson and Dickerson (1988c) showed that a tilled nourished beach will remain uncompacted for up to one year. Multi-year beach compaction monitoring and, if necessary, tilling would ensure that project impacts on sea turtles are minimized.

A change in sediment color on a beach could change the natural incubation temperatures of nests in an area, which, in turn, could alter natural sex ratios. To provide the most suitable sediment for nesting sea turtles, the color of the nourished sediments shall resemble the natural beach sand in the area. Natural reworking of sediments and bleaching from exposure to the sun would help to lighten dark nourishment sediments; however, the timeframe for sediment mixing and bleaching to occur could be critical to a successful sea turtle nesting season.

4. *Escarpment formation*

On nourished beaches, steep escarpments may develop along their water line interface as they adjust from an unnatural construction profile to a more natural beach profile (Coastal Engineering Research Center 1984; Nelson et al. 1987). These escarpments can hamper or prevent access to nesting sites (Nelson and Blihovde 1998). Researchers have shown that female sea turtles coming ashore to nest can be discouraged by the formation of an escarpment, leading to situations where they choose marginal or unsuitable nesting areas to deposit eggs (*e.g.*, in front of the escarpments, which often results in failure of nests due to prolonged tidal inundation). This impact can be minimized by leveling any escarpments prior to the nesting season.

5. *Construction of Groins and jetties*

Groins and jetties are shore-perpendicular structures that are designed to trap sand that would otherwise be transported by longshore currents. Jetties are defined as structures placed to keep sand from flowing into channels (Kaufman and Pilkey 1979; Komar 1983). In preventing normal sand transport, these structures accrete updrift beaches while causing accelerated beach erosion downdrift of the structures (Komar 1983; Pilkey et al. 1984; National Research Council 1987), a process that results in degradation of sea turtle nesting habitat. As sand fills the area updrift from the groin or jetty, some littoral drift and sand deposition on adjacent downdrift beaches may occur due to spillover. However, these groins and jetties often force the stream of sand into deeper offshore water where it is lost from the system (Kaufman and Pilkey 1979). The greatest changes in beach profile near groins and jetties are observed close to the structures, but effects eventually may extend many kilometers along the coast (Komar 1983).

Jetties are placed at ocean inlets to keep transported sand from closing the inlet channel. Together, jetties and inlets are known to have profound effects on adjacent beaches (Kaufman and Pilkey 1979). Witherington et al. (2005) found a significant negative relationship between loggerhead nesting density and distance from the nearest of 17 ocean inlets on the Atlantic coast of Florida. The effect of inlets in lowering nesting density was observed both updrift and downdrift of the inlets, leading researchers to propose that beach instability from both erosion and accretion may discourage loggerhead nesting.

Construction or repair of groins and jetties during the nesting season may result in the destruction of nests, disturbance of females attempting to nest, and disorientation of emerging hatchlings from project lighting. Following construction, the presence of groins

and jetties may interfere with nesting turtle access to the beach, result in a change in beach profile and width (downdrift erosion, loss of sandy berms, and escarpment formation), trap hatchlings, and concentrate predatory fishes, resulting in higher probabilities of hatchling predation.

Escarpments may develop on beaches between groins as the beaches equilibrate to their final profiles. These escarpments are known to prevent females from nesting on the upper beach and can cause them to choose unsuitable nesting areas, such as seaward of an escarpment. These nest sites commonly receive prolonged tidal inundation and erosion, which results in nest failure (Nelson and Blihovde 1998). As groin structures fail and break apart, they spread debris on the beach, which may further impede nesting females from accessing suitable nesting sites and trap both hatchlings and nesting turtles.

Species' response to a proposed action

The following summary illustrates sea turtle responses to and recovery from a nourishment project comprehensively studied by Ernest and Martin (1999). A significantly larger proportion of turtles emerging on nourished beaches abandoned their nesting attempts than turtles emerging on natural or pre-nourished beaches. This reduction in nesting success is most pronounced during the first year following project construction and is most likely the result of changes in physical beach characteristics associated with the nourishment project (*e.g.,* beach profile, sediment grain size, beach compaction, frequency and extent of escarpments). During the first post-construction year, the time required for turtles to excavate an egg chamber on untilled, hard-packed sands increases significantly relative to natural conditions. However, tilling (minimum depth of 36 inches) is effective in reducing sediment compaction to levels that did not significantly prolong digging times. As natural processes reduced compaction levels on nourished beaches during the second post-construction year, digging times returned to natural levels (Ernest and Martin 1999).

During the first post-construction year, nests on nourished beaches are deposited significantly seaward of the toe of the dune and significantly landward of the tide line than nests on natural beaches. More nests are washed out on the wide, flat beaches of the nourished treatments than on the narrower steeply sloped natural beaches. This phenomenon may persist through the second post-construction year monitoring and resulting from the placement of nests near the seaward edge of the beach berm where dramatic profile changes, caused by erosion and scarping, occurred as the beach equilibrate to a more natural contour.

The principal effect of beach nourishment on sea turtle reproduction is a reduction in nesting success during the first year following project construction. Although most studies have attributed this phenomenon to an increase in beach compaction and escarpment formation, Ernest and Martin (1999) indicated that changes in beach profile may be more important. Regardless, as a nourished beach is reworked by natural processes in subsequent years and adjusts from an unnatural construction profile to a natural beach profile, beach compaction and the frequency of escarpment formation decline, and nesting and nesting success return to levels found on natural beaches.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any cumulative effects in the project area.

CONCLUSION

After reviewing the current status of the loggerhead and green turtle, the environmental baseline for the action area, the effects of the proposed beach nourishment, and the cumulative effects, the Service's BO is that the beach nourishment project, as proposed, is not likely to jeopardize the continued existence of the loggerhead and green sea turtle, and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for the loggerhead and green sea turtle, in the continental United States; therefore, none will be affected.

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For loggerheads, the PFRU averages 64,513 nests per year. The entire recovery unit occurs within Florida and consists of approximately 1,166 miles of shoreline. Of the available nesting habitat within the PFRU, sand placement activities will occur on 1.6 miles of nesting shoreline.
For greens, the proposed project will affect only 1.6 linear miles of the approximately 1,400 miles of available sea turtle nesting habitat in the southeastern U.S.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing

duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impacts on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service anticipates the proposed action will impact 1.6 linear miles of nesting sea turtle beach habitat, which will result in take of nesting loggerhead and green sea turtles. Anticipated take consists of: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and egg relocation program within the boundaries of the proposed project; (2) destruction of all nests deposited during the period when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities; (5) misdirection of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (6) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (7) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Fish and Wildlife Service.

Incidental take is anticipated for only the 1.6 linear miles of beach that has been identified for sand placement. The Service anticipates incidental take of sea turtles will be difficult to detect for the following reasons: (1) the turtles nest primarily at night and all nests are not found because [a] natural factors, such as rainfall, wind, and tides may obscure crawls and [b] human-caused factors, such as pedestrian and vehicular traffic, may obscure crawls, and result in nests being destroyed because they were missed during a nesting survey and egg relocation program; (2) the total number of hatchlings per undiscovered nest is unknown; (3) the reduction in percent hatching and emerging success per relocated nest over the natural nest site is unknown; (4) an unknown number of females may avoid the project beach and be forced to nest in a less than optimal area; (5) lights may misdirect an unknown number of hatchlings and cause death; and (6) escarpments may form and cause an unknown number of females from accessing a suitable nesting site. However, the level of take of these species can be anticipated by the disturbance and renourishment of suitable turtle nesting beach habitat because: (1) turtles nest within the project site; (2) beach renourishment will likely occur during a portion of the nesting season; (3) the renourishment project will modify the incubation substrate, beach slope, and sand compaction; and (4) artificial lighting will deter and/or misdirect nesting females and hatchlings.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species. Critical habitat has not been designated in the project area; therefore, the project will not result in destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of loggerhead and green sea turtles.

1. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence and beach mouse burrow construction shall be used for sand placement.

2. All derelict concrete, metal, coastal armoring geotextile material or other debris shall be removed from the beach prior to any sand placement.

3. A post-construction survey(s) of all artificial lighting visible from the project beach shall be completed by the local sponsor or applicant. This information shall be provided to the Service and the FWC.

4. A meeting between representatives of the contractor, the Service, the FWC, and the permitted sea turtle surveyor, and other species surveyors as appropriate, shall be held prior to the commencement of work on this project.

5. During the sea turtle nesting season, daytime surveys for nesting sea turtles shall be conducted. If nests are constructed in the area of beach nourishment, the eggs shall be relocated to minimize sea turtle nest burial, crushing of eggs, or nest excavation. Nest relocation shall not occur upon completion of the project.

6. Beach compaction shall be monitored and tilling (non-vegetated areas to a minimum depth of 36 inches) shall be conducted if needed immediately after completion of the sand placement project and prior to the next three nesting seasons to reduce the likelihood of impacting sea turtle nesting and hatching activities. (NOTE: Out-year beach compaction monitoring and tilling are not required if placed material no longer remains on the dry beach.)

7. Escarpment formation shall be monitored and leveling shall be conducted if needed immediately after completion of the sand placement project and prior to the next three nesting seasons to reduce the likelihood of impacting nesting and hatchling sea turtles.

8. Construction equipment and materials shall be stored in a manner that will minimize impacts to nesting and hatchling sea turtles to the maximum extent practicable.

9. Lighting associated with the project construction shall be minimized to reduce the

possibility of disrupting and disorienting nesting and/or hatchling sea turtles.

10. During the sea turtle nesting season, the contractor shall not extend the beach fill more than 500 feet along the shoreline between dusk and the following day until the daily nesting survey has been completed and the beach cleared for fill advancement. An exception to this may occur if there is a permitted sea turtle surveyor present on-site at night to monitor and report any sea turtles that may emerge within the project area.

11. A report describing the actions taken to implement the terms and conditions of this incidental take statement shall be submitted to the Service by July 31 of the year following completion of the proposed work for each year when the activity has occurred.

12. The Service and the FWC shall be notified if a sea turtle adult, hatchling, or egg, or beach mouse is harmed or destroyed as a direct or indirect result of the project.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. Beach compatible fill shall be placed on the beach or in any associated dune system. Beach compatible fill is material that maintains the general character and functionality of the material occurring on the beach and in the adjacent dune and coastal system. Such material shall be predominately of carbonate, quartz or similar material with a particle size distribution ranging between 0.062mm and 4.76mm (classified as sand by either the Unified Soils or the Wentworth classification), shall be similar in color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the material in the historic beach sediment at the disposal site, and shall not contain:

    1a. Greater than 5 percent, by weight, silt, clay or colloids passing the #230 sieve;

    1b. Greater than 5 percent, by weight, fine gravel retained on the #4 sieve (- 2.25φ);

    1c. Coarse gravel, cobbles or material retained on the 3/4 inch sieve in a percentage or size greater than found on the native beach;

    1d. Construction debris, toxic material or other foreign matter; and

    1e. Material that will result in cementation of the beach.

2. All derelict concrete, metal, and coastal armoring geotextile material and other debris shall be removed from the beach prior to any sand placement to the maximum extent

practicable. If debris removal activities take place during the sea turtle nesting season (April 15 through September 30), the work shall be conducted during daylight hours only and shall not commence until completion of the sea turtle survey each day.

3. A survey shall be conducted of all lighting visible from the beach placement area by the local sponsor or applicant, using standard techniques for such a survey, between May 1 and May 15, and between July 15 and August 1, in the year following construction. A summary report of the surveys shall be submitted to the Service by December 1 of each year in which surveys are conducted. After the annual report is completed, a meeting shall be set up with the applicant or local sponsor, county or municipality, FWC and the Service to discuss the survey report, as well as any documented sea turtle disorientations in or adjacent to the project area.

4. A meeting between representatives of the contractor, the Service, the FWC, the permitted sea turtle surveyor, and other species surveyors as appropriate, shall be held prior to the commencement of work on projects. At least 10-business days advance notice shall be provided prior to conducting this meeting. The meeting will provide an opportunity for explanation and/or clarification of the sea turtle and beach mouse protection measures as well as additional guidelines when construction occurs during the sea turtle nesting season, such as storing equipment, minimizing driving, feral cat observation and reporting within the work area as well as follow up meetings during construction.

5. For sand placement projects that occur during the period from May 1 through October 31, daily early morning (before 9 a.m.) surveys shall be conducted, and eggs shall be relocated per the requirements below (7a to 7c).

   Nesting surveys shall be initiated 65 days prior to nourishment or dredged channel material placement activities or by April 1 whichever is later. Nesting surveys shall continue through the end of the project or through November 30 whichever is earlier. If nests are laid in areas where they may be affected by construction activities, eggs shall be relocated per the requirement listed in 5a through 5c below.

   5a. Nesting surveys and egg relocations will only be conducted by persons with prior experience and training in these activities and who are duly authorized to conduct such activities through a valid permit issued by FWC, pursuant to F.A.C 68E-1. Please contact FWC's Marine Turtle Management Program in Tequesta at (561) 575-5408 for information on the permit holder in the project area. Nesting surveys shall be conducted daily between sunrise and 9 a.m. (in all time zones). The contractor shall not extend the beach fill more than 500 feet along the shoreline between dusk and the following day until a daily nesting survey has been completed and the beach cleared for fill advancement. This measure will ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.

5b. Only those nests that may be affected by sand placement activities will be relocated. Nest relocation shall not occur upon completion of the project. Nests requiring relocation shall be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Relocated nests shall not be placed in organized groupings. Relocated nests shall be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, or subject to artificial lighting. Nest relocations in association with construction activities shall cease when construction activities no longer threaten nests.

5c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days or nests laid in the nourished berm prior to tilling shall be marked and left in place unless other factors threaten the success of the nest. The turtle permit holder shall install an on-beach marker at the nest site and/or a secondary marker at a point as far landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. No activity will occur within this area nor will any activities occur which could result in impacts to the nest. Nest sites shall be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the project activity.

6. Sand compaction shall be monitored in the area of sand placement immediately after completion of the project and prior to April 15 for 3 subsequent years. Sand compaction shall be monitored in accordance with a protocol agreed to by the Service, FWC, and the applicant or local sponsor. At a minimum, the protocol provided under 6a and 6b below shall be followed. If tilling is required, the area shall be tilled to a depth of 36 inches. All tilling activity shall be completed prior to those dates listed above.

Each pass of the tilling equipment shall be overlapped to allow thorough and even tilling. If the project is completed during the nesting season, tilling will not be performed in areas where nests have been left in place or relocated. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Additionally, out-year compaction monitoring and remediation are not required if placed material no longer remains on the dry beach.) A report on the results of the compaction monitoring shall be submitted to the Service's field office prior to any tilling actions being taken.

6a. Compaction sampling stations shall be located at 500-foot intervals along the project area. One station shall be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station shall be midway between the dune line and the high water line (normal wrack line).

6b. At each station, the cone penetrometer shall be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The

penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates shall be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth shall be averaged to produce final values for each depth at each station. Reports will include all 18 values for each transect line, and the final 6 averaged compaction values.

6c. If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area shall be tilled immediately prior to the following dates listed above.

6d. If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.

6e. Tilling shall occur landward of the wrack line and avoid all vegetated areas 3 square feet or greater with a 3 square foot buffer around the vegetated areas.

7. Visual surveys for escarpments along the project area shall be made immediately after completion of the sand placement project and during March 15 to April 15 for 3 subsequent years if sand from the project area still remains on the beach.

   Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of at least 100 feet shall be leveled and the beach profile shall be reconfigured to minimize scarp formation by April 15. Any escarpment removal shall be reported by location. If the project is completed during the sea turtle nesting and hatching season, escarpments may be required to be leveled immediately, while protecting nests that have been relocated or left in place. The Service shall be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs during the nesting and hatching season to determine the appropriate action to be taken. If it is determined that escarpment leveling is required during the nesting or hatching season, the Service or FWC will provide a brief written authorization that describes methods to be used to reduce the likelihood of impacting existing nests. An annual summary of escarpment surveys and actions taken shall be submitted to the Service's Field Office. (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the dry beach).

8. Staging areas for construction equipment shall be located off the beach, if off-beach staging areas are available, during the sea turtle nesting season. Nighttime storage of construction equipment not in use shall be off the beach to minimize disturbance to sea turtle nesting and hatching activities. In addition, all construction pipes that are placed on the beach shall be located as far landward as possible without compromising the

integrity of the existing or reconstructed dune system. Pipes placed parallel to the dune shall be 5 to 10 feet away from the toe of the dune. Temporary storage of pipes shall be off the beach to the maximum extent possible. If the pipes shall be on the beach, they shall be placed in a manner that will minimize the impact to nesting habitat and shall not compromise the integrity of the dune systems.

9. Direct lighting of the beach and nearshore waters shall be limited to the immediate construction area during the sea turtle nesting season and shall comply with safety requirements.
   Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the water's surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting equipment shall be reduced to the minimum standard required by OSHA for General Construction areas, in order not to misdirect sea turtles. Shields shall be affixed to the light housing and be large enough to block light from all lamps from being transmitted outside the construction area.

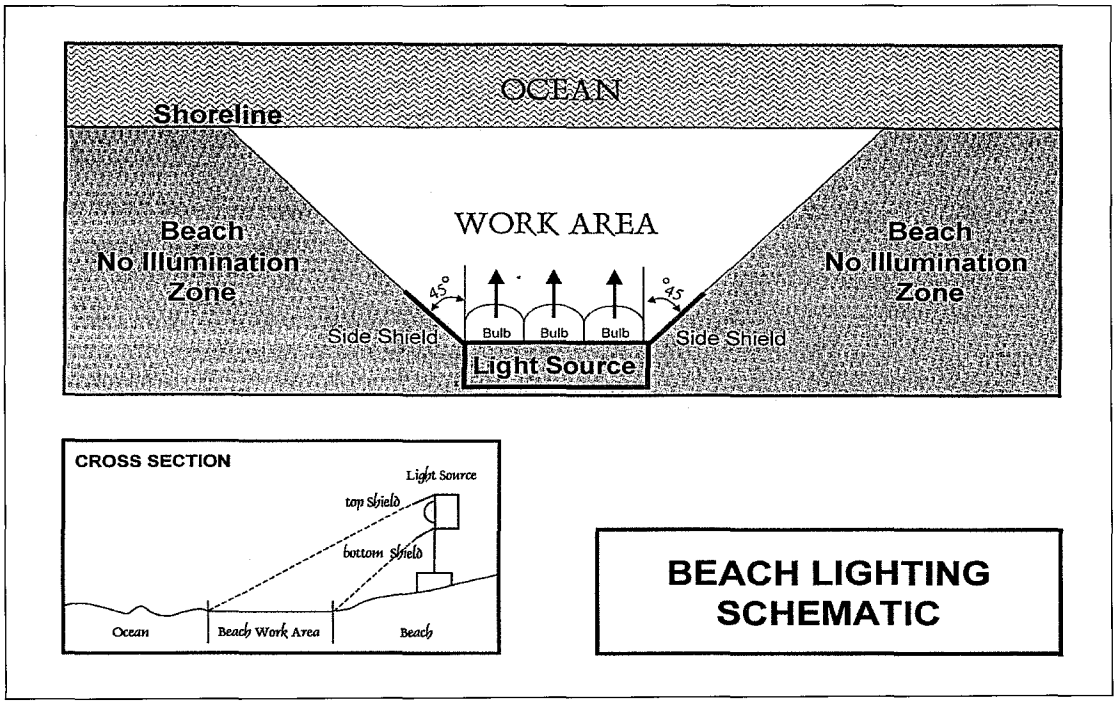

Figure 4. Beach lighting schematic.

10. During the sea turtle nesting season, the contractor shall not extend the beach fill more than 500 feet along the shoreline between dusk and the following day until the daily nesting survey has been completed and the beach cleared for fill advancement. An exception to this may occur if there is permitted sea turtle surveyor present on-site to ensure no nesting and hatching sea turtles are present within the extended work area. If the 500 feet is not feasible for the project, an agreed upon distance will be decided on during the preconstruction meeting. Once the beach has been cleared and the necessary nest relocations have been completed, the contractor will be allowed to proceed with the

placement of fill during daylight hours until dusk at which time the 500-foot length limitation shall apply.

11. A report describing the projects conducted during the year and actions taken to implement the reasonable and prudent measures and terms and conditions of this incidental take statement shall be submitted to the Service by March 1 of the following year of completing the proposed work for each year when the activity has occurred. This report will include the following information:

Table 4. Information to include in the report following the project completion.

All projects	Project location (include Florida DEP R-Monuments)
	Project description
	Dates of actual construction activities
	Names and qualifications of personnel involved in sea turtle nesting surveys and relocation activities (separate the nests surveys for nourished and non-nourished areas)
	Descriptions and locations of self-release beach sites
	Nest survey and relocation results

12. In the event a sea turtle nest is excavated during construction activities, the permitted person responsible for egg relocation for the project shall be notified immediately so the eggs can be moved to a suitable relocation site.

    Upon locating a dead or injured sea turtle adult, hatchling, egg, or beach mouse that may have been harmed or destroyed as a direct or indirect result of the project, the Corps, permittee, and/or local sponsor shall be responsible for notifying FWC Wildlife Alert at 1-888-404-FWCC (3922) and the Service Office immediately.

    Care shall be taken in handling injured sea turtles, eggs or beach mice to ensure effective treatment or disposition, and in handling dead specimens to preserve biological materials in the best possible state for later analysis.

The Service believes that incidental take will be limited to the 1.6 linear miles of beach that have been identified for sand placement. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than the following types of incidental take will result from the proposed action: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and egg relocation program within the boundaries of the proposed project; (2) destruction of all nests deposited during the period when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed

project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities; (5) disorientation of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (6) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (7) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Service. The amount or extent of incidental take for sea turtles will be considered exceeded if the project results in more than a one-time placement of sand on the 1.6 linear miles of beach that have been identified for sand placement. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Appropriate native salt-resistant dune vegetation should be established on the restored dunes. The FDEP, Bureau of Beaches and Wetland Resources, can provide technical assistance on the specifications for design and implementation.

2. Surveys for nesting success of sea turtles should be continued for a minimum of 3 years following beach nourishment to determine whether sea turtle nesting success has been adversely impacted.

3. Educational signs should be placed where appropriate at beach access points explaining the importance of the area to sea turtles and/or the life history of sea turtle species that nest in the area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal

agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this BO, please contact Ann Marie Lauritsen of this office at (904) 525-0661.

Sincerely,

for David L. Hankla
Field Supervisor

Cc: Robbin Trindell- FWC
Ken Graham- Service/Atlanta

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ATTACHMENT 8

United States Department of the Interior

U. S. FISH AND WILDLIFE SERVICE

7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
FWS Log No. 41910-2014-F-0039

December 19, 2013

Kevin D. O'Kane
Chief, Tampa Permits Section
Jacksonville District Corps of Engineers
10117 Princess Palm Avenue, Suite 120
Tampa, Florida 33610
(Attn: Mark Peterson)

Dear Mr. O'Kane:

This U.S. Fish and Wildlife Service (Service) letter responds to your letter of November 19, 2013, and modifies our Biological Opinion (BO) of November 16, 2009, (2009-F-0456) for the Coquina Beach Restoration Project. In 2009 we addressed Manatee County's proposed sand placement on two segments of Anna Maria Island: at Coquina Beach and at the City of Anna Maria, in Manatee County, Florida. Your letter requested reinitiation of formal consultation under section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*) based on Manatee County's request for modification of Corps of Engineers (Corps) permit SAJ-2000-03874. Following your letter of November 19, 2013, coordination between our staffs and with representatives of Manatee County (email correspondence, transmittal of supporting documentation, and a December 3, 2013, conference call) provided sufficient details of the proposed project modification for us to reinitiate formal consultation.

The Corps' Request for Modification states that special conditions in the existing permit will be maintained to address potential impacts to listed species. These include: Standard Manatee Conditions for In-Water Work (Florida Fish and Wildlife Conservation Commission 2011) to protect the West Indian (Florida) manatee (*Trichechus manatus latirostris*); Conservation Measures agreed upon for the piping plover (*Charadrius melodus*); and the implementation of Reasonable and Prudent Measures, and Terms and Conditions of our November 16, 2009, BO regarding the North Atlantic population of the loggerhead sea turtle (*Caretta caretta*) and the green sea turtle (*Chelonia mydas*). Manatee County has also agreed to abide by Conservation Measures and Terms and Conditions included in the Statewide Programmatic Biological Opinion (SPBO) (Service 2011) and Conservation Measures agreed to by the Corps in development of the May 22, 2013, Programmatic Piping Plover Biological Opinion (P^3BO) (Service 2013). In your letter you determined that the proposed modification to the original project is "not likely to adversely affect" the manatee and piping plover, and "may affect" the loggerhead and green sea turtles.

Our November 16, 2009, BO addressed the proposed placement of 169,000 cubic yards of sand on the southern end of the Anna Maria Island at Coquina Beach between Florida Department of Environmental Protection monuments R-35 + 790 feet and R-41 + 365 feet (1.0 mile), and proposed placement of 25,000 cubic yards of sand on a City of Anna Maria beach near the northern end of the island between R-7 to R-10 (0.6 mile). The project was initiated March 1, 2011, and sand placement continued through much of April, 2011. The project placed 204,800 cubic yards of sand. Rock was later discovered in the City of Anna Maria beach fill area. The contractor continued screening and removal of rock through January 2012.

The currently proposed project modification is limited to the southern sand placement area, Coquina Beach. The project would replace sand lost in tropical storm Debbie in 2012, and increase the designed beach width and volume from that authorized in the existing permit. The project would place an estimated 220,000 cubic yards of sand from R-33 south to the southern end of the island. This would include sand placement extending 3,000 feet north of the area authorized by the existing permit, to transition into an adjacent federally-authorized shore protection project that is about to begin. The federal project extends south to R-36, so in the area between R-33 and R-36 the two projects would overlap. When the federal project is completed (as early as mid-January 2014) construction of the proposed project would begin using the same cutter-head dredge as the federal project and a contiguous offshore borrow area. Construction is expected to take 2 months and may extend into the 2014 sea turtle nesting season.

Conservation Measures for the piping plover agreed to by Manatee County in the 2009 biological opinion are summarized as follows: the natural accumulation of wrack will remain on the southern end of Anna Maria Island year-round (south of R-40 + 410 feet); vehicles traversing the beach will avoid the soft sand areas in the wrack protection zone and follow the FWC's Beach Driving Best Management Practices; and, educational signs will be installed highlighting the importance of beach habitats to wildlife. During a site visit on December 9, 2013, Peter Plage of my staff observed numerous vehicle tracks throughout the width of the beach in the area addressed by these Conservation Measures. Vehicle use is impacting wrack accumulation. Use of the beach by vehicles must be modified to comply with this Conservation Measure. An educational poster highlighting wrack protection was displayed at a nearby beach access point, but it was somewhat faded and water stained. Replacement of the poster is needed.

The proposed project is located in non-optimal piping plover habitat. Conservation Measures agreed to by the Corps and Service that apply to projects in non-optimal habitat include conducting wintering shorebird surveys. Wintering shorebird surveys as described in the P^3BO are intended to document piping plover and other shorebird use of project sites before and after construction and thereby monitor project impacts to the piping plover. Reasonable and Prudent Measure 5 and Terms and Conditions 8 and 9 in the P^3BO describe the monitoring requirement. Term and Condition 8 stipulates that for one full piping plover migration and winter season (July 15 to May 15) prior to construction and two seasons following construction, bimonthly (twice-monthly) surveys for piping plovers shall be conducted in any intertidal or shoreline areas within or affected by the project. Term and Condition 9 outlines information to be collected. For projects in non-optimal habitat the Service has modified these winter shorebird survey requirements as deemed appropriate based on the nature of the proposed projects.

The currently proposed project area is somewhat unique in that Anna Maria Island Turtle Watch and Shorebird Monitoring (AMITWSM) has developed a shorebird survey protocol for Manatee County beaches based on the International Shorebird Survey monitoring guidelines. Shorebird surveys are conducted throughout the year by AMITWSM to document bird species present and their use of beach habitats. These existing surveys can be adapted as needed to target the project area and thereby fulfill the applicant's monitoring requirement. Targeted surveys to address this Conservation Measure should start as soon as possible (preconstruction) and continuing for two winter seasons following project completion.

In the event that piping plovers are documented in the proposed project area during the preconstruction surveys, the Service will be contacted for potential implementation of additional Conservation Measures prior to commencing construction. All shorebird survey data will be forwarded to the Service annually by July 31 of each year in which monitoring is conducted, as described in Term and Condition 9 of the P^3BO. The person(s) conducting the surveys must demonstrate the qualifications and ability to identify shorebird species and be able to provide the information outlined in the P^3BO.

Provided that existing permit conditions will be maintained and conditions of the SPBO and P^{3}BO will be adhered to, we concur that the proposed modified project is "not likely to adversely affect" the West Indian manatee and the piping plover. As with the previously permitted project, the proposed project modification "is likely to adversely affect" the loggerhead and green sea turtles. The impact of the proposed project modification to sea turtles is addressed by this modification of our BO.

The proposed modified project will impact the same length of beach or slightly less than the previously permitted project. As currently planned, the modified project may be concluded outside of the sea turtle nesting season. All Conservation Measures, and Terms and Conditions in our 2009 BO continue to apply, as well as any additional conditions provided in the SPBO. Given this, we conclude that while the proposed modified project is likely to adversely affect the loggerhead and green sea turtles, it will not jeopardize the existence of these sea turtles. Critical habitat has been proposed for the Northwest Atlantic distinct population segment of the loggerhead sea turtle. However, since none of Anna Maria Island has been proposed as critical habitat, the proposed work will not affect proposed critical habitat.

The 2009 BO anticipated take in the form of harm or harassment of loggerhead and green sea turtles throughout 1.0 mile of beach at the southern end and 0.6 of beach mile near the northern end of Anna Maria Island. We modify the BO to include incidental take associated with additional beach nourishment from the modified project over approximately 1.5 miles at the southern end of the island (R-33 to the southern end of the island). Separate take authorization has already been provided to the Corps for the federal project, including the R-33 to R-36 area.

Reports regarding sea turtles and related monitoring should be submitted consistent with Term and Condition A22, and tables 19 and 20 of the SPBO, rather than Term and Condition 11 of the 2009 BO. We anticipate receiving a report by July 31, 2014, describing work conducted and actions taken to implement Reasonable and Prudent Measures (Table19) and the results of yearly monitoring by December 31 of each year monitoring takes place (Table 20).

In closing, we appreciate the efforts of Manatee County and the Corps in conserving listed species. Unless modified via further consultation with the Service, Conservation Measures agreed to by the applicant, and Terms and Conditions included in 2009 BO, the SPBO and P^{3}BO are binding. If you have any questions regarding this modification to our BO, please contact Peter Plage at (904-731-3085, peter_plage@fws.gov)

Sincerely,

for Annie Dziergowski

Jay Herrington
Field Office Supervisor

cc: Nancy Douglas, FWC (Lakeland)
Robbin Trindell, FWC (Tallahassee)

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