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SC Court of Appeals

STATE OF SOUTH CAROLINA
IN THE COURT OF APPEALS

APPEAL FROM THE ADMINISTRATIVE LAW COURT
Ralph King Anderson, III, Administrative Law Judge

Docket No. 19-ALJ-07-0089-CC

South Carolina Coastal Conservation League, ...Appellant,

vs.

South Carolina Department of Health and Environmental Control and
Debordieu Colony Community Association, ... Respondents.

SUPPLEMENT TO RECORD ON APPEAL

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Colony Community Association

INDEX

Orders

1. Order of Consolidation, dated July 30, 2020……...001

Exhibits

2. Petitioner's Exhibit 41…….003
3. Respondents's Exhibit 1f……..…...050
4. Respondents's Exhibit 31 …….……..054
5. Respondent's Exhibit 51 …….……070
6. Respondent's Exhibit 54 …….……071

Certificate of Counsel

I hereby certify that the Supplement to Record on Appeal contains all material proposed to be included by any of the Parties and not any other material.

s/ Leslie S. Lenhardt
Leslie S. Lenhardt
Benjamin D. Cunningham
P.O. Box 1380
Pawleys Island, SC 29585
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September 30, 2021

STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

South Carolina Coastal Conservation League, Petitioner, vs. South Carolina Department of Health and Environmental Control and DeBordieu Colony Community Association, Respondents.	)	Docket No. 19-ALJ-07-0089-CC
South Carolina Coastal Conservation League, Petitioner, vs. South Carolina Department of Health and Environmental Control and DeBordieu Colony Community Association, Respondents.	)	Docket No. 20-ALJ-07-161-CC

ORDER OF CONSOLIDATION

Petitioners and Respondents consent to consolidating the above-captioned matters. Rule 19(D) of the Rules of Procedure for the South Carolina Administrative Law Court (SCALC Rules) provides in relevant part:

> When two or more hearings are to be held, and the same or substantially similar evidence is relevant and material to the matters at issue at such hearing, the administrative law judge may upon motion by any party or on his own motion order that a consolidated hearing be conducted.

The parties agree and the Court finds that, in both of these cases, the same or substantially similar evidence is relevant and material to the issues that are to be determined and, thus, consolidation is appropriate pursuant to SCALC Rule 19(D). Therefore, for good cause shown,

IT IS HEREBY ORDERED that pursuant to SCALC Rule 19(D), the above-captioned cases are consolidated for hearing purposes. Each case shall retain its separate caption and docket number.

IT IS FURTHER ORDERED that a single record of the proceedings shall be made and evidence introduced shall be considered as introduced in both matters. Pursuant to the agreement of the parties, discovery in one matter shall be available in both matters.

IT IS FURTHER ORDERED that a hearing on the merits in these consolidated matters will take place August 24 – 27, 2020.

AND IT IS SO ORDERED.

Ralph King Anderson, III
Chief Administrative Judge

July 30, 2020
Columbia, South Carolina

CERTIFICATE OF SERVICE
I certify that the undersigned has this date served this notice/order in the above entitled action upon all parties to this cause by depositing a copy hereof, in the United States mail, postage paid, or in the interagency Mail Service addressed to the party(ies) or their attorney(s).
30 day of July
Judicial Law Clerk

Healthy People. Healthy Communities.

MEMORANDUM

TO: **SC Environmental Law Project, ATTN: Ms. Amy Armstrong**

FROM: **Matt Slagel, DHEC-OCRM Beachfront Permitting Project Manager** MJS

RE: **Debordieu Colony Community Association: Beach Renourishment and Construction of Three Groin Structures**

P/N# **2017-01795**

DATE: **January 24, 2019**

The above-referenced permit for beach renourishment and construction of three groin structures at Debidue Island, Georgetown County, SC was issued on January 24, 2019. The permit is enclosed, and the description of the project is below.

DESCRIPTION OF THE PROJECT, AS AUTHORIZED

The plans submitted by you, attached hereto, show the work consists of performing beach renourishment and constructing three groin structures. Specifically, up to 650,000 cubic yards of beach-compatible sand will be placed along approximately 1.5 miles (8,000 feet with 500 to 1,000 feet of tapers) of shoreline along Debidue Island. Sand placement will have a fill density ranging from 30 to 215 cy/ft and will be graded into a profile including a berm at +6 ft NAVD and a seaward slope at 1 on 15. A dune with elevation +12 ft NAVD and ~15 ft crest width will be included along up to 1,700 feet of beach at the southern end of the existing wooden bulkhead if no dune is present at the time of construction. The seaward face of the dune will be constructed at a 1 on 4 slope. The work also includes the installation of three sheet pile-type groins along the southern end of the project site. Each groin will be constructed of vertical sheet pile walls (sheets ~15-20 feet long) and extend between 300 and 400 feet from the back beach/bulkhead to the low tide line. Armor stone scour aprons will be installed along either side of the sheet piles at the seaward end of each structure, and each scour apron will consist of approximately 1,500 tons of armor stone placed on 5,600 square feet of marine mattresses. Groins will be constructed to a profile matching the native beach slope and desired berm width. The sheet piles will be made of steel or composite reinforced fiberglass material and will be capped with concrete or composite material. The majority of the sand will be placed in the groin area to satisfy groin trapping capacity and to facilitate construction using land-based equipment. Sand will be obtained from two offshore borrow areas located 1.8 to 3.5 miles east of Debidue Island beach. The renourishment will be accomplished by either hydraulic cutterhead or hopper dredge, and bulldozers and loaders will shape the fill material on the beach. Dredging within the borrow areas will be to a depth not to exceed 6 feet, or the limit of suitable material, whichever is shallower. The work as described is to restore the recreational beach, protect infrastructure and homes, reduce potential storm damages, maintain property values and the community tax base, maintain dry beach habitat for shorebirds and sea turtles, reduce renourishment frequency, and provide excess nourishment volume beyond the trapping capacity of each groin so that sand bypassing occurs to the downcoast area and erosion rates are reduced below the background erosion rate of 8.1 cy/ft/yr for the downcoast area.

Any person adversely affected by this decision has the right to appeal as outlined in the enclosed "Guide to Board Review."in the enclosed "Guide to Board Review."

dhec
Healthy People. Healthy Communities.

SEE SPECIAL CONDITION(S)

January 24, 2019

DeBordieu Colony Community Association
ATTN: Ms. Blanche Brown
181 Luvan Blvd.
Georgetown, SC 29440

Re: 2017-01795 – Beach Renourishment and Construction of Three Groin Structures

Dear Ms. Brown:

The Office of Ocean and Coastal Resource Management (the Department) has reviewed your application to perform beach renourishment and construct three groin structures along a 1.5 mile section of Debidue Island in Georgetown County, South Carolina and has issued a permit for this work. You should carefully read the description of the authorized project and special conditions that have been placed on the permit, as these conditions modify the permitted activity. In addition, there are a series of general conditions that should be reviewed. The original and one photocopy of the permit, as issued, are enclosed. After carefully reading the permit, if you wish to accept the permit as issued, sign and date in the signature block entitled "PERMITTEE" on the original version of the permit and **return it to this Department. Keep the photocopy for your records.**

PLEASE READ CAREFULLY: You are required to sign and return the original version of your permit to this Department. If this permit is not signed and returned within thirty (30) days of issuance, OR appealed within 15 days as described on the enclosed "Guide to Board Review", the Department reserves the right to cancel this permit. Please carefully review the enclosed "Guide to Board Review" for information and deadlines for appealing this permit.

We have also enclosed a "request for a construction placard" card. You must send in this card before the time you wish to start construction. At that time a construction placard will be sent to you to post at the construction site.

PLEASE NOTE: You are not authorized to commence work under the permit until we have received the original version of the entire permit signed and accepted by you, and a construction placard has been issued and posted at the construction site. The receipt of this permit does not relieve you of the responsibility of acquiring any other federal or local permits that may be required. Please return the signed permit to the following address:

Office of Ocean and Coastal Resource Management
1362 McMillan Ave., Suite 400
Charleston, SC 29405

Sincerely,

Matthew J. Slagel
Beachfront Permitting Project Manager
Critical Area Permitting Section

Enclosure

cc: Mr. Blair Williams, Critical Area Permitting Section Manager
Mr. Tim Kana, Coastal Science & Engineering, Agent
Ms. Ann Eaddy, U.S. Army Corps of Engineers
Ms. Susan Davis, S.C. Department of Natural Resources
Ms. Melissa Chaplin, U.S. Fish and Wildlife Service
Ms. Cindy Cooksey, NOAA National Marine Fisheries Service

SEE SPECIAL CONDITION(S)

South Carolina Board of Health and Environmental Control

Guide to Board Review

Pursuant to S.C. Code Ann. § 44-1-60

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of $100 is filed with Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation or settlement discussions during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference. In matters pertaining to decisions under the South Carolina Mining Act, appeals should be made to the South Carolina Mining Council.

I. Filing of Request for Final Review

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars ($100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15th day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day. RFRs will not be accepted after 5:00 p.m.
2. RFRs shall be in writing and should include, at a minimum, the following information:
   - The grounds for amending, modifying, or rescinding the staff decision;
   - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
   - the relief requested;
   - a copy of the decision for which review is requested; and
   - mailing address, email address, if applicable, and phone number(s) at which the requestor can be contacted.
3. RFRs should be filed in person or by mail at the following address:

   South Carolina Board of Health and Environmental Control
   Attention: Clerk of the Board
   2600 Bull Street
   Columbia, South Carolina 29201

   Alternatively, RFR's may be filed with the Clerk by facsimile (803-898-3393) or by electronic mail (boardclerk@dhec.sc.gov).
4. The filing fee may be paid by cash, check or credit card and must be received by the 15th day.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor. All personal and financial identifying information will be redacted from the RFR and accompanying documentation before the RFR is released to the Board, Department staff or the public.
7. If an RFR pertains to an emergency order, the Clerk will, upon receipt, immediately provide a copy of the RFR to all Board members. The Chairman, or in his or her absence, the Vice-Chairman shall based on the circumstances, decide whether to refer the RFR to the RFR Committee for expedited review or to decline in writing to schedule a Final Review Conference. If the Chairman or Vice-Chairman determines review by the RFR Committee is appropriate, the Clerk will forward a copy of the RFR to Department staff and Office of General Counsel. A Department response and RFR Committee review will be provided on an expedited schedule defined by the Chairman or Vice-Chairman.
8. The Clerk will email the RFR to staff and Office of General Counsel and request a Department Response within eight (8) working days. Upon receipt of the Department Response, the Clerk will forward the RFR and Department Response to all Board members for review, and all Board members will confirm receipt of the RFR to the Clerk by email. If a Board member does not confirm receipt of the RFR within a twenty-four (24) hour period, the Clerk will contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will

respond to the Clerk's email within forty-eight (48) hours and will request further review. If no Board member requests further review of the RFR within the forty-eight (48) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. Contested case guidance will be included within the letter.

NOTE: If the time periods described above end on a weekend or State holiday, the time is automatically extended to 5:00 p.m. on the next business day.

9. If the RFR is to be considered by the RFR Committee, the Clerk will notify the Presiding Member of the RFR Committee and the Chairman that further review is requested by the Board. RFR Committee meetings are open to the public and will be public noticed at least 24 hours in advance.
10. Following RFR Committee or Board consideration of the RFR, if it is determined no Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Conference. Contested case guidance will be included within the letter.

II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will request Department staff provide the Administrative Record.
3. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publically noticed and should:
   - include the place, date and time of the Conference;
   - state the presentation times allowed in the Conference;
   - state evidence may be presented at the Conference;
   - if the conference will be held by committee, include a copy of the Chairman's order appointing the committee; and
   - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.
4. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
   - Department staff will provide an overview of the staff decision and the applicable law to include [10 minutes]:
     - Type of decision (permit, enforcement, etc.) and description of the program.
     - Parties
     - Description of facility/site
     - Applicable statutes and regulations
     - Decision and materials relied upon in the administrative record to support the staff decision.
   - Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [15 minutes] *NOTE: The burden of proof is on the Requestor(s)*
   - Rebuttal by Department staff [15 minutes]
   - Rebuttal by Requestor(s) [10 minutes]

   Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
3. At any time during the conference, the officers conducting the Conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the Conference.
4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
5. All Conferences are open to the public.
6. The officers may deliberate in closed session.
7. The officers may announce the decision at the conclusion of the Conference or it may be reserved for consideration.
8. The Clerk will mail the written final agency decision (FAD) to parties within 30 days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court or in matters pertaining to decisions under the South Carolina Mining Act, to request a hearing before the South Carolina Mining Council.. The FAD will be sent by certified mail, return receipt requested.
9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT

CRITICAL AREA PERMIT & COASTAL ZONE CONSISTENCY CERTIFICATION

Permittee: **DeBordieu Colony Community Association**

Permit Number: **2017-01795**

Date of Issuance: **January 24, 2019**

Expiration Date: **January 24, 2024**

SEE SPECIAL CONDITION(S)

Location: **On and adjacent to the Atlantic Ocean along a 1.5 mile (9,000 linear feet) section of Debidue Island beach from Ocean Park Loop to south of Ocean Green Drive, Georgetown County, South Carolina (TMS#: Various).**

This permit is issued under the provisions of S. C. Code Ann. Section 48-39-10, et seq., and 23A S.C. Code Ann. Regs. 30-1 through 30-18, *as amended*. **Please carefully read the project description and special conditions that appear on this permit/certification as they will affect the work that is allowed and modify the work from that shown on the submitted plans. All special conditions attached to the permit will take precedence over submitted plans.** The general conditions are also a part of this permit/certification and should be read in their entirety. The S. C. Contractor's Licensing Act of 1999, enacted as S.C. Code Ann. Section 40-11-5 through 430, requires that all construction with a total cost of $5,000 or more be performed by a licensed contractor with a valid contractor's license for marine class construction, except for construction performed by a private landowner for strictly private purposes. Your signature on and acceptance of this permit denotes your understanding of the stated law regarding use of licensed contractors. **All listed special and general conditions will remain in effect for the life of the permit. This applies to permittee, future property owners, or permit assignees.**

DESCRIPTION OF THE PROJECT, AS AUTHORIZED

The plans submitted by you, attached hereto, show the work consists of performing beach renourishment and constructing three groin structures. Specifically, up to 650,000 cubic yards of beach-compatible sand will be placed along approximately 1.5 miles (8,000 feet with 500 to 1,000 feet of tapers) of shoreline along Debidue Island. Sand placement will have a fill density ranging from 30 to 215 cy/ft and will be graded into a profile including a berm at +6 ft NAVD and a seaward slope at 1 on 15. A dune with elevation +12 ft NAVD and ~15 ft crest width will be included along up to 1,700 feet of beach at the southern end of the existing wooden bulkhead if no dune is present at the time of construction. The seaward face of the dune will be constructed at a 1 on 4 slope. The work also includes the installation of three sheet pile-type groins along the southern end of the project site. Each groin will be constructed of vertical sheet pile walls (sheets ~15-20 feet long) and extend between 300 and 400 feet from the back beach/bulkhead to the low tide line. Armor stone scour aprons will be installed along either side of the sheet piles at the seaward end of each structure, and each scour apron will consist of approximately 1,500 tons of armor stone placed on 5,600 square feet of marine mattresses. Groins will be constructed to a profile matching the native beach slope and desired berm width. The sheet piles will be made of steel or composite reinforced fiberglass material and will be capped with concrete or composite material. The majority of the sand will be placed in the groin area to satisfy groin trapping capacity and to facilitate construction using land-based equipment. Sand will be obtained from two offshore borrow areas located 1.8 to 3.5 miles east of Debidue Island beach. The renourishment will be accomplished by either hydraulic cutterhead or hopper dredge, and bulldozers and loaders will shape the fill material on the beach. Dredging within the borrow areas will be to a depth not to exceed 6 feet, or the limit of suitable material, whichever is shallower. The work as described is to restore the recreational beach, protect infrastructure and homes, reduce potential storm damages, maintain property values and the community tax base, maintain dry beach habitat for shorebirds and sea turtles, reduce renourishment frequency, and provide excess nourishment volume beyond the trapping capacity of each groin so that sand bypassing

SEE SPECIAL CONDITION(S)

Permit Number: **2017-01795**

occurs to the downcoast area and erosion rates are reduced below the background erosion rate of 8.1 cy/ft/yr for the downcoast area.

SPECIAL CONDITIONS

1. Work authorized in this permit may only be conducted between November 1 and June 30. No construction may occur between July 1 and October 31, in accordance with the U.S. Fish and Wildlife Service's (USFWS) letter dated December 21, 2017.

2. Conservation Measures included in the permit application/project plans must be implemented in the proposed project. Project construction via hopper dredge will be limited to November 1 through March 31. If hopper dredging occurs outside of this authorized dredge window, the operation protocols for hopper dredging in the September 25, 1997 South Atlantic Regional Biological Opinion (SARBO) issued by the National Marine Fisheries Service (NMFS) must be adhered to (Attachment A).

3. The beach must be monitored for nesting and/or hatchling sea turtles before, during, and after project construction each day if the work occurs during the nesting season (May 1 – October 31). Specifically, the contractors performing work under this permit shall be in direct contact with the S.C. Department of Natural Resources (DNR) Marine Turtle Conservation Program (MTCP) representative. Daily, early surveys of the beach must be performed to document turtle nesting activity, and the MTCP representative shall be consulted each morning prior to any work being performed on the beach. In the event a nest is disturbed during construction and/or sea turtle adult or hatchling is encountered, all work should cease and the DNR MTCP should be contacted immediately. The MTCP contact is Michelle Pate who can be reached at 843-953-9052 (office), 843-953-9015, or PateS@dnr.sc.gov.

4. During sea turtle nesting season, construction equipment and materials for project construction must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable.

5. The applicant must hire monitors with sea turtle experience to patrol the beach at night in the project area if nighttime construction activities and equipment occur during the nesting season.

6. Appropriate measures must be taken to protect the integrity of roosting, feeding, and beach-nesting birds, with particular emphasis, but not limited to Piping Plovers and Red Knots during the course of the project and while conducting post-construction practices on the beach and dune system regarding compaction testing and tilling, escarpment remediation, sand fencing, and vegetation installation. Questions about minimizing disturbance to these species should be directed to the USFWS South Carolina Field Office at 843-727-4707.

7. The Standard Manatee Construction Conditions in Appendix A of the Biological Opinion dated June 13, 2018 must be adhered to (Attachment B).

8. All necessary measures must be taken to prevent oil, tar, trash, debris, and other pollutants from entering the adjacent waters or beach environment during construction.

9. Beach renourishment must be performed within three months of groin construction, so that a volume of sand greater than the trapping capacity of the groins is added to the beach as described in the permit application.

10. Only clean sand, free from all potential sources of pollution, must be used for beach renourishment.

SEE SPECIAL CONDITION(S)

Permit Number: **2017-01795**

11. Sand used must consist of appropriate grain sizes, quality, and color to be compatible for beach renourishment. If muddy sediments or excessively coarse sediments (rocks, large shell fragments, etc.) are observed while sand is being placed on the beach, dredging of that portion of the borrow area must be terminated immediately and the dredge must be moved to another location.

12. Qualified personnel, under the direction of a registered professional geologist or registered professional engineer, must be present on the beach during sand pumping activities to monitor the sediment quality and correlate it with borrow area conditions.

13. If accumulations of mud rollers or coarse sediments (rocks, large shell fragments, etc.) exceed the equivalent of one 15-cubic yard dump truck per 100 linear feet of beach, the material must be removed from the beach using hand labor or a beach-sweeping device as soon as practicable upon completion of the section or upon completion of the project.

14. Sand fencing and dune vegetation that is installed must be consistent with the South Carolina Critical Area Permitting Regulations in S.C. Code Ann. Regs. 30-13(L) and in accordance with the attached diagram (Attachment C).

15. Access along the beach in the vicinity of the new groins must be maintained or improved. If access is impacted or eliminated, temporary access around or over the groins must be established immediately. Within 30 days of notification from the Department, a plan to provide permanent access around or over the groins must be submitted by the entity responsible for the groin construction. This permanent access plan must be implemented within 90 days of the Department approval.

16. No dredging should occur within 400 feet of hardbottom habitat that may be present within the borrow areas.

17. Within the borrow areas, the contractor must begin dredge operations at the outer edges of higher elevation mounds of suitable material and proceed inwards rather than dig deep pits in the center of the borrow area whenever possible. Maximum authorized dredge depth is 6 feet below the seafloor, or the limit of suitable material, whichever is shallower.

18. The applicant shall perform monitoring of the project and borrow sites, and monitoring reports shall be submitted to SCDHEC-OCRM, the U.S. Army Corps of Engineers (USACE) Charleston District, and the USFWS South Carolina Field Office according to the schedule described in Special Condition # 20. The monitoring will include the following:
    a. Beach profile (topographic and hydrographic) surveys beginning at a point landward of the stable dune or bulkhead and extending at least 3,000 feet seaward of the shoreline shall be performed at profiles not to exceed 500 feet in spacing in the alongshore direction. Within the first 2,000 feet south of the southernmost groin, the profiles must not exceed 200 feet in spacing in the alongshore direction. All profile data collection for all years shall include both land-based and hydrographic surveys. The profile data shall be collected for all of Debidue Beach, including the areas north and south of the groins and continuing along the spit into the sandy shoreline of North Inlet. S.C. Code Ann. Regs. 30-15(G)(1)(a) requires the establishment of new monuments. Modern Real-Time Kinematic Geographic Positioning System (RTK-GPS) technology allows for virtual monuments to be established along the beach instead of physical monuments installed in the ground. Virtual monuments allow for precise latitude, longitude, and elevation measurements to be obtained along replicable beach profile transects. Beach profile transects at virtual monuments at the spacing described above satisfy the regulatory requirements in S.C. Code Ann. Regs. 30-15(G)(1)(a). Post-construction surveys shall compare beach

Permit Number: **2017-01795**

SEE SPECIAL CONDITION(S)

volumes and contour positions to before-and-after project conditions to document beach volume changes, fillet geometries, groin exposure, and erosion hotspots.

b. Post-storm surveys after major events shall be performed to evaluate short-term changes in relation to historical data along Debidue Island and to track the growth and landward limits of washovers along Debidue Spit.

c. Bathymetric surveys of the borrow area utilized for the renourishment project shall encompass the boundaries of the dredge areas and shall include a minimum 400-foot buffer along the outside of each area. Bathymetric surveys shall be completed using track lines at a spacing not to exceed 500 feet, and shall be analyzed by the permittee to calculate infilling rates.

d. Beach sediment samples shall be collected at stations spaced 200 feet apart along the shoreline. Samples from each station shall be taken using a push core at the toe of the dune, crest of the berm, mid beach face, and shallow underwater zone. Samples shall be dried and tested for grain size distribution and shell content.

e. Borrow area surficial sediment samples shall be taken using push cores with a diameter of 10 centimeters and a depth of 10 centimeters. A total of 10 random samples shall be taken from the borrow area utilized for the project. Samples will be analyzed for grain size, shell content, and mud content.

f. Aerial photographs of the project area and adjacent and downdrift beach areas to North Inlet shall be collected at low tide.

g. Compaction of the renourished beach shall be monitored at 500-foot intervals along the sand placement template. One station shall be at the seaward edge of the dune/seawall line, and one station shall be midway between the dune line and the high water line. At each station, the cone penetrometer must be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Replicates must be located as close to each other as possible, without interacting with the previous hole or disturbed sediments. The three replicate compaction values for each depth must be averaged to produce final values for each depth at each station. Monitoring reports shall include all 18 values for each transect line, and the final six averaged compaction values.

h. Escarpment formation along the renourished beach shall be monitored.

19. In addition to the monitoring requirements described in Special Condition # 18, if dredging extends into the spring or summer season (April 1 to September 30), the applicant shall perform benthic infauna monitoring of the beach and borrow areas. Monitoring will include collecting 10 random samples within the impact areas (borrow areas and fill area) and 10 samples in surrounding control areas. For the borrow areas, samples will be collected immediately before and after dredging, and 1 year and 3 years post dredging (during the same season as the immediate post-dredging survey). For the beach area, samples will be collected immediately before dredging, and then 1 month, 6 months and 1 year post dredging. The 1 year post sample will be collected during the same season as the pre-dredging survey. For the beach samples, the sampling design will follow procedures for recent similar studies in South Carolina with each site sampled over a 100 meter area along transects spaced 10 meters apart and samples collected at a random location along the transect between the MSL and MLW contours. The benthic infauna monitoring data and analysis shall be included in the annual monitoring reports submitted to SCDHEC-OCRM, the USACE Charleston District, and the USFWS South Carolina Field Office.

SEE SPECIAL CONDITION(S)

Permit Number: **2017-01795**

20. The corresponding surveys and monitoring reports shall be performed on the following schedule:
    a. Beach profile (topographic and hydrographic) surveys – Performed pre-project within 90 days, post-project within 30 days, post-project after 3 months, post-project after 6 months, post-project after 9 months, post-project after 1 year, and then performed annually for years 2 through 10 post-project. Subsequent monitoring requirements will be based on results from the first ten years of monitoring. All annual surveys shall be conducted at the same time of year as the pre-project survey to allow for appropriate comparative analyses.
    b. Bathymetric surveys – Performed pre-project within 90 days, post-project within 30 days, and then performed 1, 3, and 6 years from the post-project survey date.
    c. Post-storm surveys – Performed after major events within 30 days.
    d. Beach sediment samples – Collected pre-project within 90 days and post-project within 30 days.
    e. Borrow area surficial sediment samples - Collected pre-project within 90 days, post-project within 30 days, and then collected 1, 3, and 6 years from the post-project sample collection date.
    f. Aerial photographs – Performed pre-project within 90 days, post-project within 30 days, post-project after 3 months, post-project after 6 months, post-project after 9 months, post-project after 1 year, and then performed annually for years 2 through 10 post-project. Annual flights shall be conducted at the same time of year as the post-project flight to allow for appropriate comparative analysis.
    g. Compaction – Performed post-project within 30 days, and then performed within 30 days prior to May 1 for three subsequent years.
    h. Escarpment formation monitoring – Performed post-project within 30 days, and then performed within 30 days prior to May 1 for three subsequent years.

21. All monitoring reports shall be submitted to SCDHEC-OCRM, the USACE Charleston District, and the USFWS South Carolina Field Office within 60 days of data collection. The pre-project and post-project reports shall be submitted within 90 days of construction completion. Additionally, all pre-project, post-project, and annual monitoring reports shall be submitted as a standalone report under a separate cover. In addition to the required information for the pre- and post-project monitoring, the report should establish a comparison table in an appendix to be utilized for all subsequent annual reports to provide a straightforward comparison of all monitoring data. The monitoring reports must contain the following information at a minimum as shown in Table 1 below. If benthic infauna monitoring is required according to Special Condition # 19, the benthic infauna monitoring data and analysis shall also be included in the corresponding annual monitoring report.

SEE SPECIAL CONDITION(S)

Permit Number: **2017-01795**

Report	TABLE 1: Required Monitoring Information, Comparisons, and Analysis						
	Beach Profile Figures*	Bathymetric Survey Figures	Beach Sediment Samples	Borrow Area Sediment Samples	Aerial Photos	Compaction	Escarpments
Pre-Project	X	X	X	X	X		
Post-Project	X	X	X	X	X	X	X
3-Months Post-Project	X				X		
6-Months Post-Project	X				X		
9-Months Post-Project	X				X		
Year 1 Annual Report	X	X		X	X	X	X
Year 2 Annual Report	X				X	X	X
Year 3 Annual Report	X	X		X	X	X	X
Year 4 Annual Report	X				X		
Year 5 Annual Report	X				X		
Year 6 Annual Report	X	X		X	X		
Year 7 Annual Report	X				X		
Year 8 Annual Report	X				X		
Year 9 Annual Report	X				X		
Year 10 Annual Report	X				X		
***Including post-storm surveys as needed**							

22. If the monitoring data collected according to Special Condition # 18 shows an increased erosion rate along the adjacent or downdrift beaches that is attributable to the three new permitted groins, SCDHEC-OCRM will require either that the groins be reconfigured so that the erosion rate on the affected beach does not exceed the historical/background rate, that the groins be removed, and/or that the beach adversely affected by the groins be restored through renourishment. Baseline volume and shoreline position conditions will be based on the pre-project survey conditions. Subsequent analyses of project performance will be made relative to these baseline conditions. Specifically, if the running average erosion rate within the Hobcaw Tract from the southernmost groin to 1,600 feet south of the southernmost groin exceeds the historical/background rate of 8.1 cy/ft/yr, mitigation will be required. Mitigation will also be required if the running average erosion rate from 1,600 feet south of the southernmost groin to 4,180 feet south of the southernmost groin exceeds 8.1 cy/ft/yr. The exact form of mitigation required will depend on the location and extent of the adverse impact. When mitigation work is required, it must be completed as soon as possible, normally within three months. The permittee's agent, in a letter dated May 16, 2018, estimates that it would cost approximately $250,000 to

SEE SPECIAL CONDITION(S)

Permit Number: **2017-01795**

reconfigure or remove the groins if required. The Letter of Credit dated August 17, 2018 serves as DeBordieu Colony Community Association's commitment to reconfigure groins, remove groins, and/or restore the adversely affected beach through renourishment should it be determined that the three groins contemplated under this permit resulted in increased erosion rates. DeBordieu Colony Community Association also implements a Beach Preservation Assessment, which generates funds solely dedicated to beach preservation.

23. Sand compaction must be monitored in the area of sand placement immediately after completion of the project and prior to May 1 for three subsequent years. If the compaction values of the renourished beach exceed 500 pounds per square inch (psi), the area may require tilling prior to May 1. USACE and SCDHEC-OCRM must be notified immediately if the compaction values exceed 500 psi to ensure coordination with the resource agencies. Any required tilling must occur landward of the wrack line and avoid all vegetated areas three square feet or greater with a three square foot buffer around the vegetated areas.

24. Visual surveys for escarpments along the project area must be made immediately after completion of the sand placement and within 30 days prior to May 1 for three subsequent years. If escarpments form along the renourished beach that interfere with sea turtle nesting or exceed 18 inches in height for a distance of 100 feet, the escarpments may require leveling prior to May 1 or during the sea turtle nesting and hatching season. USACE and SCDHEC-OCRM must be notified immediately if escarpments have formed to ensure coordination with the resource agencies.

25. An as-built survey of the new groins and renourished beach area must be submitted to DHEC-OCRM within 90 days from completion of construction. The survey must be performed by a registered land surveyor, must show all components of the groins, and must list the starting and ending coordinates of the groins in the SC State Plane Coordinate System, which can be obtained by survey-grade Global Positioning System equipment.

26. In the event that any historic or cultural resources and/or archaeological materials are found during the course of work, the applicant must notify the State Historic Preservation Office and the South Carolina Institute of Archaeology and Anthropology. Historic or cultural resources consist of those sites listed in the National Register of Historic Places and those sites that are eligible for the National Register. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic shards, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.

PERMITTEE'S ATTENTION IS DIRECTED TO GENERAL CONDITIONS NUMBERS FOUR (4) AND FIVE (5).BY ACCEPTANCE OF THIS PERMIT, PERMITTEE IS PLACED ON NOTICE THAT THE STATE OF SOUTH CAROLINA, BY ISSUING THIS PERMIT, DOES NOT WAIVE ITS RIGHTS TO REQUIRE PAYMENT OF A REASONABLE FEE FOR USE OF STATE LANDS AT A FUTURE DATE IF SO DIRECTED BY STATUTE.

THE PERMITTEE, BY ACCEPTANCE OF THIS PERMIT AGREES TO ABIDE BY THE TERMS AND CONDITIONS CONTAINED HEREIN AND TO PERFORM THE WORK IN STRICT ACCORDANCE WITH THE PLANS AND SPECIFICATIONS ATTACHED HERETO AND MADE A PART HEREOF.ANY DEVIATION FROM THESE CONDITIONS, TERMS, PLANS AND SPECIFICATIONS SHALL BE GROUNDS FOR REVOCATION, SUSPENSION OR MODIFICATION OF THIS PERMIT AND THE INSTITUTION OF SUCH LEGAL PROCEEDINGS AS THE DEPARTMENT MAY CONSIDER APPROPRIATE.

Permit Number: **2017-01795**

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

PERMITTEE
DeBordieu Colony Community Association

DATE

This permit becomes effective when the State official, designated to act for the Office of Ocean and Coastal Resource Management, has signed below.

Matthew J. Slagel
BEACHFRONT PERMITTING PROJECT MANAGER
Matthew J. Slagel
Or Other Authorized State Official

1/24/2019
DATE

SEE SPECIAL CONDITION(S)

GENERAL CONDITIONS:

This construction and use permit is expressly contingent upon the following conditions which are binding on the permittee:

1. The permittee, in accepting this permit, covenants and agrees to comply with and abide by the provisions and conditions herein and assumes all responsibility and liability and agrees to save the Department and the State of South Carolina, its employees or representatives, harmless from all claims of damage arising out of operations conducted pursuant to this permit.

2. If the activity authorized herein is not constructed or completed within five years of the date of issuance, this permit shall automatically expire. A request, in writing, for an extension of time shall be made not less than thirty days prior to the expiration date.

3. All authorized work shall be conducted in a manner that minimizes any adverse impact on fish, wildlife and water quality.

4. This permit does not relieve the permittee from the requirements of obtaining a permit from the U. S. Army Corps of Engineers or any other applicable federal agency, nor from the necessity of complying with all applicable local laws, ordinances, and zoning regulations. This permit is granted subject to the rights of the State of South Carolina in the navigable waters and shall be subject, further, to all rights held by the State of South Carolina under the public trust doctrine as well as any other right the State may have in the waters and submerged lands of the coast.

5. This permit does not convey, expressly or impliedly, any property rights in real estate or material nor any exclusive privileges; nor does it authorize the permittee to alienate, diminish, infringe upon or otherwise restrict the property rights of any other person or the public; nor shall this permit be interpreted as appropriating public properties for private use.

6. The permittee shall permit the Department or its authorized agents or representatives to make periodic inspections at any time deemed necessary to ensure that the activity being performed is in accordance with the terms and conditions of this permit.

7. Any abandonment of the permitted activity will require restoration of the area to a satisfactory condition as determined by the Department

8. This permit may not be transferred to a third party without prior written notice to the Department, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit and thereby agreeing to comply.

9. If the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and special signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

10. The permit construction placard or a copy of the placard shall be posted in a conspicuous place at the project site during the entire period of work.

11. The structure or work authorized herein shall be in accordance with the permit, as issued, and shall be maintained in good condition. Failure to build in accordance with the permit, as issued, or failure to maintain the structure in good condition, shall result in the revocation of this permit.

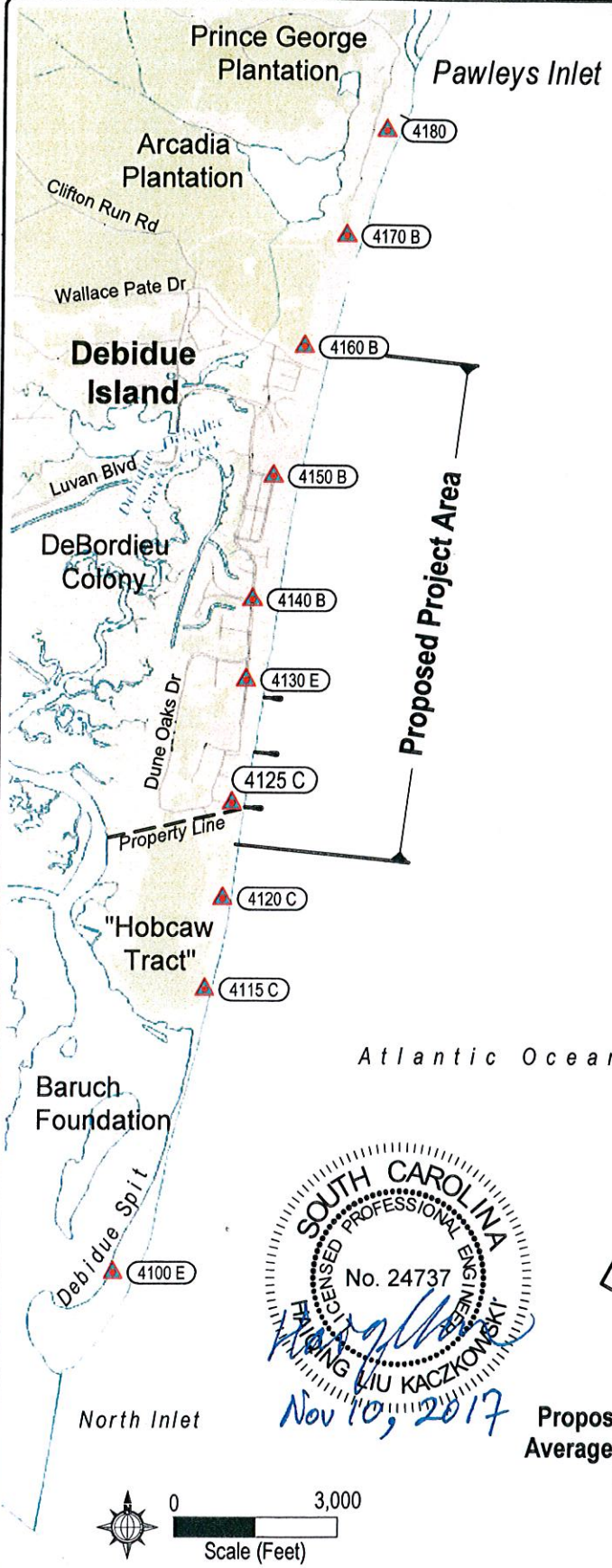
12. The authorization for activities or structures herein constitutes a revocable license. The Department may require the permittee to modify activities or remove structures authorized herein if it is determined by the Department that such activity or structures violates the public's health, safety, or welfare, or if any activity is inconsistent with the public trust doctrine. Modification or removal under this condition shall be ordered only after reasonable notice stating the reasons therefore and provision to the permittee of the opportunity to respond in writing. When the Permittee is notified that the Department intends to revoke the permit, Permittee agrees to immediately stop work pending resolution of the revocation.

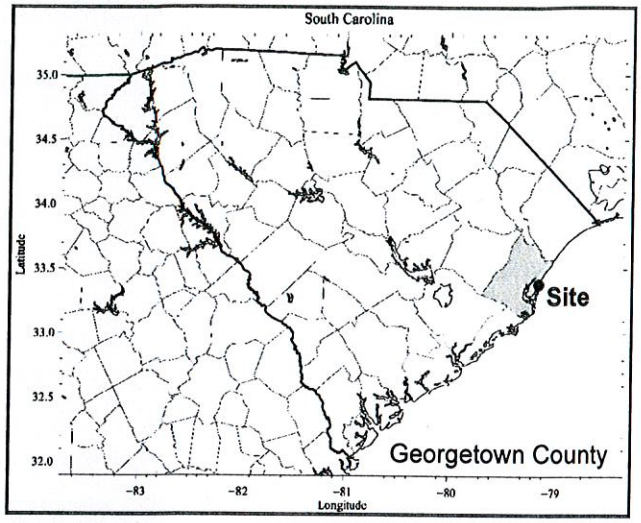
13. The Department shall have the right to revoke, suspend, or modify this permit in the event it is determined the permitted structure (1) significantly impacts the public health, safety and welfare, and/or is violation of Section 48-39-150, (2) adversely impacts public rights, (3) that the information and data which the permittee or any other agencies have provided in connection with the permit application is either false, incomplete or inaccurate, or (4) that the activity is in violation of the terms and/or conditions, including any special conditions of the permit. That the permittee, upon receipt of the Department's written intent to revoke, suspend, or modify the permit has the right to a hearing. Prior to revocation, suspension, or modification of this permit, the Department shall provide written notification of intent to revoke to the permittee, and permittee can respond with a written explanation to the Department.(South Carolina Code Section 1-23-370 shall govern the procedure for revocation, suspension or modification herein described).

14. Any modification, suspension or revocation of this permit shall not be the basis of any claim for damages against the Department or the State of South Carolina or any employee, agent, or representative of the Department or the State of South Carolina.

15. All activities authorized herein shall be, if they involve a discharge or deposit into navigable waters or ocean waters, at all times consistent with all applicable water quality standards, effluent limitations, and standards of performance, prohibitions, and pretreatment standards established pursuant to applicable federal, state and local laws.

16. Extreme care shall be exercised to prevent any adverse or undesirable effects from this work on the property of others. This permit authorizes no invasion of adjacent private property, and the Department assumes no responsibility or liability from any claims of damage arising out of any operations conducted by the permittee pursuant to this permit.





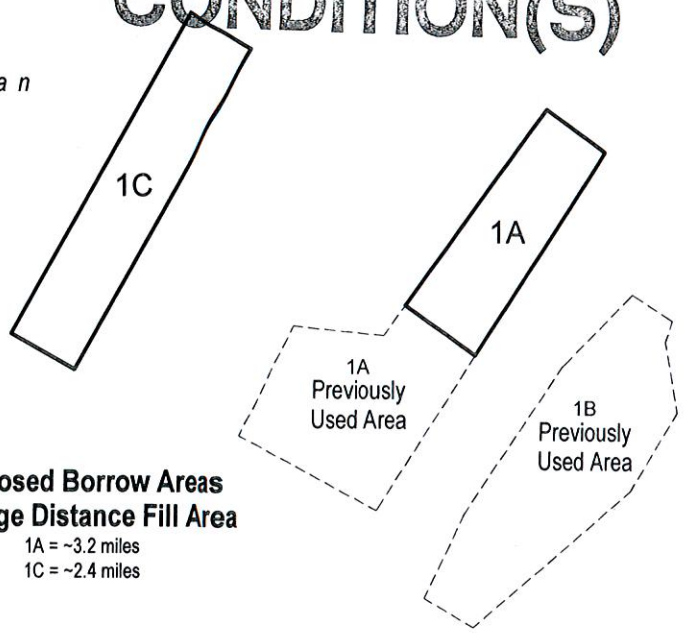
Project Location

N 33° 22' 02.76"
W 79° 09' 06.05"

Directions From US-17

Head northeast on US-17 N (3.7 mi)
Turn left onto County Rd S-22-255/Kings River Rd (0.7 mi)
Turn right onto County Rd S-22-758
Turn right onto Hagley Dr (0.5 mi)
Turn right at the 2nd cross street onto US-17 S (4.9 mi)
Turn left onto Luvan Blvd (4.1 mi)
Turn right onto Debordieu Blvd

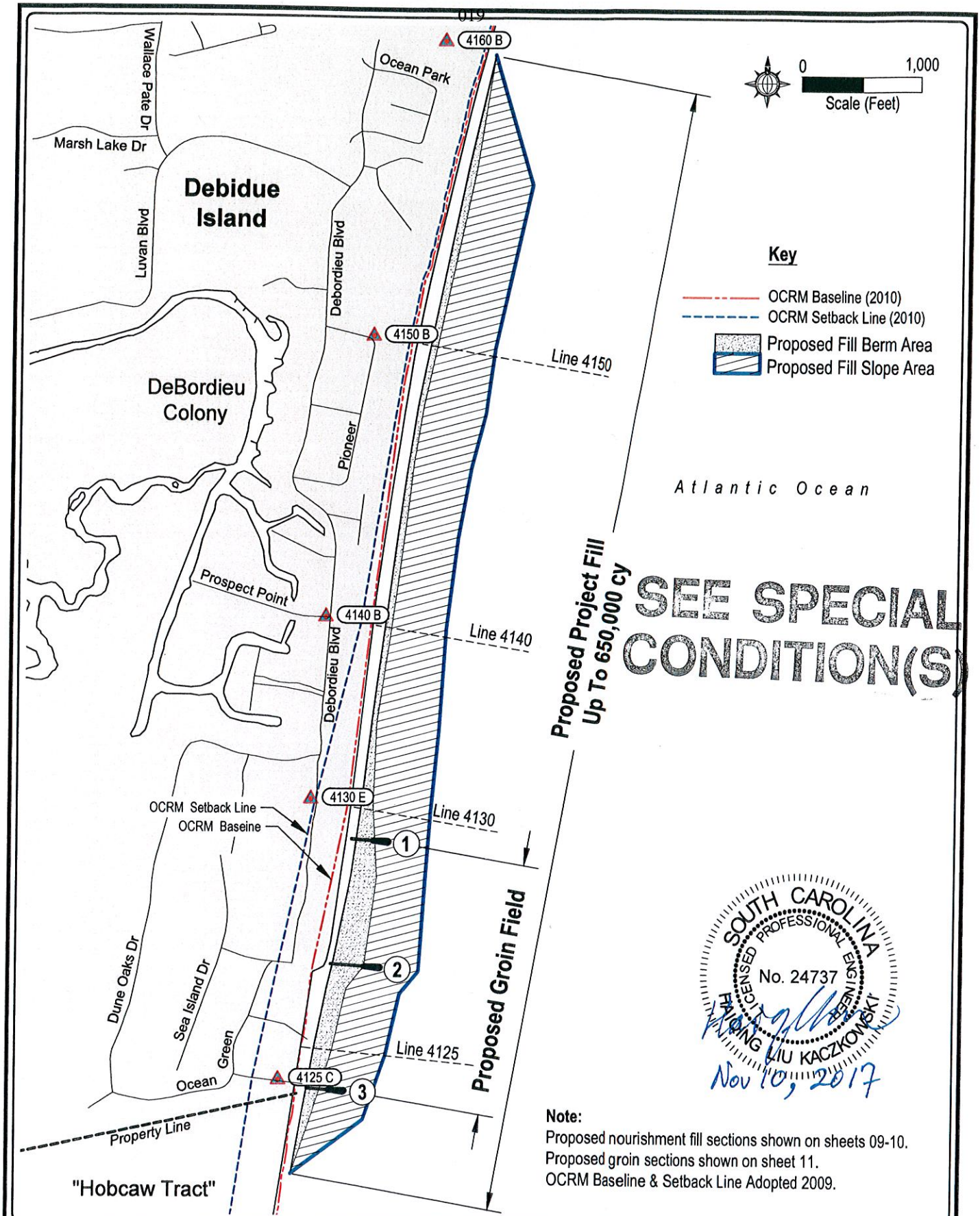
SEE SPECIAL CONDITION(S)



SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 24737
FRANK LIU KACZKOWSKI
Nov 10, 2017

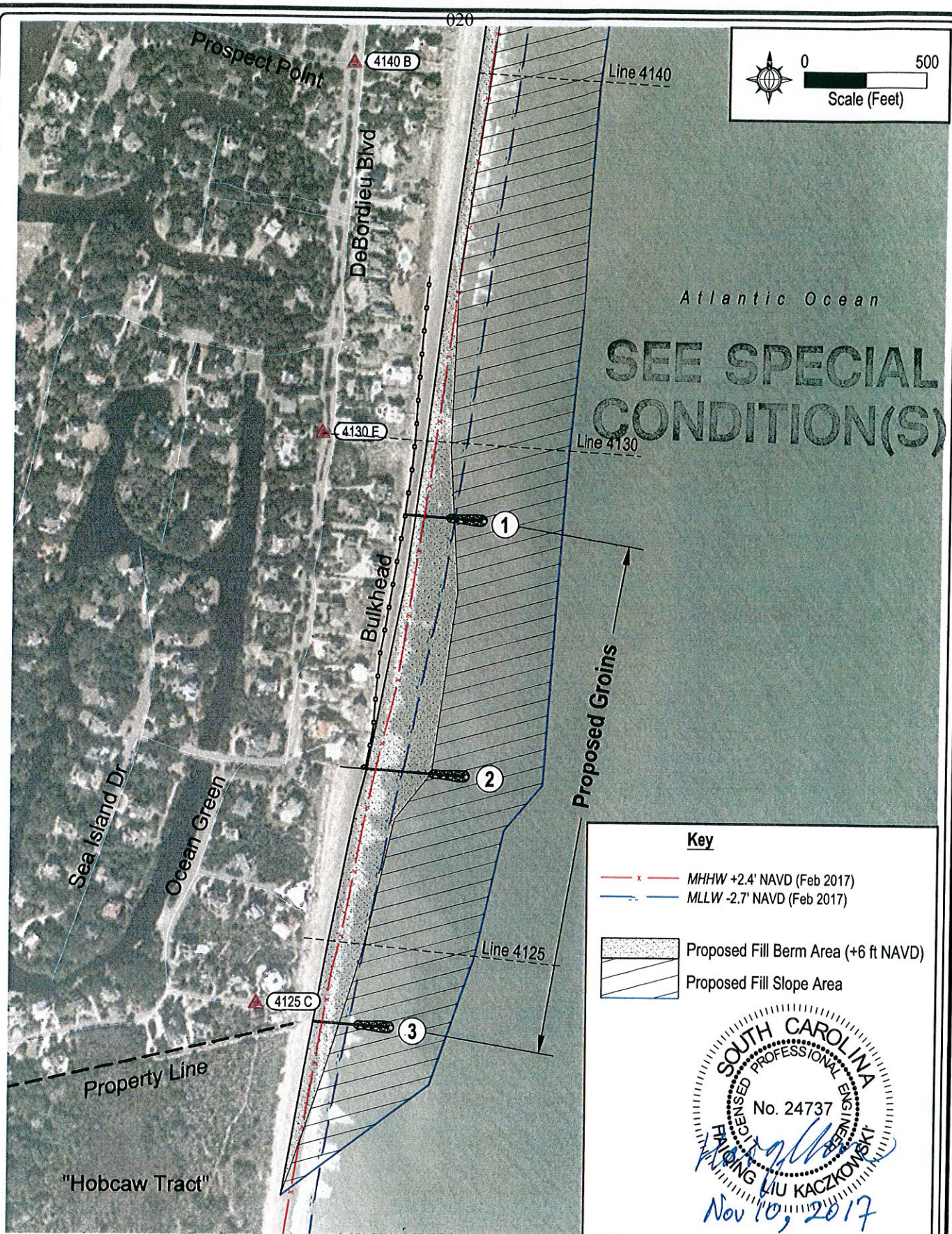
Proposed Borrow Areas
Average Distance Fill Area
1A = ~3.2 miles
1C = ~2.4 miles

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Vicinity Map	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	01

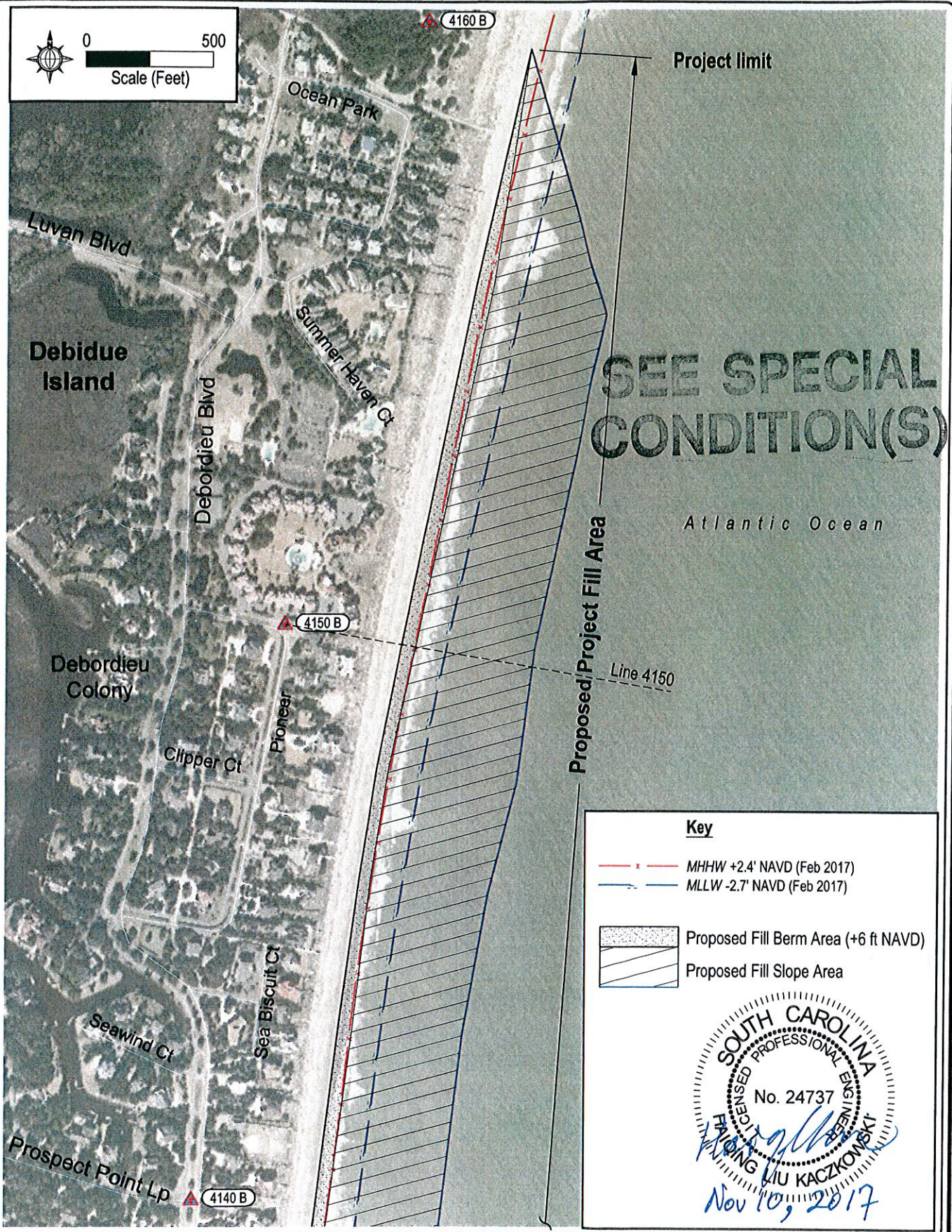


Note:
Proposed nourishment fill sections shown on sheets 09-10.
Proposed groin sections shown on sheet 11.
OCRM Baseline & Setback Line Adopted 2009.

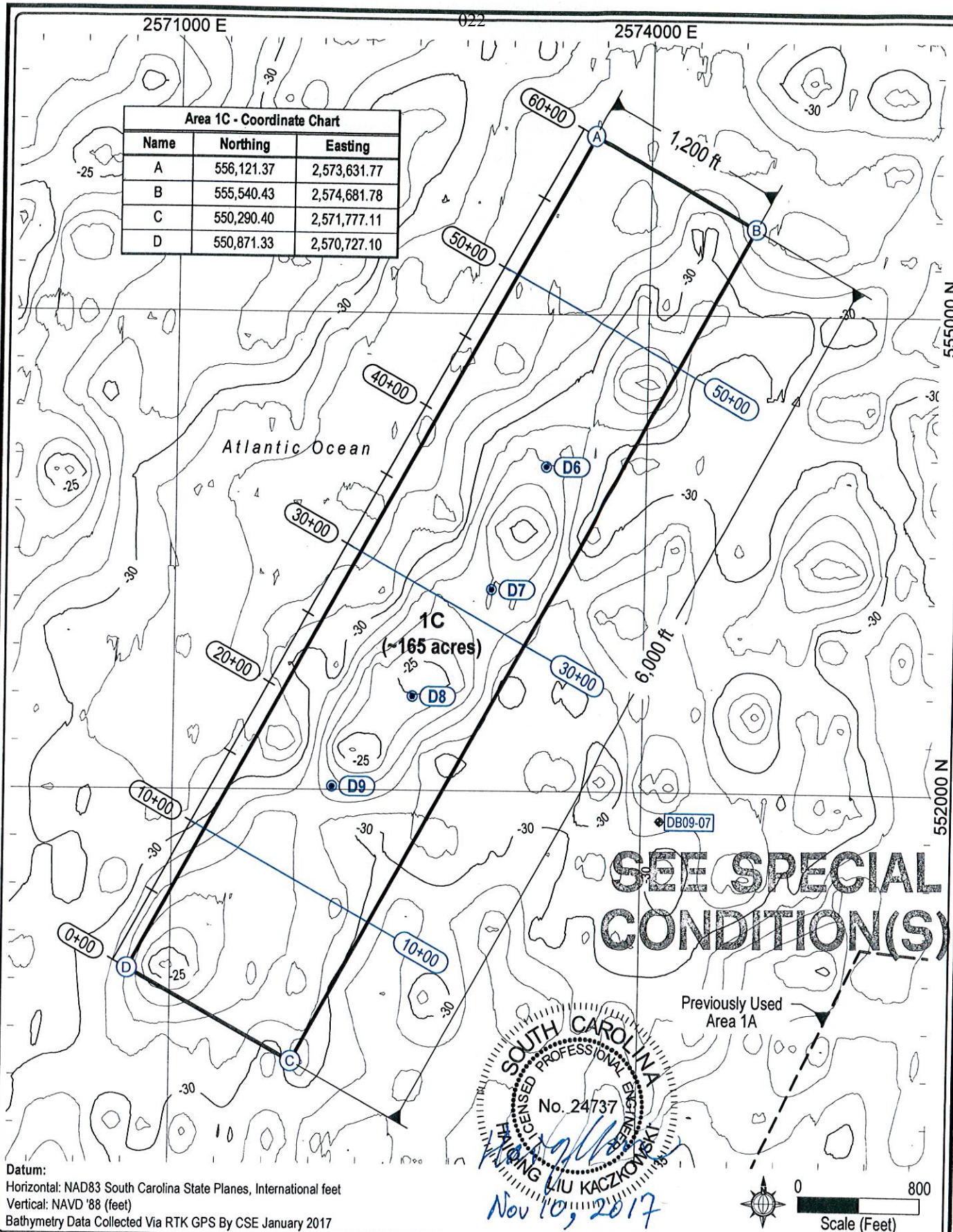
PROJECT TITLE:	APPLICANT:	DRAWING TITLE:		
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Nourishment & Groin Placement Map	SCALE: AS SHOWN DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	SHEET # 02



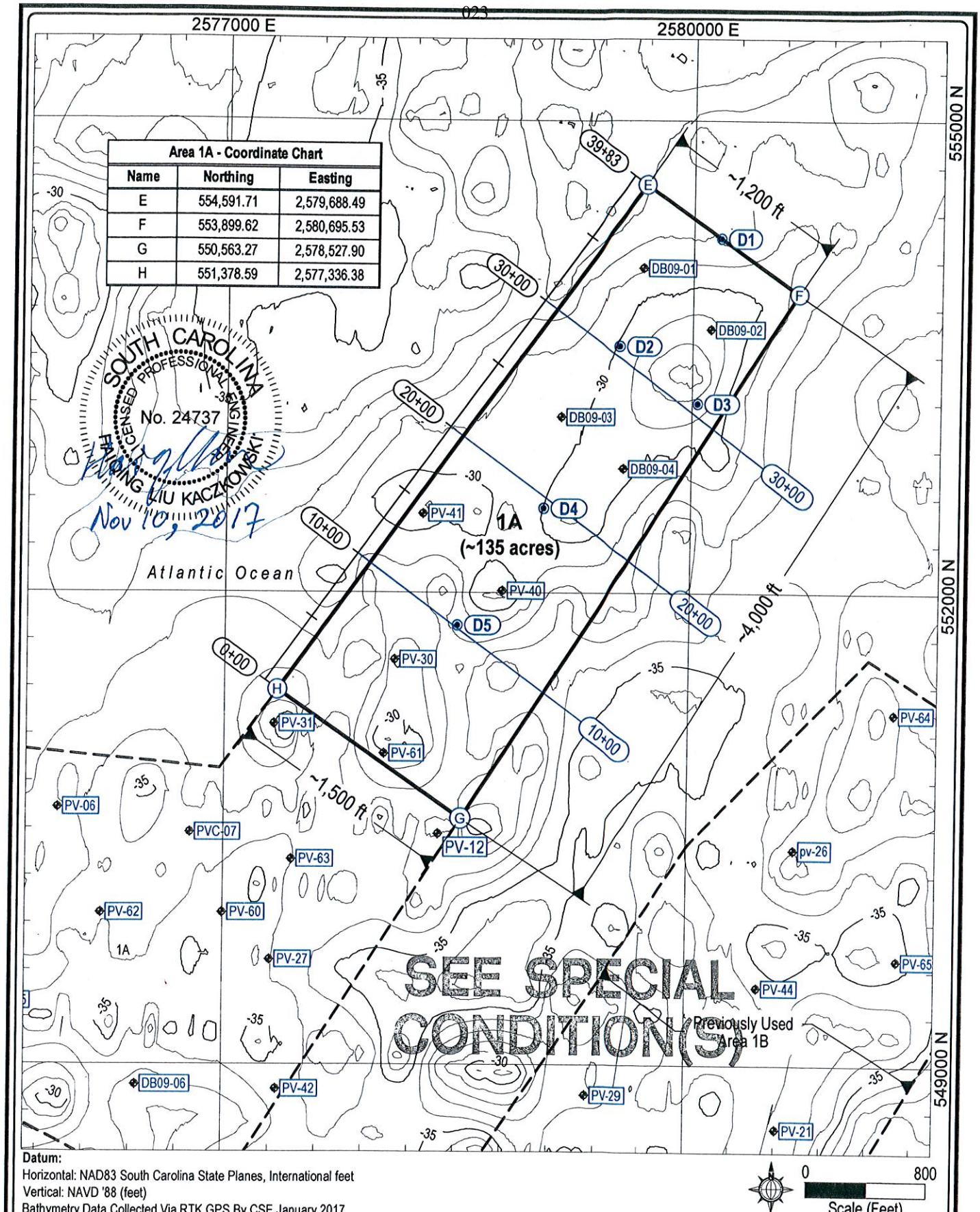
PROJECT TITLE:	APPLICANT:	DRAWING TITLE:		
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	**Proposed Nourishment Plan & Groin Placement Map** *Photo: USGS 2017*	SCALE: AS SHOWN DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	SHEET # **03**



PROJECT TITLE:	APPLICANT:	DRAWING TITLE:		
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Nourishment Plan *Photo: USGS 2017*	SCALE: AS SHOWN DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	SHEET #: 04

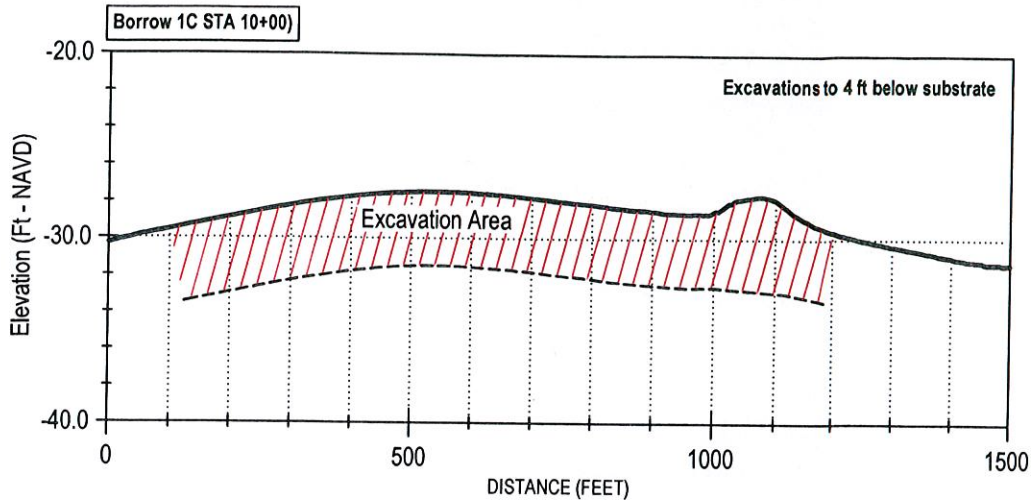


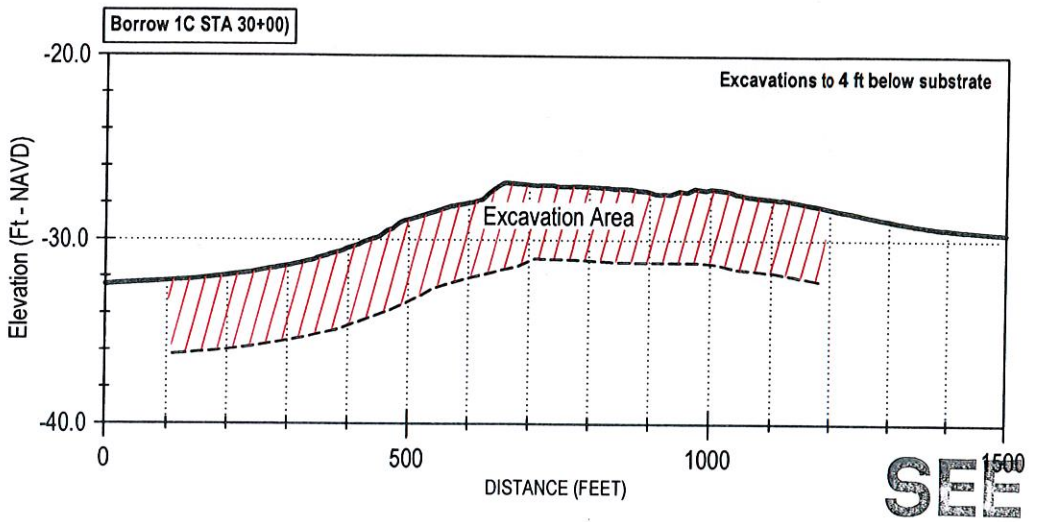
PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Borrow Area 1C Plan	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	05



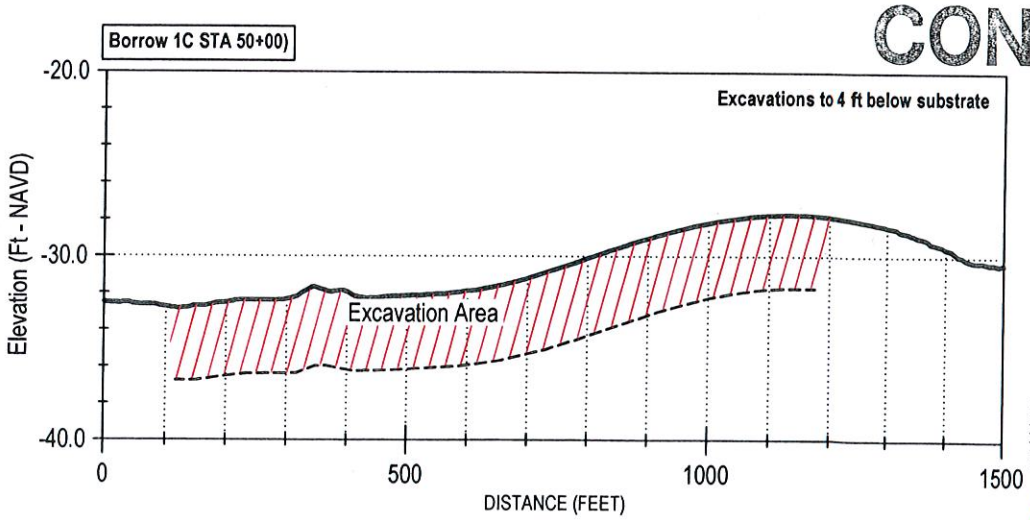
Datum:
Horizontal: NAD83 South Carolina State Planes, International feet
Vertical: NAVD '88 (feet)
Bathymetry Data Collected Via RTK GPS By CSE January 2017

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #:
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Borrow Area 1A Plan	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	06





SEE SPECIAL CONDITION(S)

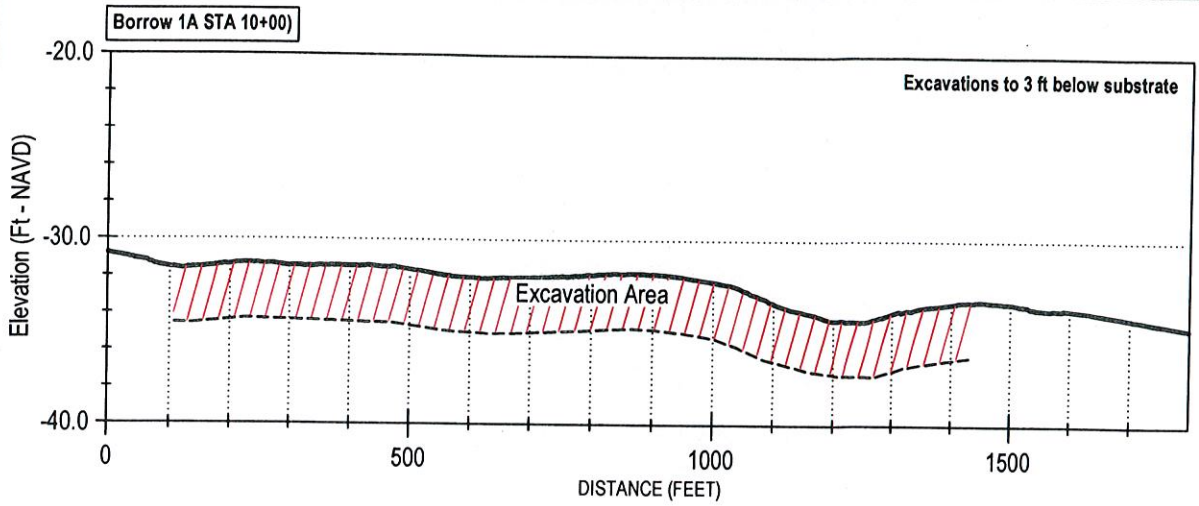


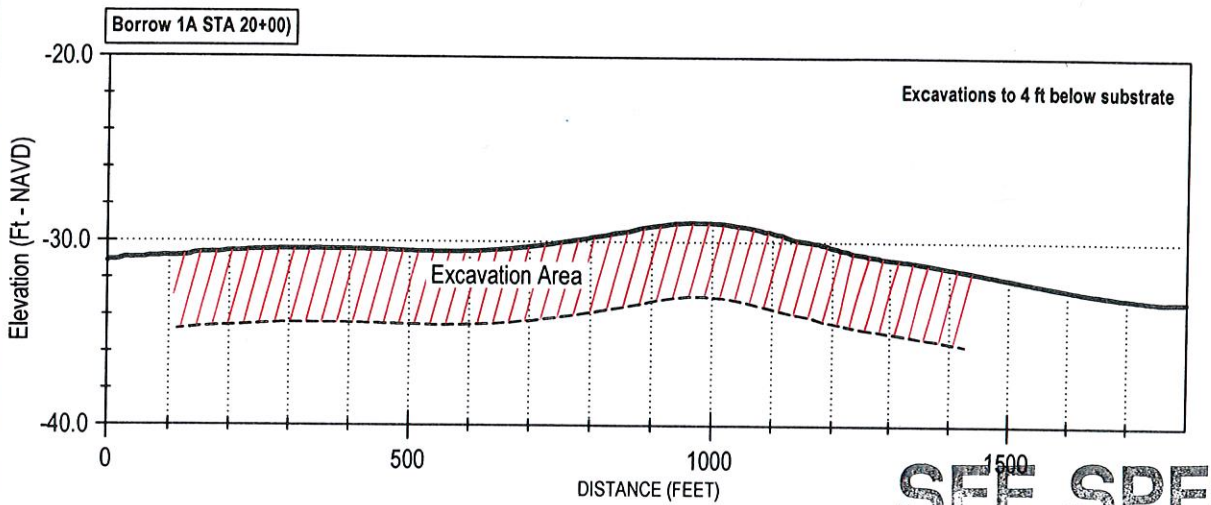
Datum:
Vertical: NAVD '88 (feet)
Bathymetry Data Collected Via RTK GPS By CSE January 2017

0 300
Scale (Feet)

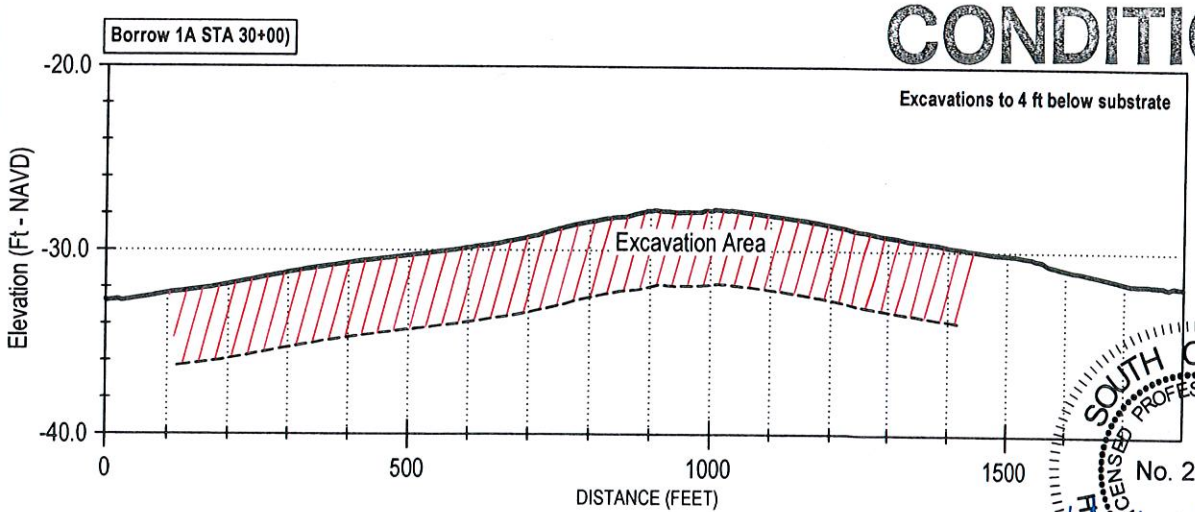
SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 24737
HAIQING LIU KACZKOWSKI
Nov 10, 2017

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:		
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Borrow Area 1C Proposed Excavation	SCALE: AS SHOWN DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	SHEET #: 07





SEE SPECIAL CONDITION(S)



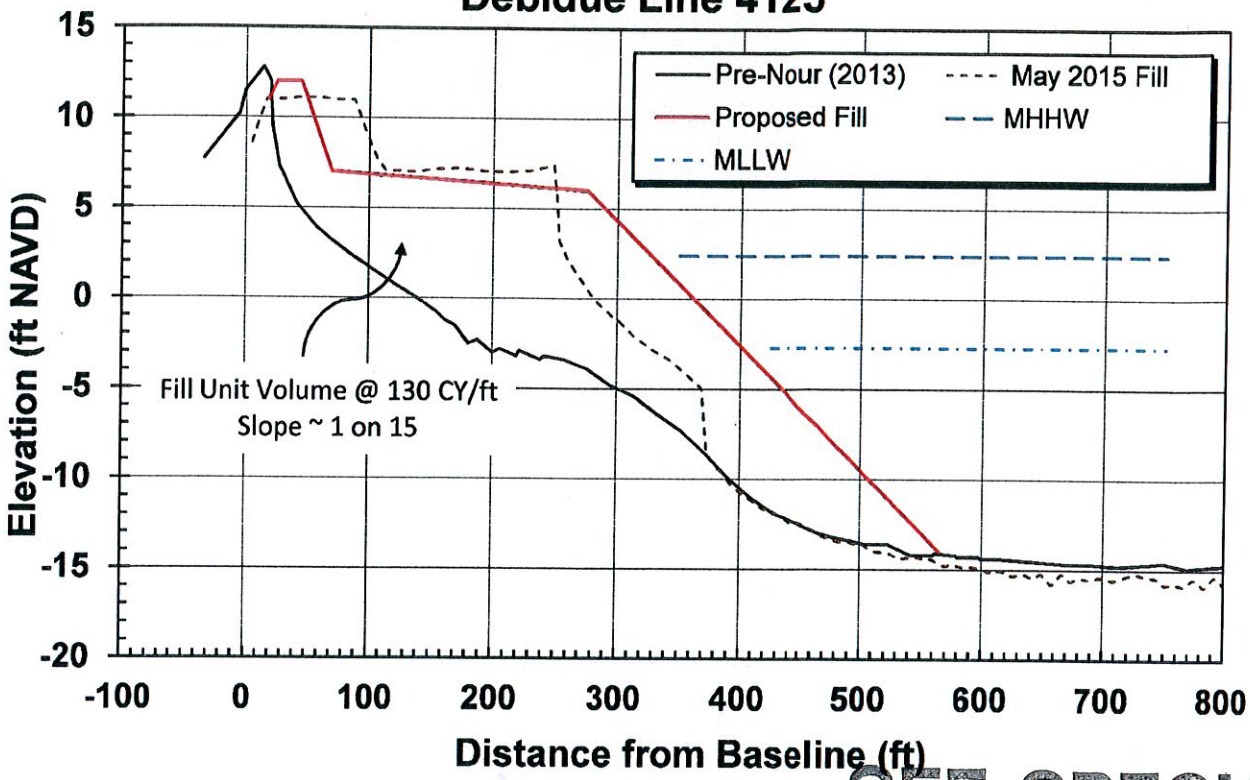
SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 24737
LICENSED
FAIRING LIU KACZKOWSKI
Nov 10, 2017

Datum:
Vertical: NAVD '88 (feet)
Bathymetry Data Collected Via RTK GPS By CSE January 2017

0 300
Scale (Feet)

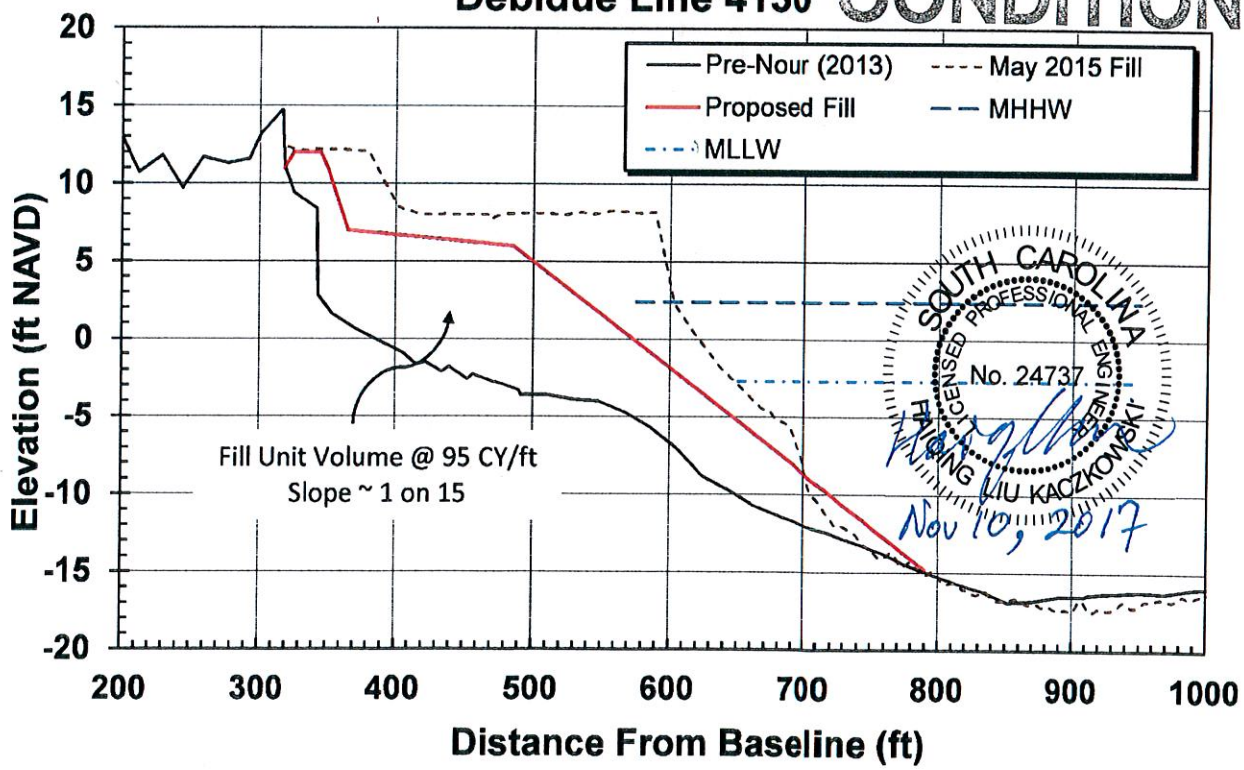
PROJECT TITLE:	APPLICANT:	DRAWING TITLE:		
Beach Stabilization Project	**DeBordieu Colony Community Association** 181 Luvan Boulevard, Georgetown SC 29440	**Borrow Area 1A** **Proposed Excavation**	SCALE: AS SHOWN DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	SHEET #: **08**

Debidue Line 4125



SEE SPECIAL CONDITION(S)

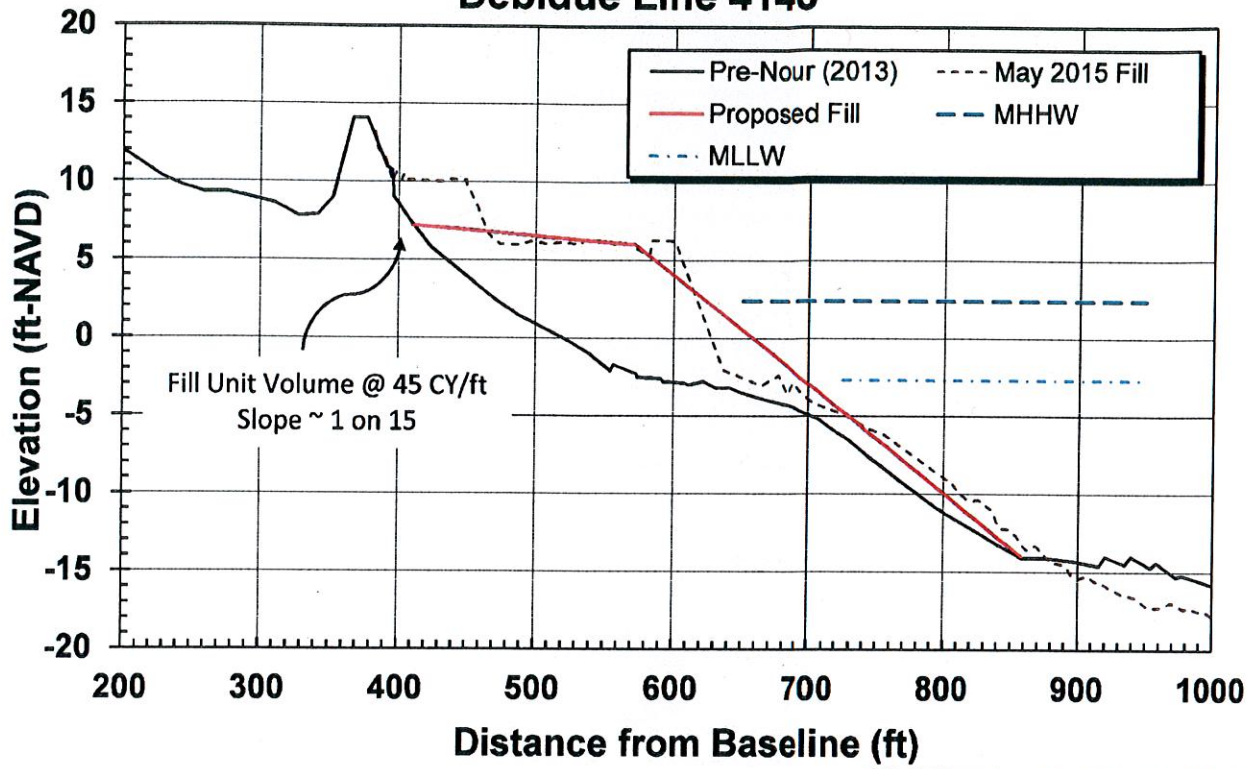
Debidue Line 4130



SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 24737
FALONG LIU KACZKOWSKI
Nov 10, 2017

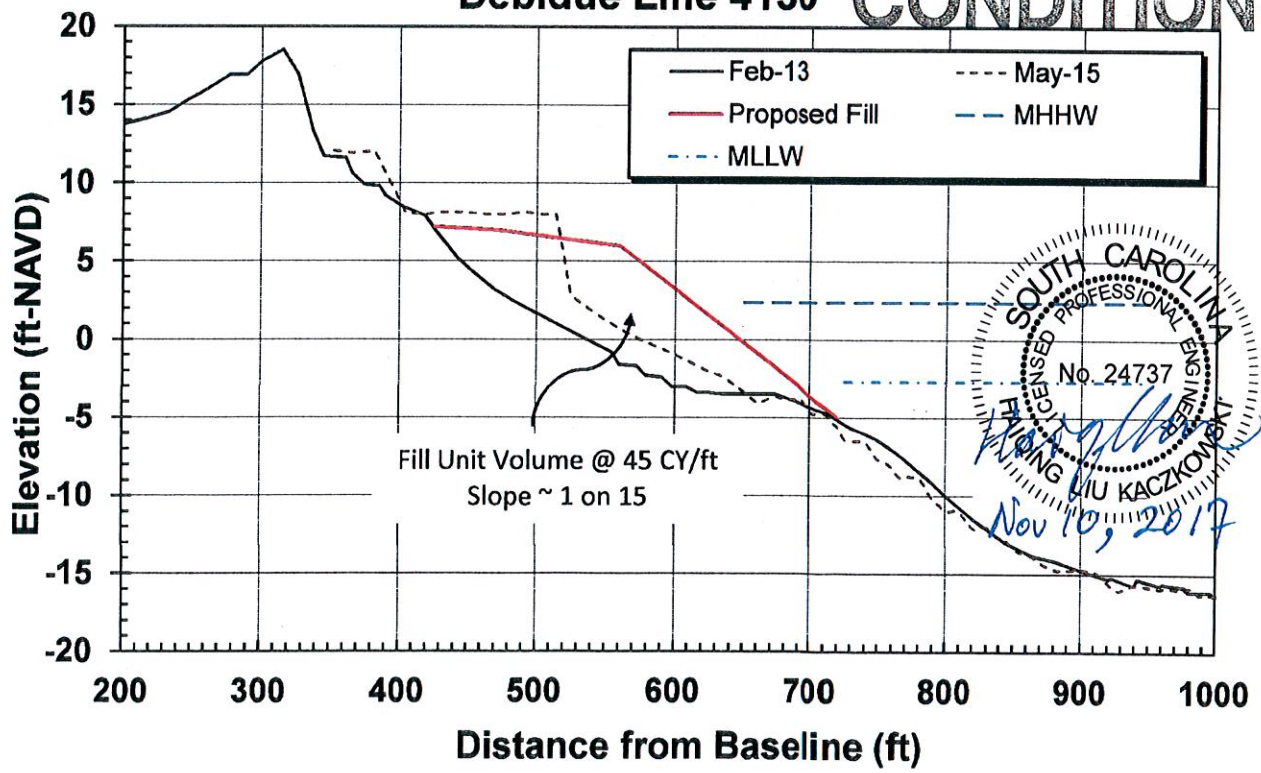
PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Fill Sections Lines 4125 & 4130	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	09

Debidue Line 4140



SEE SPECIAL CONDITION(S)

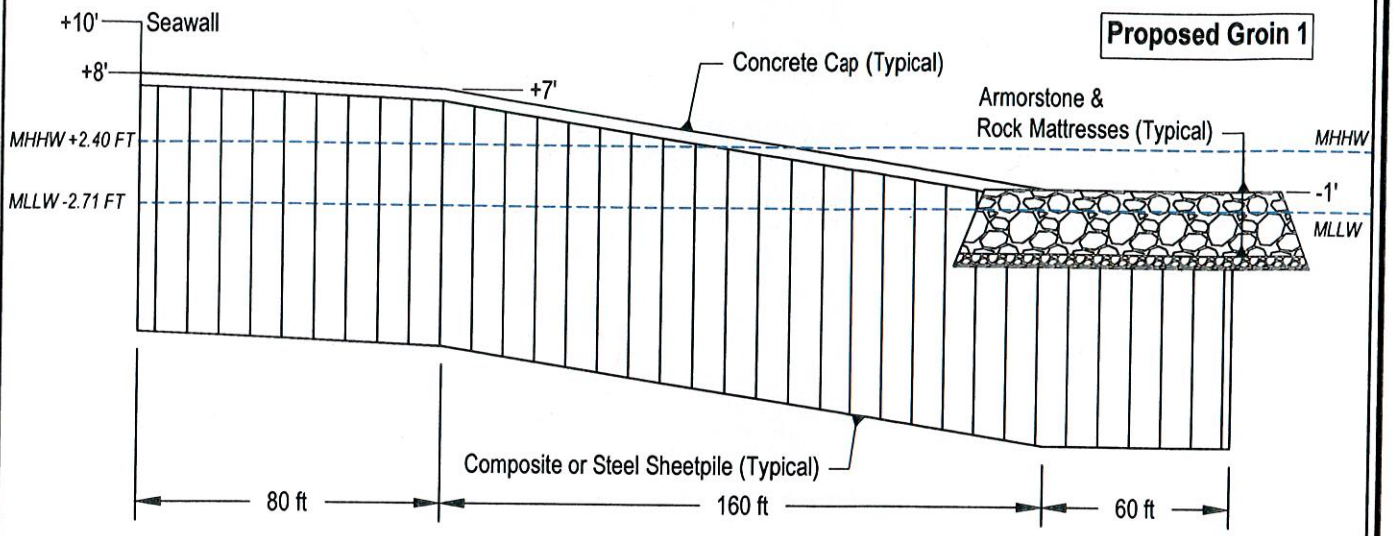
Debidue Line 4150



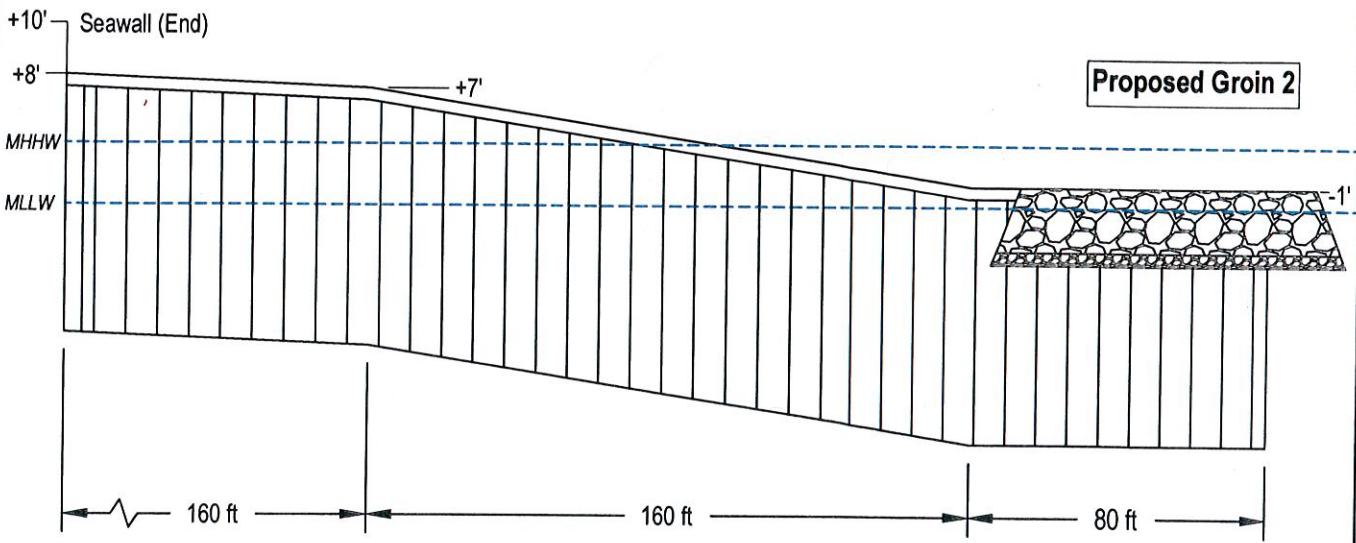
SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 24737
THOMAS LIU KACZKOWSKI
Nov 10, 2017

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Fill Sections Lines 4140 & 4150	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	10

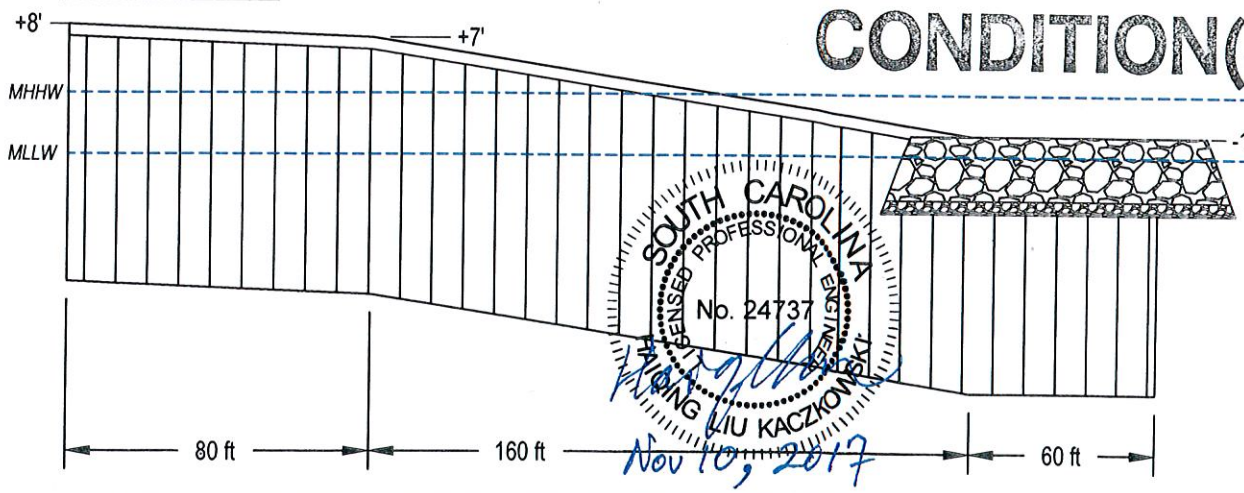
Proposed Groin 1



Proposed Groin 2



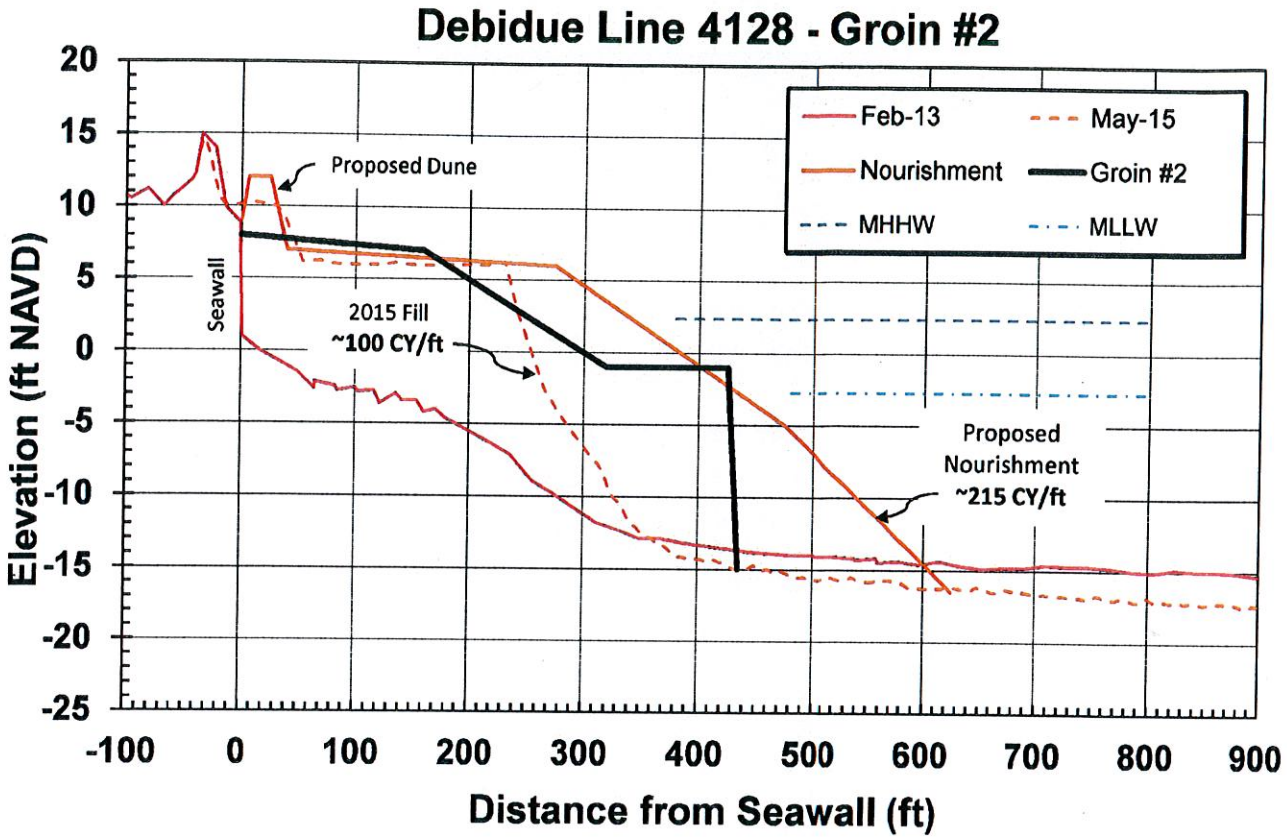
Proposed Groin 3



SEE SPECIAL CONDITION(S)

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 24737
HAIQING LIU KACZKOWSKI
Nov 10, 2017

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Groin Sections	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	11



SEE SPECIAL CONDITION(S)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 24737
FANG LIU KACZKOWSKI
Nov 10, 2017

PROJECT TITLE:	APPLICANT:	DRAWING TITLE:	SCALE: AS SHOWN	SHEET #
Beach Stabilization Project	DeBordieu Colony Community Association 181 Luvan Boulevard, Georgetown SC 29440	Proposed Groin Section	DATE: Aug 2017 DRAWN BY: T Hair PROJECT #: 2443	12

ATTACHMENT A

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

SEP 25 1997

R. L. VanAntwerp
Brigadier General, U.S. Army
Division Engineer
South Atlantic Division, Corps of Engineers
Room 313, 77 Forshyth St., S.W.
Atlanta, Georgia 30355-6801

Dear Brigadier General VanAntwerp;

Enclosed is the regional biological opinion concerning the use of hopper dredges in channels and borrow areas along the Southeast U.S. Atlantic coast. This biological opinion amends the regional opinion conducted in 1995, and supersedes the interim biological opinion issued on April 9, 1997. The opinion recognizes the efforts of the Corps of Engineer's (COE) South Atlantic Division (SAD) to minimize sea turtle takes through application of new technology such as draghead deflectors, seasonal dredging windows, termination of projects in which high rates of turtle takes are observed, and elevated staff effort to identify and resolve site-specific problems. Despite these major efforts and continuing plans by the COE to improve the effectiveness of the rigid draghead deflector and to resolve dredging schedules to reduce the likelihood of sea turtle interactions, NMFS believes that further sea turtle takes are likely in future years. However, we believe that these takes are not likely to jeopardize the continued existence of any species. An annual incidental take, by injury or mortality of 35 loggerheads 7 Kemp's ridleys, 7 green turtles, 2 hawksbills, and 5 shortnose sturgeon is listed in the incidental take statement appended to the enclosed opinion. This annual take level can be monitored over fiscal years to be consistent with project contracts.

I appreciate your continued commitment to reduce sea turtle takes associated with dredging in your Division. COE Division and District staff have facilitated the excellent working relationship that exists between our offices within the SAD. We look forward to continuing these cooperative efforts in sea turtle conservation.

Sincerely,

for Hilda Diaz-Soltero
Office Director
Office of Protected Resources

Endangered Species Act - Section 7 Consultation

Biological Opinion

Agency: U.S. Army Corps of Engineers, South Atlantic Division

Activity: The continued hopper dredging of channels and borrow areas in the southeastern United States

Consultation Conducted By: National Marine Fisheries Service, Southeast Regional Office

Date Issued: September 25 1997

Background

Hopper dredging in channels and borrow areas along the southeastern coast of the United States during the spring of 1997 resulted in an unanticipated high rate of loggerhead turtle take. The number of takes quickly approached the incidental take level established in the regional biological opinion (BO) issued to the Army Corps of Engineers (COE) on August 25, 1995. A formal consultation considering the take rates as well as the dredging locations and conditions was conducted and an interim biological opinion (IBO) was issued on April 9, 1997 and is incorporated herein by reference. The IBO concluded that continued hopper dredging during the 1997 fiscal year was likely to take additional sea turtles but was not likely to jeopardize the continued existence of any species. The incidental take, by injury or mortality, of seven (7) documented Kemp's ridleys, seven (7) green turtles, two (2) hawksbills, sixteen (16) loggerhead turtles, and five (5) shortnose sturgeon was set pursuant in the IBO. This modification added 15 loggerheads to the annual incidental take level, bringing the 1997 fiscal year total incidental take level to 35 loggerheads.

The history of Endangered Species Act (ESA) Section 7 consultations on the deployment of hopper dredges to maintain the depths of southeastern channels is discussed in the August 25, 1995 BO and is incorporated herein by reference. Although no endangered sea turtles have been taken in any channel dredging projects during the 1997 fiscal year, 28 loggerheads have been taken, including 9 loggerheads taken subsequent to the issuance of the IBO (Table 1).

During 1997, the COE responded to high rates of sea turtle takes by assessing each dredging project, modifying draghead deflectors when apparently necessary, conducting relative abundance surveys and relocation trawling, and ultimately ending a number of projects prior to completion (Kings Bay, Brunswick Harbor, Savannah Harbor, Morehead City).

1991 Biological Opinion

Two hundred twenty-five sea turtle takes, including 22 live turtles, were documented between 1980 and 1990 in the Southeast channels despite limited observer coverage in most channels throughout most of that decade (Table 2a.). Seventy-one of these turtles were taken in four months of dredging in the Canaveral ship channel in 1980, the first year in which observers were required. Twenty-one were observed in over two years of dredging in the Kings Bay Channel in 1987-1989, after observers were first deployed on dredges in that channel. Observers were required on most hopper dredges after 1989. Documented takes of turtles on dredges in Brunswick and other Southeast U.S. channels indicated that sea turtles were vulnerable to hopper dredges in all southeastern channels during warmer months. These observations resulted in the Section 7 consultation that concluded with a BO issued on November 25, 1991.

The November 1991 BO was the first cumulative area consultation between NMFS and COE's South Atlantic Division (SAD) regarding hopper dredging. The BO considered hopper dredging in channels from the Canaveral in Florida through Oregon Inlet, North Carolina. The 1991 BO concluded that continued unrestricted hopper dredging in Southeast U.S. channels could jeopardize the continued existence of listed sea turtles. The Opinion established a reasonable and prudent alternative to unrestricted hopper dredging which prohibited the use of a hopper dredge in the Canaveral ship channel, and from April 1 through November 30 in other southeastern channels north of Canaveral. An incidental take level was established based on assumptions that takes would be significantly reduced due to limited dredging windows, but that water temperatures in some years would result in turtle presence in channels during December and March. Observers were required on dredges equipped with outflow and/or inflow screening in March and December. The presence or absence of turtles in December would determine the further need for observer coverage into January. The documented incidental take of a total of five (5) Kemp's ridley, green, hawksbill or leatherback turtle mortalities in any combination of which no more than two (2) are Kemp's ridley, or fifty (50) loggerhead turtle mortalities was set. The Opinion anticipated that seasonal restrictions on hopper dredging would be adjusted on a channel-by-channel basis as better information on turtle occurrence was collected.

Additionally, the development and testing of a draghead deflector was promoted.

1995 Biological Opinion

Between 1992 and 1995, only 16 sea turtle takes were documented (Table 2b.), including three that were alive when collected during dredging operations in the SAD under the dredging windows established in the November 1991 BO (see above). During that period COE developed a rigid draghead deflector that appeared to be effective during videotaped dredging trials using mock turtles, as well as during experimental dredging associated with trawling in the Canaveral Channel. COE also completed a study of six Southeast channels to determine seasonal abundance and spatial distribution of these turtles. A discussion of the findings can be found in the COE report entitled "Assessment of Sea Turtle Abundance in Six South Atlantic U.S. Channels" (Dickerson et al. 1994), summarized in the 1995 BO. Based on the new information, COE requested expanded dredging windows and observer requirements. NMFS considered their request and developed alternative dredging windows and observer requirements and added requirements for the use of hopper dredges in borrow areas along the east coast.

After 1995, COE districts within the SAD generally required observers in some channels, such as Kings Bay, throughout the winter, beyond the new monitoring windows. SAD hopper dredge projects were initially conducted in the middle of the dredging windows, when nearshore waters were cool. During 1996, only nine sea turtle takes, including one green turtle and eight loggerheads, were documented (Table 2c.). No more than three takes occurred in any project. The new dredging windows and draghead deflector requirements appeared to provide good protection to sea turtles.

Hopper dredging operations contracted for the 1997 fiscal year were planned for early in the calendar year, however a number of operations were not begun until late winter. Beginning on March 2, 1997, loggerhead takes occurred in Kings Bay at rates higher than previously observed. Six turtles were taken in four days of dredging. While consulting with NMFS regarding this unprecedented rate of loggerhead takes, a COE specialist from the Waterways Experiment Station proposed some modifications to the draghead with the potential to reduce sea turtle takes. Relocation trawling was also initiated, beginning March 9,1997; however, as can be seen on Table 2, these efforts did not preclude further sea turtle takes in Kings Bay. Dredging was terminated on March 12, 1997, with only 53 percent of the project completed.

Table 1 lists the sea turtle takes observed in hopper dredges throughout the SAD during 1997, as well as the steps taken by COE to reduce the likelihood of takes. Deflector dragheads were re-engineered to fit specific dredges wherever possible and relocation trawling was initiated. Dredging was terminated prior to completion of projects in Kings Bay, Brunswick Harbor, Savannah Harbor and Charleston Harbor. Consultation was reinitiated to consider the effects of the remaining hopper dredging projects anticipated for the 1997 fiscal year. In addition to those specific projects listed in the resulting April 1997 IBO, dredging at Reach II of the Myrtle Beach dredge disposal area is likely to begin before the fiscal year ends. Despite ongoing dredging at the Oregon Inlet, no sea turtle takes have been documented since May 15.

Proposed Activity

This consultation addresses the use of hopper dredges in channels and borrow areas along the Atlantic portion of COE's SAD within the existing dredging windows (Table 3). Channels dredged by hopper dredges include: Oregon Inlet, Morehead and Wilmington Harbors, Charleston, Port Royal and Savannah harbors, Brunswick, Kings Bay, Jacksonville, St. Augustine and Ponce de Leon inlets, West Palm Beach, Miami and Key west channels. Borrow areas that may be dredged by hopper dredges include areas off of Dade County Florida and Myrtle Beach South Carolina.

Draghead deflectors will be used on all projects and observers will be required at least during those periods identified in Table 3. Year-round observer coverage will likely be required by the COE for most channels, particularly those with histories of high sea turtle catch rates such as Kings Bay. Within the South Atlantic Division, the COE will try to schedule dredging of the highest risk areas (Canaveral, Brunswick, Savannah, and Kings Bay) during periods when nearshore waters are coolest -- after December 15 but well before March. Priority for winter dredging will also be given to areas that have substrates that reduce the efficiency of the deflector (Wilmington Harbor channel, Reach 1 of Myrtle Beach). Completion of all projects during the cold-water months will be attempted when possible.

Listed Species and Critical Habitat

Listed species under the jurisdiction of the NMFS that may occur in channels along the southeastern United States and which may be affected by dredging include:

THREATENED:
(1) the threatened loggerhead turtle - Caretta caretta

ENDANGERED:

(1) the endangered right whale - Eubalaena glacialis
(2) the humpback whale - Megaptera novaeangliae
(3) the endangered/threatened green turtle - Chelonia mydas
(4) the endangered Kemp's ridley turtle - Lepidochelys kempii
(5) the endangered hawksbill turtle - Eretmochelys imbricata
(6) the endangered shortnose sturgeon - Acipenser brevirostrum

Green turtles in U.S. waters are listed as threatened, except for the Florida breeding population which is listed as endangered.

Additional endangered species which are known to occur along the Atlantic coast include the finback (Balaenoptera physalus), the sei (Balaenoptera borealis), and sperm (Physeter macrocephalus) whales and the leatherback sea turtle (Dermochelys coriacea). NMFS has determined that these species are unlikely to be adversely affected by hopper dredging activities.

Information on the biology and distribution of sea turtles can be found in the 1991 and 1995 BOs, which are incorporated by reference. Channel specific information has been collected by COE for channels at Morehead City, Charleston, Savannah, Brunswick, Fernandina and Canaveral, and is presented in detail in COE summary report entitled "Assessment of Sea Turtle Abundance in Six South Atlantic US Channels" (Dickerson et al., 1994) and in the COE Biological Assessment.

There is no significant new information regarding the status of these species that has not been discussed in the BOs that have been incorporated by reference (March 12, 1997 and August 25, 1995).

Assessment of Impacts

The Biological Opinion issued in 1991 contained strict dredging windows that appeared to be very effective at limiting the number of sea turtles taken by hopper dredges during channel maintenance dredging in the Southeast U.S. along the Atlantic coast. Between 1991 and 1995, no more than 8 turtles were taken in any year, and many of those taken were released alive. Studies conducted by the COE (Dickerson et al., 1994) documented turtle distribution and abundance in six channels that suggesting the existing windows were accurate. However, the COE requested expansion of existing windows to lessen the burden of maintenance dredging while testing and further developing a rigid draghead deflector design. The deflector was effective at pushing aside mock turtles when tested during 1994, and preliminary field trials in the Canaveral shipping channel had encouraging results. NMFS considered this new information, presented by the COE in a biological assessment forwarded to NMFS in November 1994. The resulting BO, issued August 25 1995 expanded dredging windows and modified observer requirements.

Only 9 sea turtle takes were documented in 1996, suggesting that the expanded dredging windows and the deflector requirements provided protection to sea turtles that was similar to the previously more-restrictive windows. However, the COE's internal policy resulted in conduct of most of the hopper dredging projects during months when coastal waters were still cold, consistent with the previous dredging. The increased rate of take observed during 1997 and discussed below suggests that the restriction of hopper dredging to months when nearshore waters are cold remains the best method for minimizing sea turtle takes.

Unfortunately, a number of dredging projects contracted for early 1997 in the SAD but not restricted to mid-winter months, were delayed into the Spring. This delay coincided with a unseasonably warm winter, when the waters of Kings Bay reached 60°F in early March. The incidental take of nine loggerheads in Kings Bay over only 11 days of dredging indicated that the nearshore abundance of loggerheads was high, apparently higher than during the late 1980's when observers were first deployed on hopper dredges in Kings Bay.

There were other indicators of high nearshore sea turtle abundance along the Southeast U.S. Atlantic coast during 1997. Commercial shrimp trawling conducted without the use of turtle excluder devices (TEDs) offshore of South Carolina and Georgia between May 15 and July 15 resulted in sea turtle catch rates higher than previously documented. Sixty nine sea turtles were taken in 29 days of shrimping off of South Carolina, including 65 loggerheads, 3 ridleys and 1 leatherback. Forty-six sea turtles were taken in 17 days of towing off of Georgia. The sea turtle catch per unit effort (CPUE) for this operation is about 0.35 turtles per hour of trawling, standardized to 100 feet (30.5 m) of total headrope length fished. The CPUE (same units) for commercial shrimp trawling in the 1970s and 1980s reported by Henwood and Stuntz (1987a) was only 0.0487. Loggerhead turtles were the predominant species reported by Henwood and Stuntz and have also been predominantly observed in this study. They account for most of the increase in overall CPUE. The CPUE for loggerheads alone has been greater than 0.30 turtles per hour, while the value reported in Henwood and Stuntz was 0.0456 turtles per hour. The rates of taking for leatherback and Kemp's ridley turtles in the Atlantic study area have also been higher than anticipated.

The high relative density of sea turtles during 1997 may be due to an unseasonably warm winter or other factors contributing to annual variations in abundance, due to an actual increase in the abundance of benthic immature sea turtles in the loggerhead population, or due to a combination of these factors. Trends in the status of loggerheads are generally identified at the nesting beach, when the most accessible life stage, adult nesting

females, can be counted. Because they mature at 20 to 30 years of age, increases or decreases in the abundance of benthic immature loggerheads as determined by incidental captures in nearshore waters would not be observed for decades. While nesting beach surveys suggest that the South Florida population of loggerheads increased and now appears to be stable, increases have not been apparent on nesting beaches of Georgia and South Carolina. Further work on the development of multi-year in-water sampling sites is needed to identify trends in multiple age-classes of the loggerhead population.

The COE noted that 14 of the 28 takes that occurred during 1997 were on the same dredge, the Eagle. The high rate of takes, particularly on this dredge, suggested that the deflecting draghead was not installed properly or was not being operated properly. Takes occurred in a number of the 1997 dredge projects during clean-up. Ridges left behind after the initial dredging are leveled during clean-up, but the draghead passes over troughs. Takes occurring during clean-up may be difficult to avoid since the draghead deflector must remain hard on the bottom to be effective.

The COE has been conducting meetings between districts within the SAD to discuss the results of assessments of channel conditions and dredge inspections. They have determined that the draghead deflector has not been working properly due to poor education of the dredge operators on its proper use, and due to poor tailoring of the deflector to specific dragheads. Increased efforts to educate dredge operators are planned. Additionally, since fewer than 10 private hopper dredges operate within SAD, engineers that have designed the conceptual deflector will be sent to the dredges to insure that the deflectors are adapted to each draghead and that the operators understand how to use the deflector effectively.

CUMULATIVE EFFECTS

"Cumulative effects" are those effects of future state or private activities, not involving Federal actions, that are reasonably certain to occur within the action area of the Federal action subject to consultation. These are discussed in detail in the biological opinions incorporated by reference.

Conclusion:

NMFS believes that the elevated rate of observed sea turtle takes by dredges in the southeastern United States during March of 1997 was likely due to increased abundance of loggerheads in nearshore waters due to an unseasonably warm winter. There is no way to predict whether similar conditions will be encountered in upcoming seasons. Over the past six years, the COE's SAD has

continuously expressed a commitment to minimize sea turtle takes, and has conducted research and taken repeated steps to further this goal. Repeated termination of dredging operations due to high sea turtle takes during 1997 confirms their commitment to avoid sea turtle takes. Further efforts to educate the dredging industry and recruit their interest and involvement in avoiding sea turtle takes are necessary and are planned by the COE. Additionally, the COE has committed to additional efforts to improve the effectiveness of the deflecting draghead. The sea turtle deflector should be tailored to each hopper dredge draghead and the dredge operators should be fully trained in the operation of the draghead to ensure proper use and improve effectiveness. Improvements in operator and deflector performance are necessary prior to reliance on the draghead as a mechanism for reducing sea turtle takes.

NMFS anticipates that the COE's interest in improving the performance of the deflector, their commitment to limit the use of hopper dredges in channels of high sea turtle abundance during periods when nearshore waters are likely to be cold, and their overall goal of further reducing sea turtle takes during hopper dredge activities will minimize the interactions of hopper dredges with sea turtles. However, annual variation in the abundance of sea turtles in some channels and borrow areas make it likely that sea turtle takes will still occur. Additionally, overall increases in loggerhead and Kemp's ridley populations are anticipated due to TED requirements that have reduced the mortality rates of benthic lifestages of these species. Lastly, in some years high levels of hopper dredging activity may be necessary. For example, termination of projects prior to completion during FY 1997 may result in an increase in the number and length of hopper dredging projects necessary for channel maintenance during FY 1998. Therefore, NMFS believes that up to 35 loggerheads may be taken by injury or mortality, as well as 7 Kemp's ridleys, 7 green turtles, 2 hawksbills, and 5 shortnose sturgeon. These takes are not likely to jeopardize the continued existence of these species and the ongoing commitment by the COE to further minimize takes may reduce the likelihood of sea turtle takes in the future even if nearshore sea turtle abundances increase.

Conservation Recommendations

Pursuant to section 7(a)(1) of the ESA, conservation recommendations are made to assist COE in reducing or eliminating adverse impacts to loggerhead, green, and Kemp's ridley turtles that result from hopper dredging in the southeastern United States. The recommendations made in the 1995 BO are pertinent to this consultation as well, and therefore remain valid. Further recommendations are given below.

- Because of the possibility of annual variation in water temperatures, sea turtle abundance, and hopper dredging demand, NMFS has retained the dredging windows established in the 1995 BO. However, the COE has expressed a commitment to deploy hopper dredges during cold-water periods in channels with high sea turtle abundance or with substrates that render the deflector ineffective. NMFS appreciates the COE's commitment to do this, and recommends that the SAD priority list be finalized and distributed to the Districts and NMFS prior to the initiation of dredging during FY 1998.

- The COE should work with the dredging industry to insure their understanding of the importance of sea turtle conservation and to increase the industry's interest in minimizing sea turtle takes.

- Greater than 50% of the loggerheads taken in North Carolina may be from the northern nesting assemblage of loggerheads. While recent loggerhead nesting beach surveys did not identify a decline in the number of nesting females on beaches north of Cape Canaveral, increases observed in the south Florida nesting assemblage have not been noted. High sea turtle catch rates during only the early weeks of the wood debris clean-up conducted by COE off Cape Fear during 1997, as well as preliminary work conducted in North Carolina, suggest that turtles may be abundant in North Carolina channels primarily during migration into and emigration out of North Carolina inshore waters. The COE should work with the NMFS Beaufort Laboratory and the North Carolina Division of Marine Fisheries to document the movements of sea turtles off North Carolina during spring and fall months. Results from these studies may provide insights into further safe dredging windows to minimize the likelihood of takes of loggerheads from the more vulnerable northern nesting assemblage. Summer windows would reduce the pressure to complete all SAD hopper dredging during cold-water periods.

- The COE should investigate further modifications of the draghead to minimize the need for clean-up. Some method to level the peaks and valleys created by dredging would reduce the amount of time dragheads are removed from the bottom sediments.

Incidental Take Statement

Section 7(b)(4) of the Endangered Species Act (ESA) requires that when a proposed agency action is found to be consistent with section 7(a)(2) of the ESA, and the proposed action may incidentally take individuals of listed species, NMFS will issue a statement that specifies the impact of any incidental taking of endangered or threatened species. It also states that reasonable and prudent measures, and terms and conditions to implement the measures, be provided that are necessary to minimize such impacts. Only incidental taking resulting from the agency action, including incidental takings caused by activities approved by the agency, that are identified in this statement and that comply with the specified reasonable and prudent alternatives, and terms and conditions, are exempt from the takings prohibition of section 9(a), pursuant to section 7 of the ESA.

Based on the high rate of sea turtle takes observed during of 1997, increases in the Kemp's ridley population, possible increases in the benthic lifestages of loggerhead populations, annual variation in nearshore abundance of sea turtles and hopper dredge demands, the NMFS anticipates that hopper dredging in the Southeast U.S. Atlantic area of the SAD may result in the injury or mortality of sea turtles and shortnose sturgeon. Therefore, a low level of incidental take, and terms and conditions necessary to minimize and monitor takes, are established. The annual (by fiscal year) documented incidental take, by injury or mortality, of seven (7) Kemp's ridleys, seven (7) green turtles, two (2) hawksbills, thirty-five (35) loggerhead turtles, and five (5) shortnose sturgeon is set pursuant to section 7(b)(4) of the ESA.

To ensure that the specified levels of take are not exceeded early in any project, COE should reinitiate consultation for any project in which more than one turtle is taken within 24 hours, or once five or more turtles are taken. The Southeast Region, NMFS, will cooperate with COE in the review of such incidents to determine the need for developing further mitigation measures or to terminate the remaining dredging activity.

Section 7(b)(4)(c) of the ESA specifies that in order to provide an incidental take statement for an endangered or threatened species of marine mammal, the taking must be authorized under section 101(a)(5) of the Marine Mammal Protection Act of 1972 (MMPA). Since no incidental take in the Atlantic Region has been authorized under section 101(a)(5) of the MMPA, no statement on incidental take of endangered right whales is provided.

The reasonable and prudent measures that the NMFS believes are necessary to minimize the impact of hopper dredging in channels and borrow areas in the southeastern United States have been

discussed with COE. The following terms and conditions are established, in addition to those identified in the 1995 BO, to implement these measures and to document the incidental take should such take occur.

1. The COE's draghead deflector engineer that assistant in this design design should inspect the rigid draghead deflector annually to ensure that the deflector has been tailored appropriately to each draghead. Additionally, the inspector should assess whether the dredge operator appears to be familiar with the operation of the draghead deflector and provide necessary training where appropriate.

2. If the rigid draghead deflector appears to be ineffective in Wilmington Harbor and slows the dredging project such that the amount of time the hopper dredge will be deployed is increased, the deflector should be removed from the draghead for that channel.

3. The COE should develop an educational/training program for dredge operators to increase their understanding of how the draghead deflector works and why it is necessary.

Table 2a. Sea turtle takes (includes live, injured and killed) observed on hopper dredges prior to the regional consultation. Observers were not required on all projects until 1989, after which extensive monitoring was required.

Year	Project	Turtle Takes
1980 Total = 71	Canaveral	50 Cc, 3 Cm, 18 Unidentified
1981 Total = 6	Canaveral	3 Cc, 1 Cm, 2 Unidentified
1984/1985 Total = 12	Canaveral	1 Cc, 11 Unidentified
1986 Total = 9	Canaveral	5 Cc
	Kings Bay	1 Cc, 3 Cm
1987 Total = 5	Kings Bay	3 Cc, 1 Cm, 1 Unidentified
1988 Total = 46	Brunswick	1 Cc
	Canaveral	13 Cc, 3 Cm, 18 Unidentified
	Kings Bay	6 Cc, 3 Lk, 2 Cm
1989 Total = 21	Canaveral	9 Cm, 2 Unidentified
	Kings Bay	8 Cc, 1 Cm
	Savannah	1 Cc
1990 Total = 12	Canaveral	3 Cc, 5 Cm
	Kings Bay	4 Cc
1991 Total = 43	Brunswick	20 Cc, 1 Lk, 1 Unidentified
	Charleston	3 Cc
	Kings Bay	1 Cc
	Savannah	17 Cc

Cc = *Caretta caretta*, Loggerhead ; Cm = *Chelonia mydas*, Green turtle; Lk = *Lepidochelys kempi*, Kemp's ridley turtle

Table 2b. Sea turtle takes (includes live, injured and killed) observed on hopper dredges between the November 1991 and the August 1995 Regional Biological Opinion

Year	Project	Turtle Takes
1992 Total = 2	Port Royal, SC	2 Cc
1994 Total = 8	Canaveral	1 Cm
	Morehead City	1 Cc
	Kings Bay	2 Cc
	Savannah	3 Cc, 1 Lk
1995 Total = 6	Canaveral	1 Cc
	Palm Beach	3 Cc, 2 Cm

Cc = *Caretta caretta*, Loggerhead ; Cm = *Chelonia mydas*, Green turtle; Lk = *Lepidochelys kempi*, Kemp's ridley turtle

Table 2c. Sea turtle takes (includes live, injured and killed) observed on hopper dredges after the August 25, 1995 Biological Opinion

Year	Project	Turtle Takes
1996 Total = 9	Morehead City Harbor	1 Cc
	Myrtle Beach (Borrow Area Reach I)	2 Cc
	Kings Bay	1 Cc
	Palm Beach	1 Cc, 1 Cm
	Wilmington Harbor	3 Cc
1997 Total = 28	Brunswick Harbor	1 Cc
	Charleston Harbor	5 Cc
	Kings Bay	9 Cc
	Morehead City Harbor	6 Cc
	Myrtle Beach (Borrow Area Reach 1)	3 Cc
	Savannah Harbor	3 Cc
	Wilmington Harbor (Ocean Bar)	1 Cc

SOUTH ATLANTIC COAST HOPPER DREDGING (Calendar Year 97)

Project	Dredge Period	Approximate Amount of Work Completed	Turtle Takes	Mitigative Measures Taken	Remarks
Kings Bay	3/1/97 to 3/12/97	Removed 437,000 out of 821,000 CY Approximately 53% completed.	L 3/2/97 L 3/4/97 L 3/5/97 L 3/6/97 L 3/6/97 L 3/6/97 L 3/8/97 L 3/8/97 L 3/12/97	Sea turtle deflecting draghead used. Jacksonville Dist. specialist inspected deflector on 3/6/97. Relocation trawling started 3/9/97. Extensive, ongoing consultation with NMFS as takes occurred. All work terminated 3/12/97 due to high take levels even though relocation trawling had become operational.	Water temp. 57 to 58 F. Dredge Eagle 1. Two takes in one batch on 3/6/97 and 3/8/97. Contract required removal of relatively small veneer of material. Most takes occurred through starboard dragarm. Rapidity of takes was a surprise to all concerned.
Brunswick Harbor	2/6/97 to 3/19/97	Removed 975,400 CY. Work stopped at 50% completion.	L 3/9/97	Sea turtle deflecting draghead used. Sea turtle abundance, based on visual observations, prompted termination of work because of potential for unacceptable levels of entrainment.	Water temp 63 F. Dredge RN Weeks. Historic abundance of sea turtles and high levels of entrainment in 1991 was part of the reason for termination of work.
Savannah Harbor	3/4/97 to 3/22/97	Removed about 545,500 CY, or about 52% of what could have been dredged.	L 3/14/97 L 3/22/97 L 3/22/97	Sea turtle deflecting draghead used. Dredging terminated so as not to take any more sea turtles.	Water temp. 63 F. Numerous sea turtles sighted. Dredge Ouachita was 'skimming' high areas to bring depth to acceptable levels quickly before leaving for urgent work in Mississippi River.
Charleston Harbor	3/14/97 to 3/26/97	Bid qty 900,000 CY Req. qty 408,000 CY Removed qty 350,000 CY. About 39% completed.	L 3/19/97 L 3/20/97 L 3/21/97 L 3/25/97 L 3/26/97	WES expert / developer of sea turtle deflecting draghead system, conducted onboard inspection and made recommendations. Some changes to draghead and dredging operation made. Relocation trawling performed.	Water temp. 61 F. Dredge Eagle 1.
Myrtle Beach borrow area (Phase 1)	9/15/96 to 5/13/97	Bid qty 2.5 million CY. Work completed.	L 4/15/97 L 5/04/97 L 5/09/97	Sea turtle deflecting draghead used. Relative abundance trawling on 3/28-29/97, with 12 hours of "nets in water", yielded one loggerhead. Trawling on 5/8 thru 5/13/97 yielded no sea turtles.	This is one of 3 phases / reaches of total project. Part of work in all phases is by pipeline dredge. Total quantity of material to be dredged is about 6 million CY
Morehead City Harbor	4/25/97 to 5/16/97)	About 120,000 CY removed out of about 1,720,000 CY. About 7% of work completed.	L 4/27/97 L 4/30/97 L 5/01/97 L 5/02/97 L 5/15/97 L 5/15/97	Sea turtle deflecting draghead. Relocation trawling began 5/8/97 and continued until termination of dredging. One loggerhead captured on 5/9/97. Nighttime trawling performed 5/10 & 5/11 with no turtles captured. Because of concern over extensive takes, dredging terminated with only 7 % of work done.	Dredge Manhatten Island
Wilmington Harbor (Interior Channels)	2/14/97 to 3/13/97	About 217,300 CY removed. Work completed.	No takes		Dredge McFarland
MOTSU	3/14/97 to 4/3/97	About 60,000 CY. removed. Work completed.	No takes		Dredge McFarland
Wilmington Harbor (Ocean Bar)	4/3/97 to 4/30/97	About 300,000 CY Work completed.	L 4/07/97	Sea turtle deflecting draghead.	Dredge RN Weeks
Dade County Beach (Miami Reach)	3/30/97 7/20/97 (estimate)	About 380,00 of 475,000 CY completed as of 6/6/97.	No takes	Based on past dredging and anecdotal information about sea turtlesin area, takes are not anticipated.	

L = Loggerhead CY = Cubic Yards

37 of 0442

TABLE 3: Current requirements for dredging windows, observer requirements and use of hopper dredges in borrow areas along the east coast established in the August 1995 BO.

AREA		SEA TURTLE MONITORING: NAVIGATION CHANNELS		SEA TURTLE MONITORING: BORROW AREAS	
	WHALE MONITORING	WINDOWS	MONITORING	WINDOWS	MONITORING
North Carolina to Pawleys Island, SC (includes channels at Oregon Inlet, Morehead City and Wilmington)	One observer (daytime coverage) between 1 Dec and 31 Mar. Monitoring by dredge operator and sea turtle observer between 1 Apr and 30 Nov.	Year Round	Two observers (100% monitoring) 1 Apr - 30 Nov	Year Round	One observer (50% monitoring) 1 Apr - 30 Nov
Pawleys Island, SC to Tybee Island, GA (includes channels at Charleston, Port Royal and Savannah)	One observer (daytime coverage) between 1 Dec and 31 Mar. Monitoring by dredge operator and sea turtle observer between 1 Apr and 30 Nov.	1 Nov - 31 May	Two observers (100% monitoring) 1 Nov - 30 Nov and 1 Apr - 31 May	Year Round	One observer (50% monitoring) 1 Apr - 30 Nov
Tybee Island, GA to Titusville, FL (includes channels at Brunswick, Kings Bay, Jacksonville, St. Augustine, and Ponce de Leon Inlet)	Aerial surveys in right whale critical habitat, 1 Dec thru 31 Mar. One observer (daytime coverage) between 1 Dec and 31 Mar.	1 Dec - 15 Apr	Two observers (100% monitoring) 1 Apr - 15 Apr	Year Round	One observer (50% monitoring) 1 Apr - 15 Dec
Titusville, FL to Key West, FL (includes channels at West Palm Beach, Miami and Key West)	Whale observations are not necessary beyond those conducted between monitoring of dredge spoil.	Year Round	Two observers (100% monitoring) year round	Year Round	One observer (50% monitoring) year round

045

South Atlantic Division Corps of Engineers
Hopper Dredging Protocol for Atlantic Coast
FY 98 - FY 03

1. Sea turtle deflecting dragheads will be used at all times.

2. Districts will inspect sea turtle deflecting dragheads systems to ensure that they are fully operational, prior to initiation of work.

3. Districts will ensure that draghead operators know how to properly use the sea turtle deflecting system.

4. Maintenance dredging at Savannah, Brunswick and Kings Bay Harbors must be restricted to 15 December through the end of March. Maintenance dredging at Charleston and Wilmington Harbors must be restricted to 1 December through the end of March where the sea turtle deflecting draghead system can not be used effectively. Dredging may begin as soon as mid-November in those portions of the Wilmington and Charleston Harbor channels where the sea turtle deflecting draghead can be used effectively. All Districts will cooperate to ensure that their scheduling of hopper dredging contracts, does not interfere with this Division priority work area.

5. Sea turtle observers, inflow screens and overflow screens will be used during all dredging operations, except for the months of January and February, which are optional. Variations from this provision may be granted by Division, but must be justified from a technical perspective.

6. All sea turtle takes will be reported promptly to SAD-ET-CO/PD and posted at usace.sad.turtle newsgroup on the Internet.

7. If two sea turtle takes occur within 24 hours, you should immediately notify the Division POC so that he can initiate reconsultation with National Marine Fisheries Service.

8. If a third take occurs on the project the district will cease operations and notify the South Atlantic Division. Continuation of dredging will occur only after cleared by Division. Upon taking three turtles, District will develop a risk assessment along with an appropriate risk management plan, and submit that to Division for assessment. Generally relative abundance and relocation trawling would be an integral part of a risk assessment and management plan. Should a total take of 5 sea turtles occur, for whatever reason, all work will be terminated unless other prior agreements had been reached with Division.

9. If a total of two endangered species of sea turtles are taken during a project, work will be suspended until further guidance from Division has been received.

10. Arrangements will be made for appropriate observation of all species of whales. The hopper dredge must not get closer than 750 yards of a right whale. Jacksonville and Savannah Districts will contribute their share of funding for the Right Whale Early Warning System early enough in the year to ensure that this is not a cause for delay in the program.

11. From Jacksonville District north through Wilmington District, sea turtle observers will also be responsible for monitoring takes of shortnose sturgeon. All takes of shortnose sturgeon must be reported to Division. Should a total take of three shortnose sturgeons occur, District will terminate hopper dredging until further guidance has been received from Division.

ATTACHMENT B

APPENDIX A: Standard Manatee Construction Conditions

To reduce potential construction-related impacts to the manatee to discountable and insignificant levels, the Service recommends implementing the *Standard Manatee Construction Conditions* (FWC 2011), which are as follows:

The permittee will comply with the following manatee protection construction conditions:

a. The permittee will instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water-related activities for the presence of manatee(s).

b. The permittee will 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 of 1972, the Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act.

c. Siltation barriers must be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exit from essential habitat.

d. All vessels associated with the construction project must operate at "no wake/idle" speeds at all times while in the construction 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.

e. If manatee(s) are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions must be implemented to ensure protection of the manatee. These precautions must include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee will necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.

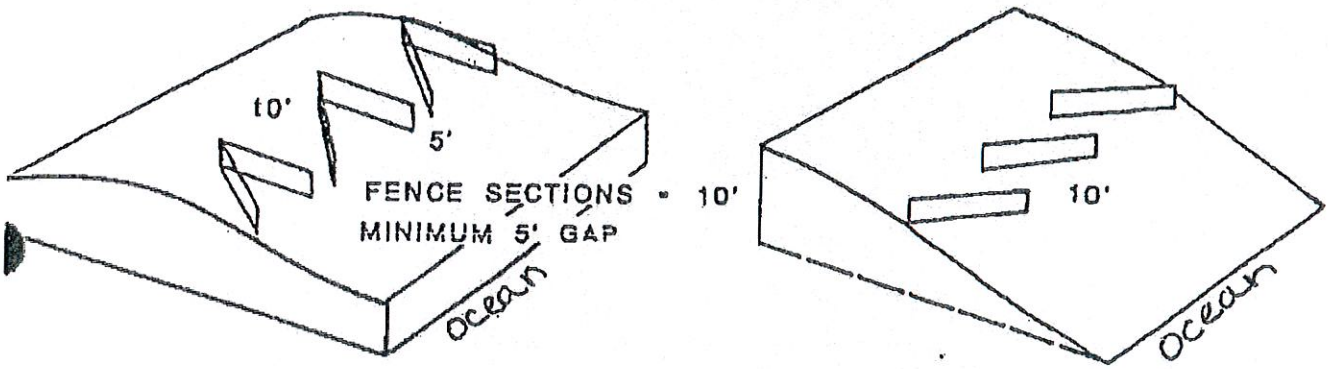
f. Any collision with and/or injury to a manatee must be reported immediately to the SCDNR Hotline at 1-800-922-5431. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service (843-727-4707).

ATTACHMENT C

SAND FENCING

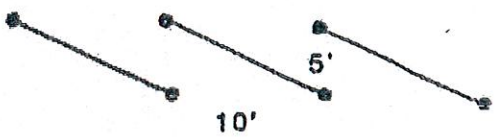
PERMITTED CONFIGURATIONS OF FENCE TO TRAP WIND-BLOWN SAND

NORMAL DUNE



SECTION ANGLE MAY VARY
90 TO 140 DEGREES

PERMITTED VARIATION



DEBORDIEU COLONY BEACH STABILIZATION PROJECT

GEORGETOWN COUNTY (SC)

Submitted in Conjunction with
Permit Application P/N 2017–?????
Public Notice Dated XX Month 2017

DOWNDRIFT IMPACTS ANALYSIS

Prepared for:

DHEC–OCRM
Ocean & Coastal Resource Management
1362 McMillan Avenue Charleston SC 29405

Applicant:

DeBordieu Colony Community Association
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Prepared by:

Coastal Science & Engineering Inc (CSE)
PO Box 8056 Columbia SC 29202-8056

[2443–DD]
NOVEMBER 2017

D H E C
PROMOTE PROTECT PROSPER
Ocean and Coastal Resource Management

DeBORDIEU

CSE
Coastal Science & Engineering

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Shore Protection Alternatives Under the 1988 Beach Management Act (BMA) 6

2.0 SETTING AND PRIMARY CAUSES OF EROSION 9
2.1 Official Erosion Rates and Jurisdictional Lines 15
2.2 Other Erosion Causes 17
2.3 Volumetric Rates of Erosion 18
2.4 Erosion Rates Following the 2006 Nourishment Project 29
2.5 Erosion Rates Following the 2015 Nourishment Project 35
2.6 Cumulative Impact of Nourishment on Downcoast Area to Date 44

3.0 LITTORAL SAND BUDGET 49

4.0 MODELING & ANALYSIS OF IMPACTS — PROPOSED PROJECT 55
4.1 Coastal Modeling 58
4.1.1 Delft3D Model Setup and Description 59
4.1.2 FLOW Module, Tidal Wave Schematization 62
4.2 Wave Climate 63
4.2.1 Wave Information Studies — Station 63331 64
4.3 Delft3D Calibration 73
4.3.1 Delft3D-FLOW Module 73
4.3.2 Delft3D-WAVE Module 74
4.3.3 Sediment Transport Calibration 74
4.4 Delft3D Model Results 76
4.4.1 Downdrift Groin Impact 78
4.4.2 Sensitivity Analysis 81
4.5 Shoreline Evolution Modeling 86
4.5.1 Model Setup and Wave Data Analysis 87
4.5.2 GENESIS Model Grid and Bathymetry 87
4.5.3 Model Parameters 88
4.5.4 Downdrift Nourishment Impacts 88
4.5.5 Summary — GENESIS Model Results 89

5.0 PROPOSED PLAN, OBJECTIVES, AND IMPACTS 91
5.1 Downcoast Impact — Hobcaw Tract (Reach 4) 92
5.2 Downcoast Impact — Debidue Spit (Reach 5) 96
5.3 Sediment Budgets “With” and “Without” the Project 97

6.0 PROPOSED MONITORING & MITIGATION PLAN 103

REFERENCES 107

ACKNOWLEDGMENTS 111

Appendix

A) Permit Application (to follow)
B) Sediment-Transport Calibration Parameters
C) Dr. David R Basco (PE) 1996 Review (Appendix A-1 from CSE–Baird 1996)

The applicant has considered a range of erosion-causing factors such as those stated above in developing the proposed plan. However, global factors such as storms and SLR do not produce extreme variations in erosion rates over relatively short distances. Such gradients are associated with local effects, particularly bathymetry and tidal inlet shoals (Hayes 1980, FitzGerald 1984). Within a relatively short distance of 2 miles, Debidue Island exhibits healthy rows of high dunes (eg – Prince George, Arcadia, and northern DeBordieu Colony) next to an armored shoreline and rapidly eroding forested upland. Such juxtapositions are rare along most of the developed coast (CERC 1984, USACE 2002). The proposed plan seeks to address the site-specific gradient in eroson along the island.

2.3 Volumetric Rates of Erosion

The applicant has maintained an active program of beach monitoring surveys dating back to the 1980s (eg – CSE 1985, 1988; Kana et al 1985; ATM 2007, 2016). Beach profiles connected with this program allow quantification of volumetric erosion rates and the development of sediment budgets. These results have been used to formulate beach nourishment plans, track performance, and determine rates of sand loss for several defined reaches along the island. Before updating the long-term and short-term erosion rates later in this report, following are some highlights from previous reports.

Figure 2.8 shows the present network of beach profiles measured by the applicant along Debidue Beach. The profiles include original OCRM lines from the 1980s (generally even-numbered lines 4100, 4110, 4120, etc.) along with intermediate lines added by the applicant for detailed analysis. CSE–Baird (1996) established and referenced five reaches as generally illustrated in Figure 2.8. These reaches, with some modifications, have been used to track sand volumes in five morphological zones of the island:

Reach 1	Arcadia (north of DeBordieu Colony)	Profiles 4160–4180
Reach 2	Northern half of DeBordieu Colony	Profiles 4140–4160
Reach 3	Southern half of DeBordieu Colony	Profiles 4124–4140
Reach 4	Forested Hobcaw Tract extending ~4,000 ft south of DeBordieu Colony	Profiles 4113–4124
Reach 5	Debidue Spit	Profiles 4100–4113

In some reports, the reaches are referenced to as “Zones” (eg – Fig 2.8) or “Compartments” (eg – CSE–Baird 1996).

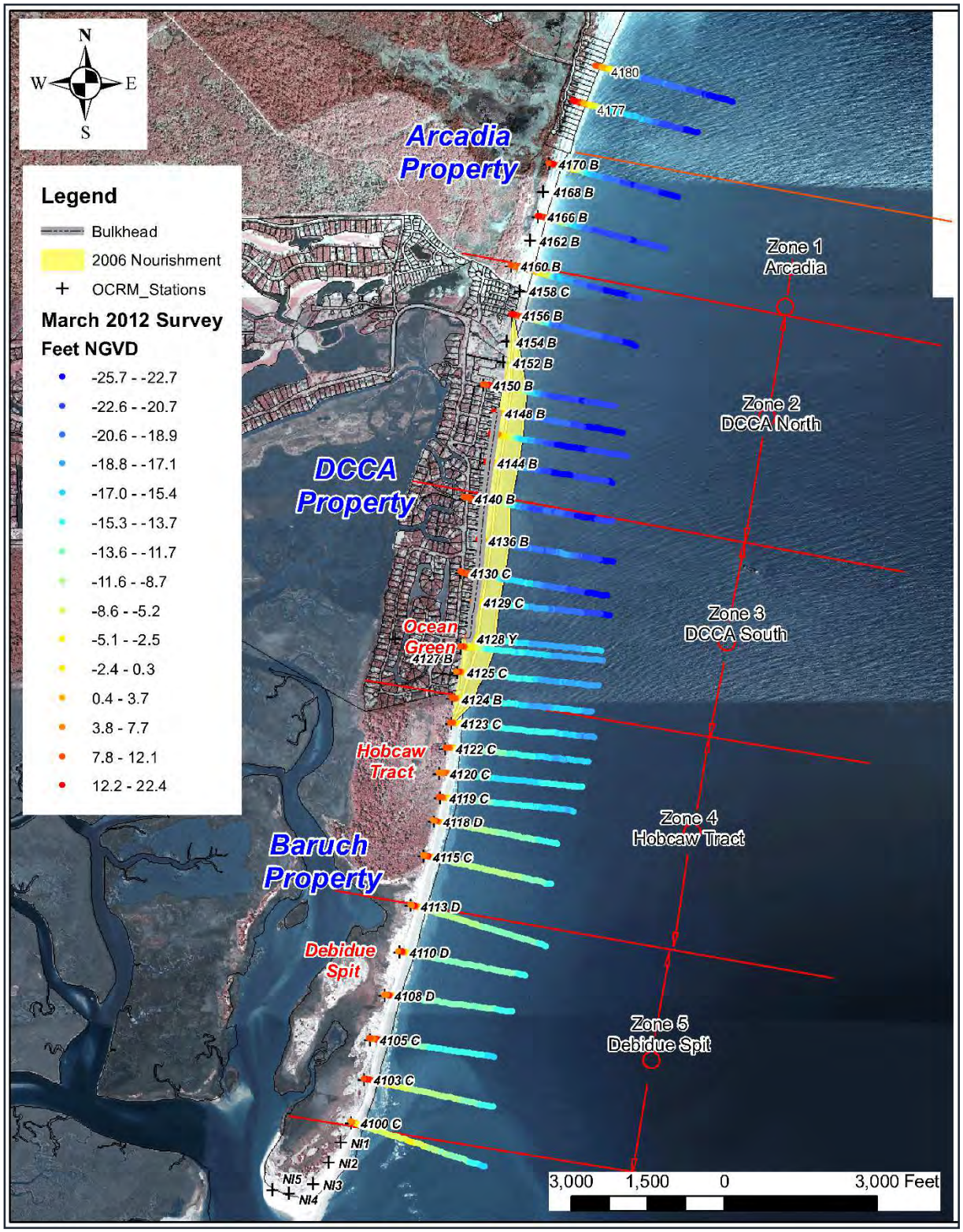

FIGURE 2.8. Map of profile lines and reaches ("zones") utilized by the applicant to track erosion rates and volumetric changes alongshore (from ATM 2016).


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RESPONDENT"S
JOINT EXHIBIT
51
070
March 2015
During 2015 Beach Renourishment
SCDHEC 005188

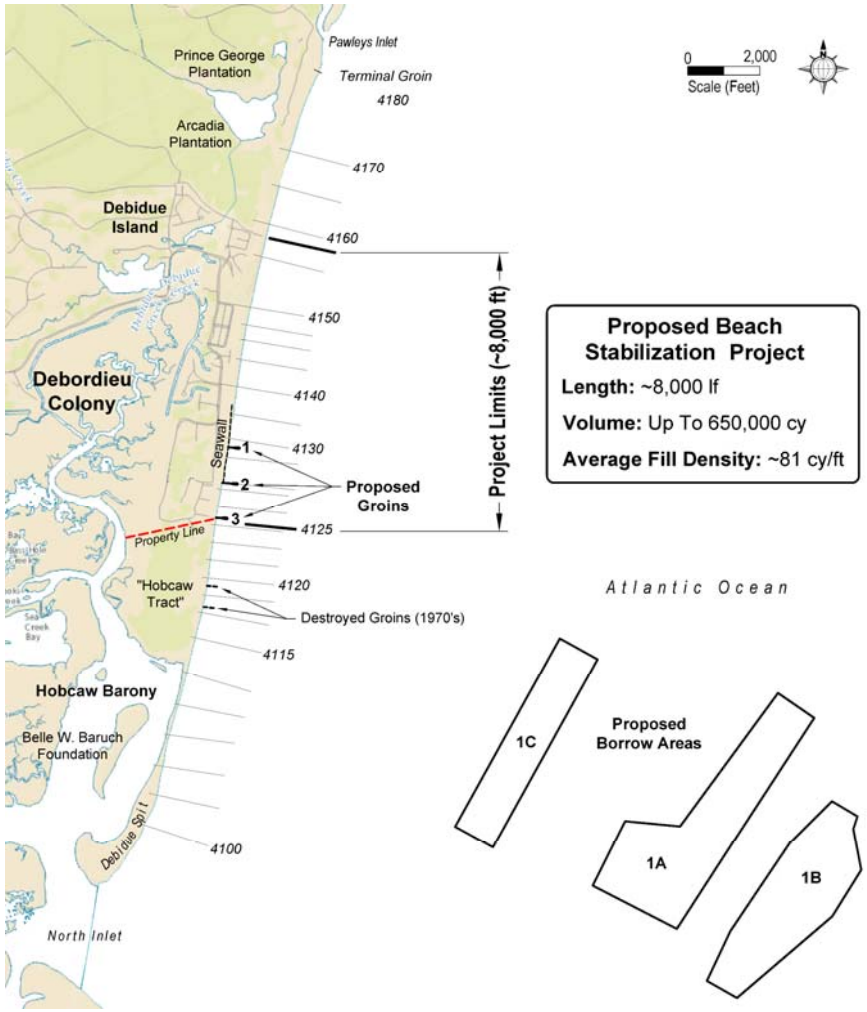

Figure 1.1, Page 3