NC COASTAL RESOURCES COMMISSION
November 19-20, 2019
Islander Hotel
Emerald Isle, NC

The State Government Ethics Act mandates that at the beginning of any meeting the Chair remind all the members of their duty to avoid conflicts of interest and inquire as to whether any member knows of any conflict of interest or potential conflict with respect to matters to come before the Commission. If any member knows of a conflict of interest or potential conflict, please state so at this time.

Tuesday, November 19th

1:00 COASTAL RESOURCES ADVISORY COUNCIL MEETING (TBD)

2:00 COMMISSION CALL TO ORDER* — Renee Cahoon, Chair
- Roll Call
- Chair's Comments
- Approval of September 18-19, 2019 Meeting Minutes
- Executive Secretary's Report — Braxton Davis
- CRAC Report — Greg "rudi" Rudolph

2:30 ACTION ITEMS
- Consideration of Public Comments and Adoption of 15A NCAC 7H .0304; 7H .0309 & 7H .0313 - State Ports Inlet Management AEC *(CRC-19-32)* — Heather Coats
- Consideration of Public Comments and Adoption of 15A NCAC 7H .0309 – Use Standards for Ocean Hazard Areas – Ocean Outfalls *(CRC-19-33)* — Mike Lopazanski
- Consideration of Adoption of 15A NCAC 7H .1900 – General Permit to Allow Temporary Structures Within Coastal Shorelines and Ocean Hazard AECs — Kevin Hart
- Consideration of Adoption of 15A NCAC 7H .0305 General Identification and Description of Landforms – Procedure for Determining Measurement Line — Ken Richardson
- Consideration of Comments and Adoption of 15A NCAC 7H .0304 AECs Within Ocean Hazard Areas – 2019 Erosion Rates (CRC 19-41) — Ken Richardson
- Consideration of Comments and Adoption of 15A NCAC 7H .0304 AECs Within Ocean Hazard Areas – Unvegetated Beach Area *(CRC-19-34)* — Ken Richardson

3:15 CRC RULE DEVELOPMENT
- Amendments to 15A NCAC 7H .0309 – Roofs over Decks *(CRC-19-35)* — Mike Lopazanski
- Refinement to Amendments of 15A NCAC 7J .0403 & .0404 Development Period/Commencement/Continuation & Development Period Extension – *(CRC-19-36)* — Jonathan Howell

3:45 INTERAGENCY ISSUES
- Inland Waters Boundary Update

5:00 RECESS

Wednesday, November 20th

9:00 COMMISSION CALL TO ORDER* — Renee Cahoon, Chair
- Roll Call
- Chair's Comments

9:15 OCEANFRONT RULES AND IMPLEMENTATION
- Amendments to 15A NCAC 7H .0306 & 7J .1301 – Development Line Setback Exceptions *(CRC-19-37)* — Ken Richardson
  Static Line Exceptions and Development Lines *(CRC-19-38)* — Ken Richardson

10:15 CRC RULE DEVELOPMENT

- Shellfish Leases and Permitting Update *(CRC-19-39)* — Jonathan Howell

11:15 LEGAL UPDATES — Mary Lucasse

- Update on Litigation of Interest to the Commission *(CRC-19-40)*

11:30 PUBLIC INPUT AND COMMENT — Renee Cahoon, Chair

11:45 OLD/NEW BUSINESS — Renee Cahoon, Chair

- Science Panel Nominations

12:00 LUNCH

1:15 PUBLIC HEARING — Renee Cahoon, Chair

- Periodic Review of Existing Rules – Re-adoption of 15A NCAC 7A; 7H; 7I; 7J; 7K; 7L and 7M

1:30 ADJOURN

Executive Order 34 mandates that in transacting Commission business, each person appointed by the governor shall act always in the best interest of the public without regard for his or her financial interests. To this end, each appointee must recuse himself or herself from voting on any matter on which the appointee has a financial interest. Commissioners having a question about a conflict of interest or potential conflict should consult with the Chairman or legal counsel.

**** Times indicated are only for guidance and will change. The Commission will proceed through the agenda until completed; some items may be moved from their indicated times.***

N.C. Division of Coastal Management
www.nccoastalmanagement.net
Next Meeting: February 12-13, 2019
Beaufort Hotel, Beaufort, NC

NC COASTAL RESOURCES COMMISSION (CRC)
September 18-19, 2019
New Hanover County Government Center
Wilmington, NC

Present CRC Members
Renee Cahoon, Chair
Larry Baldwin, Vice-Chair
Robin Smith, Second Vice-Chair
Neal Andrew
Craig Bromby
Trace Cooper
Bob Emory
Robert High
Doug Medlin
Phil Norris
Angie Wills

Present CRAC Members
Rudi Rudolph, Chair
Spencer Rogers, Vice-Chair
Candy Bohmert
Jett Ferebee
David Kellam
Seth Laughlin
Mike Moore
Kathleen Riely
Todd Roessler
Debbie Smith

Present from the Office of the Attorney General
Mary L. Lucasse

Present from the Department of Environmental Quality, Office of the General Counsel
Christine A. Goebel

CALL TO ORDER/ROLL CALL
Renee Cahoon called the meeting to order at 1:00 p.m. on September 18, 2019, reminding the Commissioners of the need to state any conflicts due to Executive Order Number 34 and the State Government Ethics Act. The State Government Ethics Act mandates that at the beginning of each meeting the Chair remind all members of their duty to avoid conflicts of interest and inquire as to whether any member knows of a conflict of interest or potential conflict with respect to matters to come before the Commission. If any member knows of a conflict of interest or a potential conflict of interest, please state so when the roll is called. Commissioners Alexander Tunnell and Lauren Salter were absent. Neal Andrew and Angie Wills read their evaluation of statement of economic interest from the State Ethics Commission, indicating a potential for conflict, but no actual conflict. Based upon this roll call Chair Cahoon declared a quorum.

CHAIR'S COMMENTS

Chair Cahoon welcomed the newly appointed commissioners and DEQ Assistant Secretary Sheila Holman.

MINUTES

Larry Baldwin made a motion to approve the minutes of the July 17, 2019 Coastal Resources Commission meeting. Doug Medlin seconded the motion. The motion passed unanimously (Cahoon, Andrew, Baldwin, Bromby, Cooper, Emory, High, Medlin, Norris, Smith, Wills).

EXECUTIVE SECRETARY'S REPORT

DCM Director Braxton Davis gave the following report:

A special welcome to our new commissioners, Wills and Tunnel, and a welcome back to Commissioner Andrew. We look forward to working with you and please let me know if you'd like to get together to review any or all parts of our coastal program as you continue to get up to speed on things.

Hurricane Dorian

Much of the coast suffered only limited damages from the storm, at least in comparison with Hurricane Florence last year. Southern and central beaches held up well, and my understanding is that the recent renourishment project in the Nags Head area also performed well. Unfortunately, Ocracoke Village experienced historic flooding from the storm, and there were several soundside breaches that occurred along Portsmouth Island and Ocracoke Island. DEQ Secretary Regan, DMF Director Steve Murphey and I were able to view this from the air a few days after the storm. Highway 12 on Ocracoke suffered significant damages, and we are working very closely with NCDOT to review emergency permitting needs and options going forward to restore the road as quickly as possible. In addition, yesterday, Secretary Regan authorized the activation of your Emergency CAMA General Permit (7H .2500) for the replacement of shoreline structures impacted by Hurricane Dorian. This will expedite staff reviews and allows DCM to waive permit fees in order to assist with short-term recovery efforts.

REGULATORY

In our Regulatory section, the Division continues to work with the Department's IT staff to develop a new e-permitting process for major permits. This new process should eventually allow for applicants to fill out and submit application packages electronically, including fees and all required drawings and documentation. This should simplify filing and data management requirements for Division staff. We expect that the e-permitting system will make online data available in real time to both applicants and members of the public. DCM is the first Division in the Department to work on developing this new application process, and we are excited about its potential. We will provide updates on this effort at future meetings. Notable permit actions since your last meeting include the issuance of a CAMA Major Permit to Town of Shallotte to create a mixed-use development including residential, retail, restaurant, and office units, a hotel, event space/areas, a riverfront boardwalk, a fixed riverwalk pier, a fishing pier, a floating kayak launch and floating docks. The Division also issued a CAMA Major Permit to the City of Wilmington to construct a city park and public amphitheater adjacent to a section of the Northern Wilmington downtown Riverwalk along the east bank of the Northeast Cape Fear river.

I would also like to offer you an update on a variance that was granted to the NC Department of Transportation's Ferry Division at your last meeting. The ferry facility at the north end of Ocracoke Island received a variance at your last meeting to implement temporary erosion control measures at the facility. The work authorized by the variance is ongoing, and the ferry facility did not appear to be significantly impacted by Hurricane Dorian but experienced some sand loss that may affect the crane being used to install sheet piles. NCDOT has advised us that they are currently conducting a feasibility study to look at longer term options for the north end of Ocracoke Island, including the potential costs and benefits associated with construction of a mid-island ferry terminal. They hope that feasibility study will be ready by this fall.

POLICY & PLANNING

Strategic Planning (309)

DCM has begun the process of updating our 5-year Program Assessment & Strategy. Under Section 309 of the federal Coastal Zone Management Act, North Carolina and other coastal states with NOAA-approved 5-year Strategies are eligible for non-matched funds to pursue improvements to our Coastal Management Program. Every five years, states and territories review our programs to identify priority needs and opportunities for improvement. The programs then work with NOAA to develop multi-year improvement strategies that focus on one or more of the priority enhancement goals. Section 309 funding to DCM primarily funds staff time for work on coastal hazards; e.g. Ken Richardson's work on erosion rates and inlet hazard areas, and Tancred Miller's work on coastal resilience. Stakeholders are invited to participate in the process. DCM sent out an email survey last week to our Interested Parties email list, and there are some hard copies on the documents table. Tancred Miller is the point of contact for any questions about the Section 309 program.

Land Use Plans

The Division received two land use plan amendment requests under the recent delegation of authority from Commission. The Towns of Belhaven (July 18, 2019) and Morehead City (also July 18, 2019) submitted land use plan amendments for certification since our last meeting. The Division found in all cases that:

- The plans met the substantive requirements outlined within your 7B Land Use Planning Requirements;
- There are no conflicts evident with either state or federal law or the State's Coastal Management Program; and
- The elected bodies of the local governments provided opportunity for the public to provide written comment following local adoption of the plan (as required by N.C.G.S. § 113A-110 and 15A NCAC 7B .0802 and .0803)
- For these reasons, the Towns of Belhaven and Morehead City's requests for certification of their land use plans were granted.

Public Access Program

DCM has received 14 applications from 14 local governments requesting over $2.4M in funding from the Public Beach and Coastal Waterfront Access Program. DCM has approximately $1M available for access projects during this fiscal year and has invited 10 local governments to submit final applications with more detailed information. Prior to submitting a Final Application, the local government is required to hold a public meeting or hearing to discuss its proposal and

consider comments prior to its decision to submit a Final Application for state funds. Final Applications were due September 9th, but due to Hurricane Dorian, the submission deadline has been extended to October 7th. All final applicants will be notified in late October whether their project has been selected for funding.

Clean Marina Program

You may be aware that the Division administers the NC Clean Marina program, which is designed to show that marina operators can help safeguard the environment by using management and operations techniques that go above and beyond regulatory requirements. It is a voluntary program that began in the summer of 2000. Marina operators who choose to participate must complete an evaluation form about their use of specific best management practices. If a marina meets criteria developed by N.C. Marine Trades Services and the Division of Coastal Management, it will be designated as a Clean Marina. Such marinas will be eligible to fly the Clean Marina flag and use the logo in their advertising. The flags signal to boaters and their community that a marina cares about the cleanliness of area waterways. The Division also administers the NC Pumpout Station Grant Program with the goal of enabling boaters to receive sewage pumpout for their boats as easily as they can get other common boating services, such as fuel. The program, established as a result of the federal Clean Vessel Act of 1992, provides financial assistance to marinas and other boat-docking facilities for the installation and renovation of pumpout and dump stations in North Carolina. Using funding from the US Fish & Wildlife Service, DCM has made grants of up to $20,000 available on a yearly basis to private and commercial marinas, gas/service docks, fish houses/seafood dealers and other boat docking facilities in the 20 coastal counties. A 25 percent match is required of the marinas. Since 1995, the Program has made $958,529.00 available for private and commercial marinas. Our Clean Marina Coordinator, Pat Durrett was recently recognized by the States Organization for Boating Access (SOBA) for her outstanding commitment to the Clean Vessel Act program throughout the State of NC, and promotion of the importance of boater education across multiple divisions. I'd like recognize Pat for her work and dedication to this program, and for receiving this national program recognition of excellence.

Coastal Reserve

All Reserve sites were closed to visitors on September 3 in preparation for Hurricane Dorian to protect public safety from the potential risk of downed trees, flooding and other hazards. Five of the ten sites have reopened including Rachel Carson Reserve, Permuda Island Reserve, Zeke's Island Reserve, Masonboro Island Reserve, and Bird Island Reserve. Visitors should exercise caution when visiting the sites and be aware of the risk of potentially hazardous conditions associated with storm damage. Grounded vessels have been documented on several Reserve sites. The remaining five Reserve sites are still closed to visitors to protect public safety until immediate hazards are addressed. This week is National Estuaries Week and across the nation, the National Estuarine Research Reserve System, National Estuary Programs, and Restore America's Estuaries are celebrating our nation's estuaries and coasts. We thank Governor Cooper for officially proclaiming this as 'Estuaries Week' here in NC. The Reserve is hosting clean-ups and educational events throughout the week to build awareness of the important benefits provided by estuaries. See the Reserve's event calendar for more details. This week the Reserve is also holding Meet & Greets with researchers and graduate students in Beaufort and Wilmington to introduce the Reserve program and share upcoming funding opportunities with

the research community, including the new NOAA Margaret Davidson Fellowship and the 2020 Coastal Research Fellowship. The Davidson Fellowship will fund a graduate student for 2 years to conduct collaborative research on a management priority, and the Coastal Research Fellowship is sponsored by the Division and NC Sea Grant and will support a North Carolina-based graduate student to conduct research for 1 year within one or more of the 10 sites of the Reserve on identified focus areas. More information on both fellowships is available on the Reserve's website. Registration is open for the Living Shorelines Tech Transfer Workshop to be held October 8-9 at the new Beaufort Hotel. Hosted by the North Carolina Coastal Federation and Restore America's Estuaries, the workshop will provide participants with information on emerging living shoreline techniques, regulations, community engagement, and more. Field trips to area living shorelines are included in the workshop.

Staff News

We are pleased to announce that Robert Corbett has begun working for the Division as a field representative in our Elizabeth City Office. Robert started in early August and comes to us from the Division of Marine Fisheries, where he worked for the last 6 years. He has a bachelor's degree from UNC Wilmington. We are also pleased to welcome Shane Staples back to the Division. Shane, who is our newest field representative in our Washington regional office, worked for DCM from 2014 till 2018 as a fisheries resource specialist. For the last year, Shane has been at the Division of Marine Fisheries. Once he is up to speed, Shane will be covering Hyde and Beaufort County, as well as Ocracoke Island. We would like to welcome both Robert and Shane to the DCM family. I am less happy to report that, after 12 years with DCM and a few with DMF as well, Melissa Sebastian, our Accounting Technician, has left DCM to take a position with the NC School for the Deaf earlier this month. We wish her the best, and we will be interviewing for her replacement in the upcoming weeks. Debbie Wilson, District Manager of the Division's Wilmington Regional Office, is retiring as of November 1st. Debbie has been with the Division since 2005, first as a field representative, and since 2011 as District Manager. Before coming to DCM, Debbie worked for New Hanover County as a local permit officer and collectively has over 20 years of state service. Debbie has been an invaluable part of our senior management team and a true friend. We will certainly miss her and wish her the very best in her retirement. Lastly, after 24 years with the Division of Coastal Management and over thirty years of state service; having joined DCM in 1995 following his work with the NC Dept of Transportation, Doug Huggett will be retiring on October 1 and joining the private sector at a firm in Morehead City.

CRAC REPORT

CRAC Chair, Greg "rudi" Rudolph, stated the Advisory Council discussed oceanfront decks and repairs. The CRAC reviewed the proposed amendments and following discussion approved the proposals for CRC consideration. The main concern was that any action taken not cause a disincentive for property owners to repair decks for safety reasons. The CRAC will create an ad hoc committee to look at deck construction standards. The CRAC also discussed how nesting sea turtles are being managed by the US Fish and Wildlife. Outside of the nesting season it is unclear about how sea turtle management can conflict with development such as temporary erosion control structures and beach nourishment. The outcome of the discussion was to ask DCM staff to advocate for balance. Director Davis stated DCM has been involved in these discussions and there are opportunities for streamlining and applying the standards more fairly. The CRAC also

reviewed a nomination from Hyde County nominating Daniel Brinn. The CRAC unanimously supported this nomination.

Doug Medlin made a motion to appoint Daniel Brinn to the Coastal Resources Advisory Council. Trace Cooper seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

VARIANCES

Pollard (CRC VR-19-05), Jacksonville, Coastal Shoreline AEC Impervious Cover
Brad Connell, Christine Goebel, Esq./Glenn Dunn, Esq.

Brad Connell gave an overview of the site. Christine Goebel represented staff and stated Glenn Dunn is present and will represent Petitioners. Ms. Goebel stated Petitioner owns property located at 320 Willbarry Road in Jacksonville, Onslow County. The property is adjacent to the New River, which at this location is inland fishing waters and the first 30 feet landward of normal water level is Public Trust Shoreline AEC. Petitioner proposes to develop four bed and breakfast units on top of the existing house, which is built below the upper grade on the lot, into the bank of the property. The waterward proposed B&B units would be considered development within the Commission's 30-foot buffer area and include some development outside the existing footprint including the four pilings. The proposal would also increase an existing non-conformity with the Commission's 30% impervious limits within the 30-foot-wide AEC. On July 25, 2019, the Onslow County CAMA Local Permit Officer denied Petitioner's CAMA Minor Permit application based on its incompatibility with the Commission's Public Trust Shoreline AEC rules. Ms. Goebel reviewed the stipulated facts of this variance request and stated staff and Petitioner agree on all four variance criteria which must be met in order to grant the variance request.

Glenn Dunn of Poyner Spruill represented Petitioner and stated this design is done to minimize the affect of the development within the AEC. Mr. Dunn reviewed the stipulated facts which Petitioner contends supports the granting of this variance request and stated Petitioner agrees with staff on all four variance criteria.

Bob Emory made a motion that Petitioner has shown that strict application of the applicable development rules, standards, or orders issued by the Commission cause the Petitioner an unnecessary hardship. Larry Baldwin seconded the motion. The motion passed with ten votes in favor (Bromby, Emory, Norris, Medlin, Baldwin, Cahoon, Wills, Cooper, High, Andrew) and one opposed (Smith).

Larry Baldwin make a motion that Petitioner has shown that hardships result from conditions peculiar to the Petitioner's property. Phil Norris seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

Phil Norris made a motion that hardships do not result from actions taken by the Petitioner. Bob Emory seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

Trace Cooper made a motion that Petitioner has shown that the variance request will be consistent with the spirit, purpose, and intent of the Commission's rules, standards or orders; will secure the public safety and welfare; and preserve substantial justice. Doug Medlin seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

This variance request was granted.

ACTION ITEMS

Consideration of Fiscal Analysis 15A NCAC 7H .0312 – Technical Standards for Beach Fill Projects (CRC 19-23)

Ken Richardson

Ken Richardson stated the Commission adopted the technical standards for beach fill projects in 2007. The CRC adopted these rules to ensure that sand used for beach nourishment closely matches the sand on the existing beach. The rule requires that the sediment intended for beach placements as well as the sand on the existing beach are analyzed for grain size and composition and be within defined ranges of similarity before the project begins. The proposed amendments do not intent to jeopardize the quality of North Carolina's beaches, but rather strengthen the methodology for sampling and characterizing beach sediment. The current sampling protocol associated with the sediment criteria rules is highly precise with regards to sample design, transect spacing, and numbers of cores. This precision can limit flexibility in sample design and can also limit the ability of communities to pursue small projects or respond to nourishment opportunities in a short period of time. The sampling protocol can also severely limit the applicants' ability to use existing data from past projects. The sampling protocol may also eliminate the ability of communities to take advantage of beneficial use projects that present themselves late in the planning process. The CRC's proposed amendments meet Session Law 2017-10 Section 3.15's mandate to exempt sediment characterization of beaches receiving the material from a cape shoal system and borrow areas within the cape shoal system. The proposed amendments also eliminate the rigid data sampling protocol in favor of a simpler process where the project's consultant or engineer is allowed flexibility to design a sampling protocol that assures sediment compatibility between the beach and borrow area. The rules will retain existing standards for grain sizes and strengthen recipient beach sampling protocols. The fiscal analysis has been approved by the Office of State Budget and Management.

Larry Baldwin made a motion to approve the fiscal analysis for 15A NCAC 7H .0312 for public hearing. Craig Bromby seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Neal).

Consideration of Fiscal Analysis 15A NCAC 7H .0304, .0306, .0309, and .0310 – Inlet Hazard Areas (CRC 19-24)

Ken Richardson

Ken Richardson stated the Inlet Hazard Area boundaries have been updated. Currently, the erosion rate setback factor applied inside the Inlet Hazard Area is the setback factor of the adjacent Ocean Erodible Area. These proposed amendments will remove the distinction between commercial and residential structures. The proposed amendments will result in a net of 307 structures that will be removed from the Inlet Hazard Area boundaries. There will be

approximately 219 structures that are currently not within an Ocean Hazard Area that will now be included within the update Inlet Hazard Area. There will also be approximately 137 structures that will experience an increased construction setback factor when compared to existing requirements. Per the current rules, all new construction will be limited to 5,000 heated square feet, with a density limit of no more than one unit per 15,000 square feet of land area. If a structure is destroyed or damaged beyond 50%, it could potentially be rebuilt on its original footprint and size if the structure was built before August 11, 2009 and can meet certain grandfathering provisions found in 15A NCAC 7H .0306. Grandfathering applies to single-family residences of any size, and commercial and multi-family structures of 10,000 square feet or less. For existing vacant lots within the proposed Inlet Hazard Area, these rule amendments do not restrict development, but do limit size structure to 5,000 heated square feet and development density to no more than one unit per 15,000 square feet of land area. If an existing lot cannot meet the setback requirements defined in the amendments, property owners could still potentially develop their property utilizing 7H .0104 which allows for a structure up to 2,000 square feet to be constructed with minimal conditions. DEQ and OSBM have approved the fiscal analysis and staff requests the CRC approve the fiscal analysis for public hearing.

Phil Norris made a motion to approve the fiscal analysis for 15A NCAC 7H .0304, .0306, .0309, and .0310 for public hearing. Craig Bromby seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

Consideration of Fiscal Analysis 15A NCAC 7J .0403, .0404 – Development Period/Commencement/Continuation & Development Period Extension (CRC 19-25)
Courtney Spears
Courtney Spears stated at the February meeting, the CRC approved amendments to 15A NCAC 7J .0403 and .0404 to lengthen the initial expiration date for most new Major Permits to five years from the date of permit issuance; eliminate the ability to obtain a single two-year renewal when permitted development has not begun; lengthen the initial expiration date for publicly-sponsored, multi-phased beach nourishment projects to ten years from the date of permit issuance, and allow for 10-year renewals; and eliminate the provisions of 7J .0404(b) which allows for the circulation of renewal requests to commenting agencies when the requests do not meet the criteria for permit renewal. These proposed amendments are a potential financial benefit to local, state and private entities in terms of time and permit fees. The fiscal analysis has been approved by DEQ and OSBM and staff is requesting the CRC approve the fiscal analysis for public hearing.

Larry Baldwin made a motion to approve the fiscal analysis for 7J .0403 and .0404 for public hearing. Doug Medlin seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

STAFF RULEMAKING RECOMMENDATIONS
Permeable Surfaces in the Buffer (CRC 19-26)
Mike Lopazanski
Mike Lopazanski stated the 30-foot buffer rule allows for water dependent structures, but there are exceptions for non-water dependent structures. The Commission has had a clear intent since

the initial adoption of the 30-foot buffer rule and has been consistent in not allowing non-water dependent amenities within the buffer that could undermine the purposes and effectiveness of the buffer. There have been advances in technology that are intended to address stormwater runoff associated with traditional impervious surfaces. Various institutions and DEMLR (Division of Energy, Minerals, and Land Resources) have addressed the use of "pervious" pavement, pavers, and associated installations requirements. The Commission's buffer rule exceptions allow for decks/observation decks that are limited to slatted, wooden, elevated and unroofed decks that do not singularly or collectively exceed 200 square feet. The provision for decks to be slatted and elevated is related to retaining the infiltration capacity of the buffer. If the Commission is interested in allowing similarly functioning structures that also maintain the infiltration capacity of the buffer within the buffer area, the limitations on non-water dependent structures could be amended to incorporate DEMLR's Best Management Practices standards (15A NCAC 02H .1055) for pervious pavement by reference in the rule and to limit such development to 200 square feet.

Commissioner Norris stated as an engineer he deals with this kind of product frequently and it requires intense maintenance for it to function as designed. Commissioner Cooper agreed that even if these products were to be permitted, but there is no enforcement or follow-up on the maintenance to ensure they maintain their permeability. Commissioner Andrew stated he would have more confidence in allowing a washed aggregate or river rock, etc., which in his experience is more permeable than a pervious concrete or asphalt pavement. Commissioner Emory stated when the buffer rules were implemented, the Commission did a thorough review of what would be allowed within the buffer and he feels the standards are adequate. Commissioner Medlin stated in his experience porous concrete and asphalt, even with maintenance, does not work well. After Commission discussion, there was consensus to not allow any additional exemptions to the 30-foot buffer rule.

Oceanfront Decks and Repairs (CRC 19-27)
Tancred Miller
Tancred Miller stated the CRAC discussed this topic at their meeting. Currently, the Commission's rules create a disincentive to proper maintenance on existing decks. There have been multiple deck collapses and we have found that there are oversized decks within the setback that need repair, but the owners fear that they will not be allowed to maintain these non-conforming structures. The CRAC recommends the Commission allow citizens to repair existing decks.

Bob Emory made a motion to approve the amendments to 15A NCAC 07H .0309 as presented for public hearing. Robert High seconded the motion., The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

CRC SCIENCE PANEL
2020 Sea Level Rise Report Update – Charge to the Science Panel (CRC 19-29)
Tancred Miller
Tancred Miller stated the Charge to the Science Panel has been completed and captures the intent of the Commission to allow the Science Panel to look beyond a 30-year timeline for sea level rise assessments. The Science Panel will meet next month to begin their work on the Update.

Trace Cooper made a motion to approve the Charge to the Science Panel. Robin Smith seconded the motion. The motion passed unanimously (Bromby, Emory, Norris, Medlin, Smith, Baldwin, Cahoon, Wills, Cooper, High, Andrew).

Chair Cahoon stated there has been a resignation from the Science Panel. Staff will send out a request for nominations to fill the vacancy.

LEGAL UPDATES
Mary Lucasse, CRC Counsel, updated the Commission on issues relevant to DCM and CRC. Ms. Lucasse also reviewed the "litigation hold" requirement for ongoing litigation.

OCEANFRONT RULES AND IMPLEMENTATION
Setbacks, Static Lines, Static Line Exceptions and Development, Development Line Implementation, Grandfathering Provisions (CRC 19-31)
Ken Richardson
Ken Richardson stated there are three AECs which make up the Ocean Hazard Area (OHA), the Ocean Erodible Area (OEA); the Inlet Hazard Area (IHA); and the Unvegetated Beach area. These AECs identify areas on barrier islands where there is a potential risk from erosion. The OEA is measured from the first line of stable and natural vegetation. The landward boundary is based on the erosion rate setback factor. This boundary is dynamic, and these areas are updated every five years. The calculation is defined as the setback factor times 90. The Inlet Hazard Area is a static boundary. IHAs are areas vulnerable to rapid change due to inlet related processes. The unvegetated beach AEC is a temporary designation for areas where there is no vegetation from which to measure a setback. Following Hurricane Florence, the CRC designated areas of North Topsail Beach and Surf City as Unvegetated Beach AECs. Each AEC has specific use standards within the rules. Graduated setbacks are determined based on the size of a structure. The Static Vegetation Line is established where beach nourishment projects exceed 300,000 cubic yards of material. A nourished beach erodes more quickly than a natural beach. There is also no assurance that a community will maintain a nourished beach. Since the establishment of the static vegetation line, the CRC wanted to recognize communities that were committed to long-term beach nourishment and maintenance. The CRC approved the static vegetation line exception in 2009. The exception allows communities to measure setbacks from the first line of stable and natural vegetation under specific conditions. The Development Line was adopted by the CRC in 2016. Communities delineate a development line and request approval from the Commission. Under this rule, development can be no further waterward than the Development Line. Within the OEA there are exceptions for development to be permitted seaward of the setback. However, under the rule establishing a Development Line, no new development shall be sited seaward of the Development Line. This has caused the Division some rule application challenges. The intent of the CRC for the Development Line was to not include accessory structures within the

Development Line rule, however on the ground and in the field, this is problematic because no new development is allowed seaward of the Development Line. Staff requests the CRC look at the existing exceptions for consideration in communities with a Development Line. Following discussion, the CRC directed Staff to bring back some draft rule language that would allow existing decks, gazebos, camp sites, beach accessways, amusement stands, and sand fences seaward of the development line. The CRC requested that the proposed rule language not included pools and driveways in the list of exceptions allowable seaward of the development line.

CRC RULE DEVELOPMENT

Shellfish Leases and Permitting (CRC 19-28)

Jonathan Howell

Jonathan Howell stated the CRC has reviewed some of the issues related to shellfish leases such as floating upwellers, pilings, and gear retrieval. Commissioners Salter and Emory attended the last shellfish growers meeting. The shellfish growers are requesting larger pilings and the ability to have enclosed and/or roofed staging and storage areas. A second meeting was held with commenting agencies to receive their comments and concerns. Senate Bill 648, Support Shellfish Aquaculture, was approved unanimously in both the House and the Senate. Moratoriums were enacted in 2019 for Bogue Sound and New Hanover County. Shellfish Enterprise areas were designated, three large-scale shellfish leases of 50-acres were approved in Pamlico Sound, and Floating upweller systems were approved in closed waters. The CRC reviewed a draft exemption for shellfish leases providing specific criteria were met. The CRC did not move forward with the exemption. Draft language was introduced for a General Permit that would require an applicant to provide notice to the adjacent property owners and the local government in which the lease is located. Applicants would also be limited to clearly marked pilings of less than 12 inches in diameter. No wave baffles would be allowed, platforms would be prohibited, floating upweller systems would be limited to four-foot walkways, no storage or staging areas, power would be limited to solar power only, minimum water depths would be observed, and additional limitations would be placed on floating upweller systems. Bottom leases, shell only, would be exempt from CAMA permits under existing rules. Under a new General Permit, pilings would be limited to eight pilings for marking lease corners and would be limited to 12 inches in diameter, and there would not be an allowance for piling supported gear. DCM does not think floating upweller systems are appropriate for typical open water leases. A CAMA Major Permit would be required if floating upwellers are used within a marina or a private dock and they would not be allowed on leases unless the lease was greater than 10 acres.

HURRICANE FLORENCE UPDATE

Abandoned Vessels and Marine Debris

Paula Gillikin (NCCR)/Todd Miller and others from (NCCF)

Paula Gillikin stated vessels and debris are common management concerns at several of the Reserve sites and in all 20 coastal counties, particularly after Hurricane Florence. The Division was involved in post-Florence displaced vessel pollution response through a FEMA Mission Assignment that was coordinated by the US Coast Guard in cooperation with the Wildlife Resources Commission and Department of Environmental Quality. DCM was also involved in the development of the NC Marine Debris Action Plan, which includes some strategies based on our experience with Hurricane Florence. A consulting firm hired by the US Department of

Agriculture collected information on medium and large debris that was generated by Hurricane Florence in the coastal federal disaster areas. Through imagery, drone flights, and field observations an inventory of debris was conducted at the Rachel Carson Reserve in Beaufort. The debris found was not consumer debris such as bottles and bags, but rather large items such as dock sections. During Hurricane Florence a lot of infrastructure was damaged and ended up displaced in our estuarine areas. This debris is not just aesthetically unpleasing, it can cause marsh impacts and if not removed and can resuspend by subsequent storms, risking more habitat damage and possible damage to private and commercial properties. About 40 vessels were displaced by Florence and remain in sensitive habitats from Brunswick County north through Carteret, Craven and Pamlico Counites. 362 vessels were displaced during Florence and according to Wildlife Resources Commission, about 90 are still in the environment. There is no state authority to remove vessels from the water. Vessels had to be left in the water, with the hazardous materials removed, except for the Town of Beaufort that has passed an ordinance to address abandoned and derelict vessels. Eleven vessels were removed from the waters within the Town of Beaufort. Seven vessels, per the advice of the Division of Marine Fisheries, Coastal Management, NOAA, and the Wildlife Resources Commission, were moved from particularly sensitive habitats to less sensitive habitats. The primary concern with removal of these displaced vessels is habitat damage.

Todd Miller, Executive Director NC Coastal Federation (NCCF), introduced the project managers and contractors that participated in the Hurricane Florence Marine Debris Recovery Project. Following the storm, the NCCF received multiple notifications of large storm debris. NOAA provided imagery following the storm. Many docks were damaged or destroyed which left large portions of lumber in the estuaries. During February and March of 2019, LDSO, Inc. gathered information and performed a survey by boat of debris and abandoned and derelict vessels visible along the Atlantic Intercoastal Waterway from Core Sound to the Cape Fear River. The marine debris recovery crews started with phase I, which consisted of cleanup of the Swansboro area and the lower New River to Surf City. The 11-person crew collected 87.6 tons of debris that could be gathered without heavy equipment. This effort took 117 days to complete. Phase II, focused in the Swansboro area, collected 112.7 tons of debris with excavators and barges which took 45 days to compete. The marine debris recovered included household trash, plastic, cans, foam, fishing hear, tires, crab pots, building supplies, pressure treated wood, decking and pilings. There were 200.3 tons of debris removed from over 42 miles of coastal shoreline.

PUBLIC INPUT AND COMMENT

Matthew Gruenewald, Blackbeard Oyster Company, commented on the Commission's oyster lease general permit and requested that the Commission consider allowing floating structures and enclosed floating structures within the lease area.

OLD/NEW BUSINESS

Update on DEQ MOU with State Ports
Christine Goebel

Christy Goebel stated the Commission granted a variance to Petitioner North Carolina State Port Authority at its April 2019 meeting, conditioned on Petitioner agreeing to a Memorandum of Understanding (MOU) with the North Carolina Department of Environmental Quality outlining a

process for specific public and interagency engagement for any future plans, studies, and alternative analysis related to the expansion of NC Port facilities. The MOU between DEQ and the State Port Authority has been signed by DEQ. The NC Ports Executive Director is out of the country but has confirmed by email that he plans to sign the MOU upon his return.

Report from Commission's Committee on Elevated Structural Components in Setback
Robin Smith

Robin Smith stated the ad hoc Committee was appointed following a variance request before the CRC relating to an existing oceanfront house that did not meet the setback. In the variance petition, the owners requested approval of a plan to remove an upper deck from the structure and add a roof over the existing lower deck. The permit was denied because the house could not meet the setback and none of the existing exceptions in 7H .0309 applied to this situation. Following the variance request, Chair Cahoon requested that Commissioners Emory and Smith, along with Commission Counsel and DCM Counsel, consider whether these types of modifications should be allowed without a variance. Following several meetings, the Committee recommends that the Commission request staff prepare a draft amendment to 7H .0309 to allow roofs over the 500 square foot decks already allowed in the setback. There was consensus among the Commission to move forward and request staff prepare the proposed amendment.

Update on Inland Waters Boundary and CRC Jurisdictional Areas – Possible Changes
Mike Lopazanski

Mike Lopazanski stated earlier this year Gordon Myers, Director Wildlife Resources Commission (WRC), made a presentation about actions that the WRC was considering relative to the inland waters boundary which differentiates the jurisdictional areas of Marine Fisheries Commission (MFC) and WRC. The CRC's jurisdiction includes the Estuarine and Ocean System AEC (public trust areas, estuarine waters, coastal wetlands, and coastal shorelines), the Estuarine Shoreline AEC extends to the inlet waters, Public Trust Shoreline AEC extends the extent of navigability in CAMA counties, and all of these together comprise the Coastal Shoreline AEC. The CRC incorporates the dividing line between coastal fishing waters and inland fishing waters by reference in 15A NCAC 07H .0206, the definition of estuarine waters. The MFC and WRC jointly determine the boundaries that define North Carolina's inland, coastal, and joint fishing waters. DMF and WRC determine the boundaries and adopt regulations governing agency responsibilities in joint waters. A joint committee of WRC and MFC staff has met several times since January 2019 with staff developing proposals with the intention to reach agreement by November 2019. To date, the joint committee has not finished its work. Nevertheless, at the August 2019 WRC meeting, the WRC approved delineations based on long-term averages of salinity. WRC directed its staff to review the potential impacts and hold public input forums. MFC disagrees with WRC's delineations and will discuss the issue at its November meeting. This delineation will have an implication on CRC jurisdiction. There will be large changes to the Estuarine Shoreline AEC. There will be a reduction of jurisdictional area from 75' to a 30' buffer upstream of the inland waters boundary. The 30% impervious limitation will be reduced to the 30' buffer area and the jurisdiction is reduced in the Public Shoreline AEC. There are also implications to other State agencies and DEQ is concerned with less regulation of impervious surfaces upstream and the associated impacts on water quality and fish habitats.

2020 CRC Meeting Dates
The Commission approved the following dates for 2020 CRC Meetings:
February 12-13
April 8-9
June 10-11
September 9-10
November 18-19

PUBLIC HEARING
15A NCAC 7H .0304, 7H .0309, 7H .0313 – State Ports Inlet Management AEC
No public comments were received.

15A NCAC 7H .1900 – General Permit to Allow Temporary Structures Within Coastal Shorelines and Ocean Hazard AECs
No public comments were received.

With no further business, the CRC adjourned.
Respectfully submitted,

Braxton Davis, Executive Secretary

Angela Willis, Recording Secretary

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

November 6, 2019

CRC-19-32

TO: Coastal Resources Commission

FROM: Heather Coats, Beach & Inlet Management Project Coordinator, Wilmington Office

SUBJECT: Consideration of Public Comments and Adoption of State Ports Inlet Management Area of Environmental Concern (AEC)

In 2012, state legislation was passed that directed the CRC to study the feasibility of creating a new AEC for lands adjacent to the Cape Fear River. The Commission's study led to a more comprehensive study of all inlets, and one of the resulting recommended priorities of the Commission was to develop management objectives and use standards for a new AEC adjacent to the two inlets in North Carolina with federally maintained shipping channels, Beaufort Inlet and the Cape Fear River Inlet.

Staff first met with representatives from the adjacent local governments to solicit input regarding the application of current rules and new management strategies they believed were needed to address the unique circumstances experienced at these inlets. Discussion with the Village of Bald Head Island revolved around needs previously discussed as part of the Cape Fear River AEC Feasibility Study. The Village expressed an interest in more flexible sandbag rules- particularly the ability to protect dunes in addition to primary structures and infrastructure as well as the allowable location and size of sandbags and sandbag structures. They also stated that new rules for the AEC should advocate the beneficial use of dredged material as part of CZMA (Coastal Zone Management Act) federal consistency concurrence.

The discussion with representatives from the Town of Caswell Beach and the NC Baptist Assembly at Ft. Caswell primarily focused on the federal designation of Ft. Caswell as a national historic site and the need for more flexibility on the property to address erosion and other issues.

The main topic of discussion with Carteret County's Shore Protection Manager was beneficial use of beach-compatible dredged material and the limitations of the current federal Dredged Material Management Plan (DMMP) at Beaufort Inlet. Concerns were expressed that the US Army Corps of Engineers should not be allowed to degrade the inlet environment simply because of a lack of funding.

Over the first year of AEC rule development, discussion focused on the beneficial use rule language requiring beach-compatible dredged materials to be placed on active nearshore, beach or inlet shoal system and whether the rule should further require all sand be placed on adjacent beaches. Strong objections were received from the US Army Corps of Engineers (USACE) during that time, with the Corps reporting that removing flexibility could seriously jeopardize the continued operation of the NC State Port at Morehead City. Concerns were also raised by both the Department of Environmental Quality and the Department of Transportation. Following additional discussion with the USACE and other stakeholders, the beneficial use requirement was removed from the draft rule.

Other use standards developed for the AEC included allowing the use of geotextile tubes (or geotubes), allowing the use of temporary erosion control structures to protect frontal or primary dunes and infrastructure, and broadening the definition of what qualifies as "imminently threatened". All other rules applicable to ocean hazard areas would still apply. The Coastal Resources Advisory Council (CRAC) then discussed the remaining components of the draft AEC rule language, including the sandbag provisions, at the April and July 2015 meetings. They recommended the AEC definition clarify that the AEC includes the Cape Fear and Beaufort Inlets. The CRAC also recommended that a minimum sandbag size be specified, in accordance with current sandbag rule language. The draft rule language was updated to include these recommendations.

AEC boundaries were also proposed in accordance with updated inlet hazard area boundaries developed by the Commission's Science Panel in 2010. However, requests from the Brunswick County local governments to extend the AEC limits to encompass additional area within their jurisdictions were also presented to the Commission and the expanded areas were approved by the CRC.

The fiscal analysis was approved by OSBM in June 2019. Public hearings were held in Carteret County on July 17, 2019, Brunswick County on September 17, and in New Hanover County on September 18. The public comment period extended from July 1- September 18. No comments were made during the public hearings. One written comment was received from Southern Environmental Law Center (SELC) on behalf of the N.C. Coastal Federation and their members. The comments expressed the following three concerns: allowing frontal and primary dunes and infrastructure to be considered as imminently threatened could increase the use of sandbag structures which could thereby result in increased environmental impacts; that allowing the use of geotubes could increase beach erosion, and that the AEC boundaries were drawn arbitrarily and without regard to a science-based approach. The comments also asked the CRC to take into account the proposal to deepen and widen the Wilmington Port, which could increase erosion of the adjacent beaches and increase the demand for erosion control structures.

All temporary erosion control structures must still be located above mean high water (MHW) and in the areas in question, are typically covered with sand either through beach nourishment or by sand haul operation. Both Beaufort Inlet and Cape Fear Inlet are highly managed and engineered shorelines subject to Dredged Material Management Plans (DMMPs), through which the Town of Caswell Beach, the Village of Bald Head Island and Atlantic Beach regularly receive sand on their beaches from dredging of the federal channels. Additionally, the Village of Bald Head Island supplements the federal project through locally-funded beach nourishment.

Both inlets have been stabilized with hardened structures, including a geotube groinfield constructed on Bald Head Island in the 1990's, as well as a terminal groin built in 2015. A portion of the shoreline of Fort Caswell has a post- Civil War-era seawall and Fort Macon, adjacent to Beaufort Inlet, has multiple terminal groins stabilizing its shorelines. Additionally, it is believed that the local governments who could utilize these strategies generally have more incentive and resources to maintain geotubes than individual property owners. Structures that are not maintained will be subject to removal, in accordance with the current timing requirements. Finally, as stated earlier, the intent of the CRC is to recognize the highly managed nature of these two deep draft inlets and the influence of the federally mandated channels by way of additional considerations for erosion control structures, as established in the Inlet Management Study.

While staff recognizes the N.C. Coastal Federation's concerns, it is believed that the AEC and its use standards were developed in accordance with the local stakeholders' requests as well as in accordance with the intent and direction of the Commission. Therefore, staff recommends the Commission continue to approve the rules as proposed.

15A NCAC 7H .0304 is proposed for amendment as follows:

15A NCAC 07H .0304 AECS WITHIN OCEAN HAZARD AREAS

The ocean hazard AECs contain all of the following areas:

(1) Ocean Erodible Area. This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the first line of stable and natural vegetation as defined in ~~15A NCAC 07H .0305(a)(5)~~ Rule .0305(a)(5) of this Section to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 120 feet landward from the first line of stable natural vegetation. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data. The current long-term average erosion rate data for each segment of the North Carolina coast is depicted on maps entitled "2011 Long-Term Average Annual Shoreline Rate Update" and approved by the Coastal Resources Commission on May 5, 2011 (except as such rates may be varied in individual contested cases or in declaratory or interpretive rulings). In all cases, the rate of shoreline change shall be no less than two feet of erosion per year. The maps are available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at http://www.nccoastalmanagement.net.

(2) Inlet Hazard Area. The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets. This area extends landward from the mean low water line a distance sufficient to encompass that area within which the inlet migrates, based on statistical analysis, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet, and external influences such as jetties and channelization. The areas on the maps identified as suggested Inlet Hazard Areas included in the report entitled INLET HAZARD AREAS, The Final Report and Recommendations to the Coastal Resources Commission, 1978, as amended in 1981, by Loie J. Priddy and Rick Carraway are incorporated by reference and are hereby designated as Inlet Hazard Areas, except for:

~~(a) the Cape Fear Inlet Hazard Area as shown on the map does not extend northeast of the Bald Head Island marina entrance channel; and~~

~~(b) the former location of Mad Inlet, which closed in 1997.~~

(a) the location of a former inlet which has been closed for at least 15 years;

(b) inlets that due to shoreline migration, no longer include the current location of the inlet; and

(c) inlets providing access to a State Port via a channel maintained by the Unites States Army Corps of Engineers.

In all cases, the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area. This report is available for inspection at the Department of Environmental Quality, Division of Coastal Management, 400 Commerce Avenue, Morehead City, North Carolina or at the website referenced in Item (1) of this Rule. ~~Photocopies are available at no charge.~~

(3) Unvegetated Beach Area. Beach areas within the Ocean Hazard Area where no stable and natural vegetation is present may be designated as ~~an~~ Unvegetated Beach ~~Area~~ Areas on either a permanent or temporary basis as follows:

(a) An area appropriate for permanent designation as an Unvegetated Beach Area is a dynamic area that is subject to rapid unpredictable landform change due to wind and wave action. The areas in this category shall be designated following studies by the Division of Coastal Management. These areas shall be designated on maps approved by the Coastal Resources Commission and available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at the website referenced in Item (1) of this Rule.

(b) An area that is suddenly unvegetated as a result of a hurricane or other major storm event may be designated by the Coastal Resources Commission as an Unvegetated Beach Area for a specific period of time, or until the vegetation has re-established in accordance with ~~15A NCAC 07H .0305(a)(5).~~ Rule .0305(a)(5) of this Section. At the expiration of the time specified or the re-establishment of the vegetation, the area shall return to its pre-storm designation.

(4) State Ports Inlet Management Area. These are areas adjacent to and within Beaufort Inlet and the mouth of the Cape Fear River, providing access to a State Port via a channel maintained by the Unites States Army Corps of Engineers. These areas are unique due to the influence of federally-maintained channels, and the critical nature of maintaining shipping access to North Carolina's State Ports. These areas may require specific management strategies not warranted at other inlets to address erosion and shoreline stabilization. State Ports Inlet Management Areas shall extend from the mean low water line landward as designated on maps approved by the Coastal Resources Commission and available without cost from the Division of Coastal Management, and on the internet at the website referenced in Item (1) of this Rule.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1993; November 1, 1988; September 1, 1986; December 1, 1985;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. April 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;

Temporary Amendment Eff. October 22, 1997;

Amended Eff. June 1, 2019; July 1, 2016; September 1, 2015; May 1, 2014; February 1, 2013; January 1, 2010; February 1, 2006; October 1, 2004; April 1, 2004; August 1, 1998.

15 NCAC 07H .0309 is proposed for amendment as follows:

15A NCAC 07H .0309 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

(a) The following types of development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of ~~the Subchapter~~ this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;

(2) driveways and parking areas with clay, packed sand or gravel;

(3) elevated decks not exceeding a footprint of 500 square feet;

(4) beach accessways consistent with Rule .0308(c) of this ~~Subchapter;~~ Section;

(5) unenclosed, uninhabitable gazebos with a footprint of 200 square feet or less;

(6) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;

(7) temporary amusement stands;

(8) sand fences; and

(9) swimming pools.

In all cases, this development shall be permitted only if it is landward of the vegetation line or static vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; has overwalks to protect any existing dunes; is not essential to the continued existence or use of an associated principal development; is not required to satisfy minimum requirements of local zoning, subdivision or health regulations; and meets all other non-setback requirements of this Subchapter.

(b) Where application of the oceanfront setback requirements of Rule .0306(a) of this ~~Subchapter~~ Section would preclude placement of permanent substantial structures on lots existing as of June 1, 1979, buildings shall be permitted seaward of the applicable setback line in ocean erodible ~~areas,~~ areas and State Ports Inlet Management Areas, but not inlet hazard areas or unvegetated beach areas, if each of the following conditions are met:

(1) The development is set back from the ocean the maximum feasible distance possible on the existing lot and the development is designed to minimize encroachment into the setback area;

(2) The development is at least 60 feet landward of the vegetation line or static vegetation line, whichever is applicable;

(3) The development is not located on or in front of a frontal dune, but is entirely behind the landward toe of the frontal dune;

(4) The development incorporates each of the following design standards, which are in addition to those required by Rule .0308(d) of this ~~Subchapter.~~ Section.

(A) All pilings shall have a tip penetration that extends to at least four feet below mean sea level;

(B) The footprint of the structure shall be no more than 1,000 square feet, and the total floor area of the structure shall be no more than 2,000 square feet. For the purpose of this Section, roof-covered decks and porches that are structurally attached shall be included in the calculation of footprint;

(C) Driveways and parking areas shall be constructed of clay, packed sand or gravel except in those cases where the development does not abut the ocean and is located landward of a paved public street or highway currently in use. In those cases concrete, asphalt or turfstone may also be used;

(D) No portion of a building's total floor area, including elevated portions that are cantilevered, knee braced or otherwise extended beyond the support of pilings or footings, may extend oceanward of the total floor area of the landward-most adjacent building. When the geometry or orientation of a lot precludes the placement of a building in line with the landward most adjacent structure of similar use, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, static vegetation line or measurement line, whichever is applicable, a distance no less than 60 feet.

(5) All other provisions of this Subchapter and other state and local regulations are met. If the development is to be serviced by an on-site waste disposal system, a copy of a valid permit for such a system shall be submitted as part of the CAMA permit application.

(c) Reconfiguration and development of lots and projects that have a grandfather status under Paragraph (b) of this Rule shall be allowed provided that the following conditions are met:

(1) Development is setback from the first line of stable natural vegetation a distance no less than that required by the applicable exception;

(2) Reconfiguration shall not result in an increase in the number of buildable lots within the Ocean Hazard AEC or have other adverse environmental consequences.

For the purposes of this Rule, an existing lot is a lot or tract of land which, as of June 1, 1979, is specifically described in a recorded plat and which cannot be enlarged by combining the lot or tract of land with a contiguous lot(s) or tract(s) of land under the same ownership. The footprint is defined as the greatest exterior dimensions of the structure, including covered decks, porches, and stairways, when extended to ground level.

(d) The following types of water dependent development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) piers providing public access; and

(2) maintenance and replacement of existing state-owned bridges and causeways and accessways to such bridges.

(e) Replacement or construction of a pier house associated with an ocean pier shall be permitted if each of the following conditions is met:

(1) The ocean pier provides public access for fishing and other recreational purposes whether on a commercial, public, or nonprofit basis;

(2) Commercial, non-water dependent uses of the ocean pier and associated pier house shall be limited to restaurants and retail services. Residential uses, lodging, and parking areas shall be prohibited;

(3) The pier house shall be limited to a maximum of two stories;

(4) A new pier house shall not exceed a footprint of 5,000 square feet and shall be located landward of mean high water;

(5) A replacement pier house may be rebuilt not to exceed its most recent footprint or a footprint of 5,000 square feet, whichever is larger;

(6) The pier house shall be rebuilt to comply with all other provisions of this Subchapter; and

(7) If the pier has been destroyed or rendered unusable, replacement or expansion of the associated pier house shall be permitted only if the pier is being replaced and returned to its original function.

(f) In addition to the development authorized under Paragraph (d) of this Rule, small scale, non-essential development that does not induce further growth in the Ocean Hazard Area, such as the construction of single family piers and small scale erosion control measures that do not interfere with natural oceanfront processes, shall be permitted on those non-oceanfront portions of shoreline that exhibit features characteristic of an Estuarine Shoreline. Such features include the presence of wetland vegetation, and lower wave energy and erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200 and 15A NCAC 07K .0203.

(g) Transmission lines necessary to transmit electricity from an offshore energy-producing facility may be permitted provided that each of the following conditions is met:

(1) The transmission lines are buried under the ocean beach, nearshore area, and primary and frontal dunes, all as defined in Rule ~~07H .0305,~~ .0305 of this Section, in such a manner so as to ensure that the placement of the transmission lines involves no alteration or removal of the primary or frontal dunes; and

(2) The design and placement of the transmission lines shall be performed in a manner so as not to endanger the public or the public's use of the beach.

(h) Existing stormwater outfalls within the Ocean Hazard AEC that are owned or maintained by a State agency or local government, may be extended oceanward subject to the provisions contained within 15A NCAC 07J .0200. Outfalls may be extended below mean low water, and may be maintained in accordance with 15A NCAC 07K .0103. Shortening or lengthening of outfall structures within the authorized dimensions, in response to changes in beach width, is considered maintenance under 15A NCAC 07K .0103. Outfall extensions may be marked with signage, and shall not prevent pedestrian or vehicular access along the beach. This Paragraph does not apply to existing stormwater outfalls that are not allowed or maintained by a State agency or local government.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d; 113A-124;*
Eff. February 2, 1981;
Amended Eff. June 1, 2019; June 1, 2010; February 1, 2006; September 17, 2002 pursuant to S.L. 2002-116; August 1, 2000; August 1, 1998; April 1, 1996; April 1, 1995; February 1, 1993; January 1, 1991; April 1, 1987.

15A NCAC 07H .0313 is proposed for adoption as follows:

15A NCAC 07H .0313 USE STANDARDS FOR STATE PORTS INLET MANAGEMENT AREAS

Development within State Ports Inlet Management areas, as defined by Rule .0304 of this Section, shall be permitted in accordance with the following standards:

(a) All development in the State Ports Inlet Management Areas shall be set back from the first line of stable and natural vegetation, static vegetation line, or measurement line at a distance in accordance with Rule .0305(a)(5) of this Section, except for development exempted under Rule .0309 of this Section.

(b) Notwithstanding the use standards for temporary erosion control structures described in Rule .0308(a)(2) of this Section, a local government may apply for a permit to seek protection of an imminently threatened frontal or primary dune, public and private structures and/or infrastructure within a State Ports Inlet Management Area. For the purpose of this Rule, a frontal or primary dune, structure, or infrastructure shall be considered imminently threatened in a State Ports Inlet Management Area if:

(1) its foundation, septic system, right-of-way in the case of roads, or waterward toe of dune is less than 20 feet away from the erosion scarp; or

(2) site conditions, such as flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure as determined by the Director of the Division of Coastal Management; or

(3) the frontal or primary dune or infrastructure will be imminently threatened within six months as certified by persons meeting all applicable State occupational licensing requirements; or

(4) the rate of erosion from the erosion scarp or shoreline within 100 feet of the infrastructure, structure, frontal or primary dune was greater than 20 feet over the preceding 30 days.

Permit applications to protect property where no structures are imminently threatened require consultation with the US Army Corps of Engineers.

(c) Temporary erosion control structures constructed by a local or state government shall have a base width not exceeding 20 feet, and a height not to exceed six feet. Individual sandbags shall be tan in color and be a minimum of three feet wide and seven feet in length when measured flat.

(d) Established common-law and statutory public rights of access to the public trust lands and waters in State Ports Inlet Management Areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the intended use of the accessways.

(e) Except where inconsistent with the above standards, all other rules in this Subchapter pertaining to development in the ocean hazard areas shall be applied to development within the State Ports Inlet Management Areas.

(f) In addition to the types of development excepted under Rule .0309 of this Section, small-scale, non-essential development that does not induce further growth in the State Ports Inlet Management Areas, such as the construction of single-family piers and small-scale erosion control measures that do not interfere with natural inlet movement, may be permitted on those portions of shoreline within a designated State Ports Inlet Management Area that exhibit features characteristic of Estuarine Shoreline. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under

the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small-scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100 and .1200.

History Note: *Authority G.S. 113A-107, 113A-107.1; 113A-113; 113A-124;*
Eff. June 1, 2019.

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September 17, 2019

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Re: Comments on the N.C. Coastal Resources Commission's Proposed State Ports Inlet Management AEC Designation and Use Standards

Dear Dr. Davis,

The Southern Environmental Law Center ("SELC") submits these comments on behalf of the N.C. Coastal Federation and the thousands of members they represent, regarding the N.C. Coastal Resources Commission's ("CRC") proposed amendments to 15A N.C. Admin. Code 07H .0304 and .0309, and proposed rule for adoption at 15A N.C. Admin. Code 07H .0313.[1] These proposals designate a new Area of Environmental Concern ("AEC") for lands adjacent to the Cape Fear River and Beaufort Inlets— known as the "State Ports Inlet Management" AEC— and create new management standards in these areas which would extend greater flexibility to local and state agencies in the use of sandbags and geotubes to protect dunes and infrastructure.

North Carolina has long recognized inlets as one of the State's most dynamic coastal features. The proposed regulations do not reflect the sensitive and constantly-changing nature of this coastal landscape or anticipated changes in sea levels. We write to express concern with the proposed standards that would govern the use of erosion control methods in these areas and the arbitrary nature by which the boundaries for these areas appear to have been drawn.

The proposed rules could lead to increased use of hardened erosion control measures adjacent to these ecologically sensitive areas, by broadening the definition of structures "imminently threatened" by erosion. More hardened structures would almost certainly accelerate erosion in these areas that are already vulnerable to sea level rise and storm damage. We urge the CRC and DCM to prioritize softer erosion control methods over hardened methods, which could be equally effective and less harmful, over hard structures like sandbags.

I. Background

North Carolina's inlets serve as channels through the State's barrier island system, connecting the open ocean to the sound. Inlets are an important feature of barrier island coasts. They facilitate the exchange of sediment, fresh water, and salt water that is necessary for the

[1] Proposal text, related fiscal analyses, and other files are available at *State Ports Inlet Management AEC*, N.C. DEP'T OF ENVTL. QUALITY (DEQ) (Feb. 22, 2018), https://deq.nc.gov/documents/state-ports-inlet-management-aec.

health and function of North Carolina's estuaries.[2] They are also important elements of the State's economy, facilitating navigation, improving water quality, and supporting recreation, trade, and fishing.[3]

Shorelines adjacent to inlets behave much differently than the rest of the coastline. Inlet shorelines are constantly moving under powerful, combined natural forces like tides, winds, currents, and waves. Ocean inlet systems are highly dynamic balances, with waves and currents persistently attempting to "fill in" the gaps with sand, while tidal currents and periodic storms oppose these forces by constantly trying to enlarge the opening. As a result of this persistent accretion and erosion, inlets are in a constant and unpredictable state of flux. These changes may occur slowly over many years, or suddenly, such as after a storm event.[4]

Inlet dynamics affect not only the shorelines inside the inlet but also the oceanfront shorelines nearby, sometimes even at some distance from the inlet. On North Carolina's coast, oceanfront beaches near inlets erode approximately five times faster than oceanfront beaches not influenced by inlets, at an average rate of 4.3 feet per year.[5]

North Carolina's coastal management framework has recognized the importance of prudent inlet management for over four decades. The State's longstanding reliance on inlet channels for navigation, trade, fishing, and recreation has presented the State with some challenging coastal management decisions, as inlets are not fixed in space or time. The CRC has recognized that "dynamic ocean inlets" are exceptionally difficult to regulate by establishing the Inlet Hazard Area ("IHA") AEC in 1977.[6] An AEC is a region of the coast with specific natural importance designated by the CRC which require more tailored coastal regulations.[7] To regulate the use of inlet stabilization methods and the development near inlets, the CRC adopted use standards specific to IHAs, codified at 15A N.C. Admin. Code 7H .0305. The IHA boundaries in use today were adopted by the CRC in 1979, as amended in 1981.[8] In February 2019, the

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[2] David J. Mallinson et al., *Past, Present, and Future Inlets of the Outer Banks Barrier Islands, North Carolina* (White Paper), N.C. COASTAL GEOLOGY COOP. RES. PROGRAM (Dec. 2008), at 1-2, http://core.ecu.edu/geology/mallinsond/PP&F%20Inlet%20Book.pdf.

[3] *Inlet Hazard Area Boundary, 2019 Update: Science Panel Recommendations to the North Carolina Coastal Resources Commission*, N.C. COASTAL RES. COMM'N'S (CRC) SCI. PANEL ON COASTAL HAZARDS & N.C. DIV. OF COASTAL MGMT. (DCM) (Feb. 12, 2019), at 8, https://files.nc.gov/ncdeq/Coastal%20Management/GIS/2019_Inlet_Hazard_Area_Boundary_Update_20190212.pdf [hereinafter "2019 IHA Boundary Update"].

[4] For animations showing the movement of North Carolina's inlets through time, see *Shifting Shorelines: Inlet Atlas*, N.C. SEA GRANT (last visited Sep. 13, 2019), https://ncseagrant.ncsu.edu/program-areas/coastal-hazards/inlet-atlas/.

[5] 2019 IHA Boundary Update, *supra* note 3.

[6] 15A N.C. ADMIN. CODE 7H.0304(2) ("The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets.").

[7] The CRC has organized the AECs into four categories: (1) the Estuarine and Ocean System; (2) the Ocean Hazard System; (3) Public Water Supply AECs; and (4) Natural & Cultural Resource AECs. The Inlet Hazard Area AEC falls within the Ocean Hazard System. *See CAMA Handbook for Coastal Development*, N.C. DCM (Apr. 2014), https://files.nc.gov/ncdeq/Coastal%20Management/documents/PDF/CAMA/CAMA%20Handbook%202014%20edition%20printable.pdf, at § 2.

[8] 2019 IHA Boundary Update, *supra* note 3, at 9.

Science Panel for the Coastal Resources Commission proposed a long-overdue update that includes boundaries for ten of North Carolina's nineteen active inlets.[9]

In 2012, the N.C. General Assembly directed the CRC to "study the feasibility of creating new [AEC] for the lands adjacent to the mouth of the Cape Fear River."[10] The intent of this directive was to:

> consider the unique coastal morphologies and hydrographic conditions of the Cape Fear River region, and to determine if action was necessary to preserve, protect, and balance the economic and natural resources of this region through the elimination of overlapping AECs and by incorporating appropriate development standards into one single AEC unique to this location.[11]

That feasibility study found that the coastal dynamics of the Cape Fear River inlet may not be unique to only that area and thus recommended completing a more inclusive study of all inlets in the state. The "Inlet Management Study" was then undertaken in 2014, which established numerous goals, one of which was to create a new, separate AEC category for the areas adjacent to the state's two ports—the Cape Fear River and Beaufort Inlets.[12] Later in 2014, the legislature directed the CRC to repeal the IHA designation at inlets providing access to a State Port via a channel maintained by the U.S. Army Corps of Engineers (i.e., Cape Fear River and Beaufort Inlets).[13] These areas were thereby removed from the IHA designation but remained within the "Ocean Erodible" AEC.[14] At present, the CRC is proposing to formalize the creation of a new "State Ports Inlet Management" AEC for lands adjacent to the Cape Fear River and Beaufort Inlets and create unique management objectives and use standards for this new AEC category.

The two State Ports Inlet Management AECs on either side of Beaufort Inlet consist of state and federal lands within Fort Macon State Park to the west and the westernmost portion of Cape Lookout National Seashore (i.e., Shackleford Banks) to the east. The proposed AECs on either side of the Cape Fear River Inlet consist of the entire oceanfront shoreline of Caswell Beach and the areas known as "West Beach" and "South Beach" on Bald Head Island.[15] The new use standards would allow local and state agencies greater flexibility to use of sandbags to protect threatened frontal and primary dunes, structures, and infrastructure.

II. Discussion

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[9] *See generally id.* SELC and N.C. Coastal Federation will address the proposed boundary changes to the IHAs and amended associated use standards when the full proposal is out for public comment.

[10] S.L. 2012-202, The Act to Study and Modify Certain Coastal Management Policies, Section 4.

[11] Heather Coats, *Fiscal Analysis: State Ports Inlet Management Area of Concern*, N.C. DCM (Nov. 15, 2018), at 1 (on file with the CRC) [hereinafter "Fiscal Analysis"].

[12] *See Inlet Management Study*, N.C. DCM (last visited Sep. 12, 2019), https://deq.nc.gov/about/divisions/coastal-management/coastal-resources-commission/inlet-management-study.

[13] N.C. Sess. Laws. 2014-120, An Act To Provide Further Regulatory Relief To The Citizens Of North Carolina By Providing For Various Administrative Reforms, By Eliminating Certain Unnecessary Burdens Or Outdated Statutes And Regulations and Modernizing Or Simplifying Cumbersome Or Outdated Regulations, And By Making Various Other Statutory Changes, § 35.(c)(3) (2014).

[14] Fiscal Analysis, *supra* note 11, at 2.

[15] *Id.*

SELC understands that parts of these proposals are a result of legislative mandate. Therefore in this section we will only discuss our concerns with the following changes not resulting from the abovementioned legislation:

- Allowing infrastructure and frontal and primary dunes to be classified as "imminently threatened" and broadening the definition of how such structures may qualify as being imminently threatened in the State Ports Inlet Management AEC, allowing local or state agencies more flexibility in the use of sandbags;
- Allowing for the use of geotubes in State Ports Inlet Management AECs;
- Arbitrarily drawing the geographic boundaries that define the new State Ports Inlet Management AEC.

The new rules would allow greater flexibility to local and state agencies in the use of sandbags to protect threatened public or private frontal and primary dunes, structures, and infrastructure. DCM currently issues permits for sandbags pursuant to use standards which limit sandbags to protection of "imminently threatened" structures (i.e., buildings, roads, and septic systems).[16] Sandbags are not currently allowed to protect dunes or habitat. The proposed amendments would allow local governments or state agencies to apply for permits to protect frontal or primary dunes as well as structures and infrastructure within the new AEC by changing the definition of what can be classified as "imminently threatened."

Since 1996, DCM has permitted 17 sandbag projects on Caswell Beach and Bald Head Island, and no sandbags adjacent to Beaufort Inlet.[17] Ten of these were permits were placed to protect private property, while the rest were issued to local governments to protect roadways and infrastructure.[18] In its fiscal analysis of the proposed rules, DCM assures that "the number of permits issued may increase, but any attempt to estimate a number of permits by the division would be speculative since the action would be dependent upon erosion events and the intentions of local governments."[19] This assessment completely ignores the current projected erosion rates for these areas.

Rising sea levels will continue to increase erosion rates along the coast.[20] Changes in wave action along the coast, combined with intensifying storms fueled by climate change, have led to dramatic shifts in longshore sediment transport gradients.[21] Average erosion rates along the Wilmington area beaches, for example, appear to be between 4 and 6 feet per year.[22] Cape Lookout National Seashore, adjacent to Beaufort Inlet is eroding at rates ranging from 1 to 7 feet per year.[23] The impact of rising seas becomes even more powerful when storm surge or rainfall

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[16] *Id.* at 3.
[17] *Id.* at 7.
[18] *Id.*
[19] *Id.*
[20] *See* Stephen P. Leatherman et al., *Sea level rise shown to drive coastal erosion*, EOS TRANSACTIONS AM. GEOPHYSICAL UNION (Feb. 8, 2000); Roshanka Ranasinghe et al., *Climate change impact assessment for inlet-interrupted coastlines*, NATURE CLIMATE CHANGE (Sep. 2, 2012).
[21] Jennifer M. Johnson et al., *Recent shifts in coastline change and shoreline stabilization linked to storm climate change*, EARTH SURFACE PROCESSES & LANDFORMS (Apr. 2015).
[22] Online GIS Layer, *DCM Oceanfront Setback Factors (2019)*, N.C. DCM (Mar. 19, 2019) https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=f5e463a929ed430095e0a17ff803e156
[23] *Id.*

is added on top of a higher tide, therefore it is crucial to consider storm surge and rainfall vulnerabilities in addition to sea level rise. Storms are already becoming more intense as a result of changing climate.[24] Under these future scenarios, is likely that DCM will see an increase in the demand for sandbags, and the proposed rules make sandbag use even more likely.

The construction of more hardened structures, including sandbags, on the beachfront harms the health of the beach system, disrupts the natural movement of inlets, and hinders adaptation in the face of the rising seas.[25] Research has shown that shoreline armoring, including placing sandbags in place for long periods of time, inhibits natural coastal processes and worsens erosional forces by creating scouring, wave reflection, and downdrift erosion.[26] Shoreline stabilization can drastically change the way a cuspate cape coastline, such as that of North Carolina, responds to a shift in wave energy. Even isolated areas of shoreline stabilization have the potential to worsen the erosional effects of sea level rise.[27] Where hard stabilization methods like sandbags are installed, the eventual loss of the beach and its associated habitats is virtually inevitable. In fact, according to best management practices recommended to the U.S. Fish and Wildlife Service ("FWS"),

> Due to their incredible ecological significance and the significant adverse environmental impacts that hard stabilization generates, inlets should not be stabilized with jetties, terminal groins, revetments, riprap, geotubes, sandbags or any other hard structure. The cumulative impacts of inlet...manipulation along the Atlantic and Gulf coasts of the U.S. already are significant and adverse...[28]

It is therefore in the long-term interest of the community, the state, and the ecosystem to rigorously assess alternatives that do not involve shoreline armoring.

Hardened structures can also be detrimental to coastal wildlife. Female sea turtles attempting to nest on beaches armored with sandbags or geotubes have been shown to abandon their nest attempts at higher rates than those attempting to nest on natural beaches.[29] Notably, the four beaches adjacent to the two proposed State Ports Inlet Management AECs—Bald Head Island, Caswell Beach, Fort Macon State Park, and Shackleford Banks—all serve as important sea turtle nesting habitat. North Carolina is home to five species of sea turtle, including the federally threatened loggerhead turtle. Three of the four beaches of concern here (excluding

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[24] D.R. Easterling et al., *Precipitation Change in the United States*, *in* CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME I, 207-230 (Donald J. Wuebbles et al. eds., 2017).

[25] Jennifer Miselis & Jorge Lorenzo Trueba, *Natural and human-induced variability in barrier-island response to sea level rise*, GEOPHYSICAL RES. LETTERS (Dec. 11, 2017).

[26] Tomas Beuzen et al., *Physical model study of beach profile evolution by sea level rise in the presence of seawalls*, COASTAL ENGINEERING (Jun. 2018); Kenneth Ells & A. Brad Murray, *Long-term, non-local coastline responses to local shoreline stabilization*, GEOPHYSICAL RES. LETTERS (Oct. 2, 2012).

[27] Jordan M. Slott et al., *Large-scale responses of complex-shaped coastlines to local shoreline stabilization and climate change*, J. GEOPHYSICAL RES. (Sep. 16, 2010).

[28] Tracy Monegan Rice, *Best Management Practices for Shoreline Stabilization to Avoid and Minimize Adverse Environmental Impacts*, TERWILLIGER CONSULTING, INC. (Nov. 2009), https://www.fws.gov/charleston/pdf/PIPL/BMPs%20For%20Shoreline%20Stabilization%20To%20Avoid%20And%20Minimize%20Adverse%20Environmental%20Impacts.pdf

[29] Blair Witherington et al., *Sea turtle responses to barriers on their nesting beach*, J. EXPERIMENTAL MARINE BIOLOGY & ECOLOGY (2011).

Shackleford Banks) have been designated as terrestrial critical habitat for nesting loggerheads.[30] Caswell Beach and Bald Head Island see the third and fourth highest annual nesting density, respectively, of any beach in the State, with an average of 120 nests laid along the 16 miles of beach per year.[31] In 2019, these two beaches saw a record 272 nests laid. Sea turtles are iconic elements of the tourism industry in North Carolina. On Bald Head Island, sea turtle viewing activities bring in as much as $30 million per year in tourism spending.[32]

In addition, portions of Shackleford Banks—adjacent to Beaufort Inlet—are designated as critical habitat for the federally threatened piping plover.[33] North Carolina is the only state where the piping plover's breeding and wintering ranges overlap and where the birds are present year-round.[34] The installation of hard structures like sandbags degrades, destroys, and fragments beachfront piping plover habitat throughout its wintering range.[35] Therefore, the increased use of sandbags in these important sea turtle and piping plover habitats is of great concern.

Furthermore, we are concerned that the proposed regulations will make it easier for local governments and state agencies to use geotubes. While proponents of geotube systems tout the potential benefits of this erosion control method, the impacts of these structures on the beachfront must also be acknowledged. A review of alternative erosion control structures found that geotubes were likely to cause erosion to the beaches in front of the tube structures.[36] Additionally, maintaining enough sand on the beach profile for a geotube to remain intact can be a costly effort, and the structures can be destroyed when exposed to storm surge.[37] In application, geotubes are another form of hard shoreline armoring, which disrupt coastal processes and can concentrate erosional forces onto the beach.[38]

As a general matter, we are concerned about the way the State Ports Inlet Management AEC boundaries were drawn because of the expected increase in the use of harmful hardened control structures within these boundaries. It is not clear how the CRC arrived at the proposed boundaries. We oppose drawing lines arbitrarily and recommend the CRC take a consistent, science-based approach to delineating the new AEC boundaries, like the one that was used to update the IHA boundaries this year, to ensure that the boundaries are not over-inclusive.[39]

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[30] 79 Fed. Reg. 39755 (Aug. 11, 2014).
[31] *Sea Turtle Nest Monitoring System,* N.C. WILDLIFE RES. COMM'N (last visited Sep. 12, 2019), http://www.seaturtle.org/nestdb/?view=1.
[32] Kate Elizabeth Queram, *Report – Sea Turtles Have Economic Impact*, STAR NEWS (Dec. 4, 2013), http://www.starnewsonline.com/news/20131204/report---sea-turtles-have-economic-impact.
[33] 73 Fed. Reg. 62816 (Oct. 21, 2008); *see also* 66 Fed. Reg. 36038 (July 10, 2011).
[34] Fact Sheet, *Showcase Species: Southeast – Piping Plover in the Southeast*, NAT'L WILDLIFE FED'N, https://www.nwf.org/~/media/PDFs/Wildlife/SE-PipingPlover.ashx.
[35] Melissa Bimbi et al., *Comprehensive Conservation Strategy for the Piping Plover (*Charadrius melodus*) in its Coastal Migration and Wintering Range in the Continental United States*, U.S. FISH & WILDLIFE SERV. (Dec. 2012), https://www.fws.gov/midwest/endangered/pipingplover/pdf/CCSpiplNoApp2012.pdf.
[36] Orrin H. Pilkey & J. Andrew G. Cooper, *"Alternative" Shoreline Erosion Control Devices: A Review, in* PITFALLS OF SHORELINE STABILIZATION, 187-214 (A.G. Cooper & O.H. Pilkey eds., 2012).
[37] James C. Gibeaut et al., *Geotubes for temporary erosion control and storm surge protection along the Gulf of Mexico Shoreline of Texas*, PROC.13TH BIENNIAL COASTAL ZONE CONFERENCE (Jul. 13, 2003), http://www.beg.utexas.edu/coastal/presentations_reports/geotubes_temperosion.pdf.
[38] Ells & Murray, *supra* note 26.
[39] *See* 2019 IHA Boundary Update, *supra* note 3, at § 2.

Finally, when considering the proposed rules, the CRC must take into account the proposal to deepen and widen the Wilmington Port, which overlaps the Cape Fear River Inlet.[40] It is highly likely that these activities will increase erosion of the beaches inside and adjacent to the inlet, which will further increase the demand for erosion control structures like sandbags and geotubes. We urge the CRC to consider other projects such as this when developing the use standards within the State Ports Inlet Management AECs.

Thank you for your consideration of these comments.

Sincerely,

Blakely E. Hildebrand
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Melissa L. Whaling
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On behalf of:

N.C. Coastal Federation
Ana Zivanovic-Nenadovic
Senior Policy Analyst

[40] Lynda Van Kuren, *Port Officials Review Expansion Study Draft*, COASTAL REV. ONLINE (Aug. 28, 2019), https://www.coastalreview.org/2019/08/port-officials-review-expansion-study-draft/.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

CRC-19-33

October 29, 2019

MEMORANDUM

TO: Coastal Resources Commission
FROM: Mike Lopazanski
SUBJECT: Consideration of Public Comment & Adoption of 15A NCAC 7H .0309 – Extension of Ocean Stormwater Outfalls

In response to a request from the Town of Nags, first the CRAC and then the Commission began consideration of rulemaking related to the extension of existing ocean outfalls in conjunction with a beach nourishment project. Under existing rules, ocean outfalls are considered development and are not authorized as exceptions to rules prohibiting development seaward of the applicable setback or first line of stable and natural vegetation. However, existing outfalls (26 structures) are currently "grandfathered," having been installed prior to subsequent limitations on oceanfront development under your rules. While grandfathered, the rules do not allow for extension of existing outfalls since any expansion is also considered new development and requires a variance to be issued by the Commission, as has been done in the past. This creates a hardship and potential public safety hazard when beaches are widened through beach nourishment. During discussions with the CRAC, it was suggested that there be an allowance for lengthening and shortening of existing outfall pipes within authorized dimensions, including routine maintenance and repairs due to weather exposure or storm damage.

NCDOT, the Division of Water Resources and Shellfish Sanitation's Recreational Water Quality program were consulted on this issue and all were supportive of providing local governments with the ability to extend existing outfalls without requiring a Commission variance. Shellfish Sanitation specifically reported that if the outfalls could not be removed, extending them further past the swimming zone would be a public health benefit.

Under the proposed amendments, requests for extensions will be reviewed through the CAMA Major Permitting process by the appropriate state and federal agencies. Once a permit is approved, NCDOT or the local government may extend or shorten the outfall within the permitted dimensions without the need for a new permit application each time. The proposed amendments will:

- Authorize shortening or lengthening outfall structures within the authorized dimensions will be considered maintenance under 15A NCAC 07K .0103.
- Allow extension of outfalls below mean low water
- Shortening or lengthening outfall structures within authorized dimensions, in response to changes in beach width, as a maintenance activity.
- Prohibit outfall extensions that prevent pedestrian or vehicular access along the beach.
- Only apply to existing stormwater outfalls that are owned or maintained a state agency or local government.

The public comment period ran from July 17 to September 18, 2019 with public hearings held on September 17th and 18th. The Division received one objection from the NC Coastal Federation (attached) due to concerns that stormwater runoff degrades water quality, causes health problems, and that dune infiltration systems could be designed and implemented by the public works department of coastal towns. An existing dune stormwater infiltration system in the Town of Kure Beach was cited as an example of an innovative design. The NC Coastal Federation further stated that while extension of outfalls might be the only practical alternative due to site specific conditions, the Commission should encourage local agencies to "consider all practical alternatives before simply allowing pipes to be extended in length;" "encourage through its permit process that the applicants install the best environmental alternative while taking into account its cost-effectiveness;" "retrofit the existing outfalls with the goal of protecting and improving coastal water quality;" and "keep the public agencies and private landowners at the same standard rather than setting a lower bar for the agencies by allowing them to move the outfalls farther into the ocean."

The Coastal Federation proposed specific alternative rule language as follows:
"(h) Existing stormwater outfalls within the Ocean Hazard AEC that are owned and maintained by a State or local government agency, may be modified subject to the provisions contained within 15A NCAC O7J.0200, as well as applicable state and federal water quality requirements. The applicant shall identify practical alternatives of modifications it has considered and demonstrate that it has selected an alternative that best protects water quality as well as public health and safety. Alternatives that shall be considered include upstream watershed retrofits that reduce the volume of stormwater being discharged
by the outfall, dune and beach infiltration systems, and/or extending the length of the outfall."

The Kure Beach infiltration system project referenced the Nc Coastal Federation required the Town to obtain a variance from the Commission, as the proposed work was inconsistent with the oceanfront setback and static line. The Division supported the Town's petition and the Commission granted the variance in 2008. Given the support of the Division of Water Resources, NC DOT and Shellfish Sanitation for the currently proposed amendments and that the Division will continue to be supportive of local initiatives to address alternatives strategies for existing outfalls, Staff recommend adoption of the proposed amendments. The proposed effective date of this amendment is February 1, 2020.

PROPOSED AMENDMENT TO 15A NCAC 7H .0309 - OCEAN STORMWATER OUTFALLS

15A NCAC 07H .0309 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

(a) The following types of development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of ~~the Subchapter~~ this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;
(2) driveways and parking areas with clay, packed sand or gravel;
(3) elevated decks not exceeding a footprint of 500 square feet;
(4) beach accessways consistent with Rule .0308(c) of this ~~Subchapter;~~ Section;
(5) unenclosed, uninhabitable gazebos with a footprint of 200 square feet or less;
(6) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;
(7) temporary amusement stands;
(8) sand fences; and
(9) swimming pools.

In all cases, this development shall be permitted only if it is landward of the vegetation line or static vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; has overwalks to protect any existing dunes; is not essential to the continued existence or use of an associated principal development; is not required to satisfy minimum requirements of local zoning, subdivision or health regulations; and meets all other non-setback requirements of this Subchapter.

(b) Where application of the oceanfront setback requirements of Rule .0306(a) of this ~~Subchapter~~ Section would preclude placement of permanent substantial structures on lots existing as of June 1, 1979, buildings shall be permitted seaward of the applicable setback line in ocean erodible areas, but not inlet hazard areas or unvegetated beach areas, if each of the following conditions are met:

(1) The development is set back from the ocean the maximum feasible distance possible on the existing lot and the development is designed to minimize encroachment into the setback area;
(2) The development is at least 60 feet landward of the vegetation line or static vegetation line, whichever is applicable;
(3) The development is not located on or in front of a frontal dune, but is entirely behind the landward toe of the frontal dune;
(4) The development incorporates each of the following design standards, which are in addition to those required by Rule .0308(d) of this ~~Subchapter.~~ Section.
    (A) All pilings shall have a tip penetration that extends to at least four feet below mean sea level;
    (B) The footprint of the structure shall be no more than 1,000 square feet, and the total floor area of the structure shall be no more than 2,000 square feet. For the purpose of this Section, roof-covered decks and porches that are structurally attached shall be included in the calculation of footprint;
    (C) Driveways and parking areas shall be constructed of clay, packed sand or gravel except in those cases where the development does not abut the ocean and is located landward of a paved public street or highway currently in use. In those cases concrete, asphalt or turfstone may also be used;
    (D) No portion of a building's total floor area, including elevated portions that are cantilevered, knee braced or otherwise extended beyond the support of pilings or footings, may extend oceanward of the total floor area of the landward-most adjacent building. When the geometry or orientation of a lot precludes the placement of a building in line with the landward most adjacent structure of similar use, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, static vegetation line or measurement line, whichever is applicable, a distance no less than 60 feet.
(5) All other provisions of this Subchapter and other state and local regulations are met. If the development is to be serviced by an on-site waste disposal system, a copy of a valid permit for such a system shall be submitted as part of the CAMA permit application.

(c) Reconfiguration and development of lots and projects that have a grandfather status under Paragraph (b) of this Rule shall be allowed provided that the following conditions are met:

(1) Development is setback from the first line of stable natural vegetation a distance no less than that required by the applicable exception;
(2) Reconfiguration shall not result in an increase in the number of buildable lots within the Ocean Hazard AEC or have other adverse environmental consequences.

For the purposes of this Rule, an existing lot is a lot or tract of land which, as of June 1, 1979, is specifically described in a recorded plat and which cannot be enlarged by combining the lot or tract of land with a contiguous lot(s) or tract(s) of land under the same ownership. The footprint is defined as the greatest exterior dimensions of the structure, including covered decks, porches, and stairways, when extended to ground level.

(d) The following types of water dependent development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) piers providing public access; and
(2) maintenance and replacement of existing state-owned bridges and causeways and accessways to such bridges.

(e) Replacement or construction of a pier house associated with an ocean pier shall be permitted if each of the following conditions is met:

(1) The ocean pier provides public access for fishing and other recreational purposes whether on a commercial, public, or nonprofit basis;
(2) Commercial, non-water dependent uses of the ocean pier and associated pier house shall be limited to restaurants and retail services. Residential uses, lodging, and parking areas shall be prohibited;
(3) The pier house shall be limited to a maximum of two stories;
(4) A new pier house shall not exceed a footprint of 5,000 square feet and shall be located landward of mean high water;
(5) A replacement pier house may be rebuilt not to exceed its most recent footprint or a footprint of 5,000 square feet, whichever is larger;
(6) The pier house shall be rebuilt to comply with all other provisions of this Subchapter; and
(7) If the pier has been destroyed or rendered unusable, replacement or expansion of the associated pier house shall be permitted only if the pier is being replaced and returned to its original function.

(f) In addition to the development authorized under Paragraph (d) of this Rule, small scale, non-essential development that does not induce further growth in the Ocean Hazard Area, such as the construction of single family piers and small scale erosion control measures that do not interfere with natural oceanfront processes, shall be permitted on those non-oceanfront portions of shoreline that exhibit features characteristic of an Estuarine Shoreline. Such features include the presence of wetland vegetation, and lower wave energy and erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200 and 07K .0203.

(g) Transmission lines necessary to transmit electricity from an offshore energy-producing facility may be permitted provided that each of the following conditions is met:

(1) The transmission lines are buried under the ocean beach, nearshore area, and primary and frontal dunes, all as defined in Rule ~~07H .0305,~~ .0305 of this Section, in such a manner so as to ensure that the placement of the transmission lines involves no alteration or removal of the primary or frontal dunes; and
(2) The design and placement of the transmission lines shall be performed in a manner so as not to endanger the public or the public's use of the beach.

(h) Existing stormwater outfalls within the Ocean Hazard AEC that are owned or maintained by a State agency or local government, may be extended oceanward subject to the provisions contained within 15A NCAC 07J .0200. Outfalls may be extended below mean low water, and may be maintained in accordance with 15A NCAC 07K .0103. Shortening or lengthening of outfall structures within the authorized dimensions, in response to changes in beach width, is considered maintenance under 15A NCAC 07K .0103. Outfall extensions may be marked with signage, and shall not prevent pedestrian or vehicular access along the beach. This Paragraph does not apply to existing stormwater outfalls that are not owned or maintained by a State agency or local government.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d; 113A-124;*
Eff. February 2, 1981;

Amended Eff. June 1, 2010; February 1, 2006; September 17, 2002 pursuant to S.L. 2002-116; August 1, 2000; August 1, 1998; April 1, 1996; April 1, 1995; February 1, 1993; January 1, 1991; April 1, 1987.

North Carolina
Coastal Federation
Working Together for a Healthy Coast

September 16, 2019

Dr. Braxton Davis
400 Commerce Avenue
Morehead City, NC 28557
Email: Braxton.Davis@ncdenr.org

RE: 15 NCAC 07H.0309 (h) Use Standards For Ocean Hazard Areas: Exceptions

Dear Dr. Davis,

On behalf of the North Carolina Coastal Federation, please accept the following comments on the proposed oceanward extension of existing stormwater outfalls within Ocean Hazard Areas of Environmental Concern.

The Coastal Federation is a non-profit organization dedicated to protecting and restoring the North Carolina coast. Our organization represents 16,000 supporters statewide and works with the public, state and federal agencies and local governments to communicate and collaborate towards solutions that lead to the stewardship and resiliency of our coast. Since 1982, the federation has been working with coastal communities and other partners to protect and restore coastal water quality and natural habitats, which are intricately tied to our coastal economy. By focusing primarily, but not exclusively on natural and productive estuarine shorelines, oyster and salt marsh habitat restoration, coastal management and cleaning the estuaries of marine debris, we strive to support and enhance the coastal natural environment. In doing so, we continue to promote stronger and more resilient coastal communities.

The Coastal Resources Commission (CRC) proposes to allow local and state governments to extend existing stormwater outfalls seaward if beaches are widened and move polluted stormwater further offshore. This may be the only practical option at some existing ocean outfalls due to site specific conditions. However, in many locations dune infiltration systems are a practical and environmentally-preferable alternative. This method helps to reduce beach swimming advisories that are inconsistent with the requirements of the federal Clean Water Act.

The federation encourages the CRC to:

- Require consideration of all practical alternatives before simply allowing pipes to be extended in length;
- Encourage through its permit process that the applicants install the best environmental alternative while taking into account its cost-effectiveness;
- Work with state and local agencies so as they serve as a role model:
    - Retrofit the existing outfalls with the goal of protecting and improving coastal water quality.

- Keep the public agencies and private landowners at the same standard rather than setting a lower bar for the agencies by allowing them to move the outfalls farther into the ocean.

The Stormwater Runoff Degrades Water Quality and Causes Public Health Problems
Stormwater runoff has been recognized as the major source of pollution of coastal waters. It contains high levels of bacteria that pose environmental and public health risk. Increased urban sprawl and residential and commercial development have created a pathway for the stormwater to reach our state's waters. This land use change increased the surface of impervious cover conveniently acting as transport and delivery method for pollutants contained in the stormwater runoff.

North Carolina holds an enviable fifth place in the nation for its good beach water quality.[1] However, increased storm activity and rapid urbanization of surrounding landscapes could change this status. Climate change is increasing extreme storm events that carry catastrophic amounts of rainfall. Recent study that looked at data since 1898 found that six of the seven highest precipitation events in coastal North Carolina in that record have occurred within the last 20 years.[2] In addition, the state's population has almost doubled since the 1990 reaching around 10.3 million residents according to 2018 U.S. Census Data. The resulting urbanization is expected to continue for the foreseeable future.

Stormwater management in coastal towns was developed decades ago and is in dire need of upgrading. The federation applauds the CRC for taking steps to remove stormwater outfalls from the beaches. However, we believe that extending the outfalls farther into the ocean will only compound rather than solve the problems caused by stormwater. Pushing the bacteria-laden stormwater deeper into the ocean can have unintended negative consequences to aquatic environment and can pose wider human health risks. Therefore, the federation urges the CRC to investigate the feasibility of implementing Dune Infiltration Systems as a solution to removing stormwater outfalls from recreational beaches.

Dune Infiltration Systems are Cost-Effective and Successful
Dune Infiltration Systems are an innovative method that prevents stormwater from reaching the ocean. They divert the runoff from stormwater pipes beneath the dunes allowing the stormwater to infiltrate through the sand. Beneath the dunes the stormwater is captured into an open-bottom chamber. From there the stormwater slowly infiltrates into sand and spreads out laterally reaching the groundwater. When mixed with groundwater the bacteria concentrations are diluted posing no threat to groundwater quality.

This nature-mimicking process has been proven successful and cost-effective. According to the N.C. State University Dune Infiltration Systems are low-cost systems that could be easily designed by an engineer and implemented by the public works department of a coastal town.[3]

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[1] Natural Resource Defense Council. Testing the waters 2014: A guide to water quality at vacation beaches. https://www.nrdc.org/resources/testing-waters-2014-guide-water-quality-vacation-beaches
[2] Paerl, H. W., Hall, N. S., Hounshell, A. G., Luettich, R. A., Rossignol, K. L., Osburn, C. L., & Bales, J. (2019). Recent increase in catastrophic tropical cyclone flooding in coastal North Carolina, USA: Long-term observations suggest a regime shift. *Scientific reports*, *9*(1), 10620.
[3] N.C. State Extension. Dune Infiltration Systems for Reducing Stormwater Discharge to Coastal Recreational Beaches. https://content.ces.ncsu.edu/dune-infiltration-systems-for-reducing-stormwater-discharge-to-coastal-recreational-beaches

Kure Beach in North Carolina is a case in point. The town has installed three Dune Infiltration Systems. Three-year monitoring of the sites showed that the systems captured 80 – 100 percent stormwater runoff (Figure 1). In addition, monitoring also showed that there was no significant increase in indicator bacteria usually associated with stormwater in the groundwater around the infiltration sites.[4] The total cost for the three systems was $46,000 for a treatment of around 20 acres, or an average of $2,300 per acre.[5]

	SITE L	SITE M	SITE K	CONTROL DUNES
Year Installed	2006	2006	2009	—
Watershed Area (acres)	4.2	8.1	8.3	—
Number of Stormwater Discharge Pipes	1	1	3	—
Number of Chambers	12	22	26	—
Infiltration Area (ft^2)	492	902	1066	
DIS Invert Elevation (ft)[1]	9.4	11.4	7.5	—
Total Stormwater Flow (ft^3)	132,642	398,855	934,212	—
Total Overflow (ft^3)	0	15,468	185,756	—
Stormwater Treated (ft^3)	132,642	382,387	748,459	—
% Stormwater Capured	100%	96%	80%	—
Median (Max) Groundwater Enterococci Concentration (MPN/100mL)	185 (89,680)	435 (3,076)	977 (24,196)	—
Median (Max) Groundwater Enterococci Concentration All Wells (MPN/100 mL)	4 (945)	5 (3,063)	16 (4,839)	5 (429)
Median (Max) Groundwater Concentration at Dune/Beach Interface (MPN/100mL)	4 (271)	5 (3,064)	7 (177)	5 (254)

NOTE: Site L, Site M, and control data collected from 2008 to 2010. Site K data collected from 2009 to 2010.
[1] Feet above mean sea level referenced to NGVD88 vertical datum.

Figure 1: Hydrologic and bacteria removal performance of the three Dune Infiltration Systems operating in Kure Beach, NC. Source: Dune Infiltration Systems for Reducing Stormwater Discharge to Coastal Recreational Beaches, N.C. State Extension.

The town of Kure Beach is so impressed by the performance of its existing dune infiltration systems that it is currently working to retrofit six additional ocean outfalls located on the beach. The recent feasibility study (attached to this letter) shows that this alternative is cost-effective, practical, and would result in significant water quality improvements.

The ocean outfalls rule change that the CRC is currently considering should encourage this type of progressive thinking. Rather than relaxing the permitting rules for outfalls extension, the CRC should allow easier and more straightforward permit process for the installation of dune infiltration systems and similar nature-based approaches.

[4] Ibid.
[5] Ibid.

Stormwater Outfalls Extensions Can Be Much More Expensive Than Dune Infiltration
Myrtle Beach, South Carolina has extended beach stormwater outfalls into the ocean. However, the unfinished project carries a staggering price. Each outfall runs 1200 ft into the ocean and costs between $6 and $20 million.[6] Since 2000 the town has spent over $50 million to install four outfall extensions.[7] The town officials expect the 12 new outfalls to take 35 additional years to fund and construct for a price of $150 million.[8]

Recommendation
The currently proposed rule revision will discourage the application of better, cost-effective environmentally-preferable alternatives. Therefore, the federation recommends the following proposed rule change language:

(h) Existing stormwater outfalls within the Ocean Hazard AEC that are owned and maintained by a State or local government agency, may be modified subject to the provisions contained within 15A NCAC O7J .0200, as well as applicable state and federal water quality requirements. The applicant shall identify practical alternatives of modifications it has considered, and demonstrate that it has selected an alternative that best protects water quality as well as public health and safety. Alternatives that shall be considered include upstream watershed retrofits that reduce the volume of stormwater being discharged by the outfall, dune and beach infiltration systems, and/or extending the length of the outfall.

Conclusion
Eliminating stormwater drainage from public recreational beaches is a daunting yet necessary step for protecting public health and aquatic marine environment, and enhancing water quality. The CRC has an opportunity to incite a better environmental response and propel the state and local governments to a position of a role model. Novel, cost-effective and successful technique, such as Dune Infiltration System is available and, unless proven unfeasible, should be a required technique for stormwater outfall removal.

Thank you for taking our comments under consideration.

Sincerely,

Ana Zivanovic-Nenadovic
Senior Policy Analyst

[6] The Municipal, 2018. Myrtle Beach banishes flooding with deepwater ocean outfalls. http://www.themunicipal.com/2018/09/myrtle-beach-banishes-flooding-with-deepwater-ocean-outfalls/
[7] Ibid.
[8] Stormwater Report. 2018. South Carolina Municipalities find success with site-specific stormwater management plans. https://stormwater.wef.org/2018/01/south-carolina-municipalities-find-success-site-specific-stormwater-management-plans/

LDSI

FINAL REPORT
NOT FOR CONSTUCTION
PLANNING DOCUMENT ONLY

SOLUTIONS FOR A CHANGING WORLD

NORTH CAROLINA PROFESSIONAL SEAL 038624 ENGINEER JONATHAN D. HINKLE

2019-06-12

DocuSigned by:
Jonathan Hinkle
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TOWN OF KURE BEACH
STORMWATER INFILTRATION FEASIBILITY STUDY FOR
CLEAN WATER MANAGEMENT TRUST FUND PLANNING GRANT

NANCY AVERY | TOWN CLERK
KURE BEACH TOWN HALL, 117 SETTLERS LANE, KURE BEACH, NC 28449 | N.AVERY@TOKB.ORG

Contents

LDSI, Inc prepared this report for:

Town of Kure Beach

Partners

North Carolina Coastal Federation

North Carolina Coastal Federation
www.nccoast.org

NC STATE UNIVERSITY

North Carolina State University
Biological & Agricultural Engineering Department
www.bae.ncsu.edu

Cover photo Davis Road outfall taken January 2019.

1. Executive Summary

LDSI, Inc assisted the Town of Kure Beach with a Clean Water Management Trust Fund Planning Grant which analyzed the feasibility of installing stormwater infiltration at the following outfalls:

- E – Avenue (no outfall the team switched to the Davis Road Outfall)
- F – Avenue
- G – Avenue
- H – Avenue
- I – Avenue
- J – Avenue

The project tasks included:

- Identify feasibility of stormwater infiltration system installation at alternative locations, such as between the dunes and the end of the beach access parking areas,
- Develop a typical infiltration system schematic,
- Develop a monitoring plan,
- Develop cost opinions for installation of the infiltration systems,
- Compile a list of funding sources.

Photo 1: Davis Road Stormwater Outfall During Discharge Event

The design team consisted of LDSI as the lead designer, with consulting assistance from the NCSU Biological and Agricultural Engineering Department, NC DOT Hydraulics Engineering Division, and the NC Coastal Federation. The team analyzed site conditions, soils data, topographic information, water quality data, ground water data, and recommended alternatives at each site. LDSI will prepare preliminary designs and cost estimates for each site. All six outfall locations were analyzed and deemed feasible for installation of stormwater infiltration system. As explained below within the multi-criteria design matrix, some of the sites are more feasible than others. The highest ranking and targeted outfall selected by the team was located at G-Avenue. It is the expectation that the Town will use the feasibility study to determine whether to pursue one or more of the sites and pursue funding for the final design and construction of the infiltration systems. LDSI and the other partners on the project would like to draw attention that this is a feasibility study only; further analysis is needed prior to the development of construction documents.

2. Background and Purpose

2.1 Introduction

Photo 2: Showing location of underground storm drain.

LDSI, Inc was contracted by the Town of Kure Beach to perform a feasibility analysis on six (6) of their stormwater outfalls. It should be noted that the figures and values within this report are to a feasibility study level and more analysis needs to be done during the design phase of this project. This phase intends to provide an assessment of the physical parameters at each of the six outfalls and the feasibility to infiltration the stormwater similar to what was done at L, M, and K. The team plans to expand on the results that were achieved at the previously installed outfalls and the results reported within the ASCE technical paper *Feasibility of a Dune Infiltration System to Protect North Carolina Beaches From Fecal Bacteria Contaminated Stormwater*.

> *Storm water ocean outfalls discharging into recreational waters pose a human health threat because of increased potential exposure to bacteria and other pathogens. The dune infiltration system (DIS) was designed and implemented at two ocean outfall sites in response to concerns by the North Carolina Department of Transportation and the town of Kure Beach, North Carolina The systems were designed to divert storm water runoff from 1.9 ha (4.7 acre) and 3.2 ha (8.0 acre) watersheds into the beach dunes. Following construction, data were collected from 25 storms during March through October 2006. The systems captured a combined total of nearly 1;800 m3 (63;500 ft3), or 95% of the influent storm water runoff—a significant reduction of runoff volume and peak flow discharging directly onto the beach (p < 0:0001). Fecal coliform and enterococci concentrations were measured in the inflowing storm water runoff and groundwater downslope of the systems. Both groundwater bacteria concentrations near the systems were significantly lower than the bacteria concentrations in the inflowing storm water (p < 0:001). Furthermore, groundwater fecal coliform concentrations after implementing the DISs were statistically similar to preconstruction levels (p < 0:05). The initial results are promising, and the system should be considered for more widespread use. However, further comprehensive research is recommended to more thoroughly understand the viability of the DIS as a stormwater best management practice and the fate and transport of the bacteria within the dunes. (T. Bright, M. Burchell, W. Hunt, and W. Price)*

Photo 3: Erosion from overflow area after Hurricane Florence

2.2 Purpose and Need

Tourism, beach and swimming activities along the Atlantic Ocean are the mainstays of Kure Beach as a recreation destination and are integral to the town's economic health. According to the State of North Carolina, 600,000 tourists visited Kure Beach between March and November of 2014. The population of New Hanover County, including Kure Beach, is projected to double by 2025; this will bring increased

tourism and development. These factors will lead to increased potential for bacterial contaminants and other stormwater pollutants to enter the recreational beach areas following a rain event. For instance, on 9.29.2016, NCDEQ issued a swimming alert for two Kure Beach locations south of the Avenue K pier. Water quality officials found bacteria levels in the ocean water that exceeded the state's and EPA recreational water quality standards. According to the press release, officials believed that the stormwater runoff from heavy rainfall, as well as extreme tidal conditions, contributed to the high bacteria counts. With increased population, climate change, and aging infrastructure, it is imperative that Kure Beach and other coastal towns work to divert bacterial pollutants from the beach and the Atlantic Ocean.

2.3 Goals and Objectives

The goal is to reduce the frequency and duration that stormwater with high levels of bacteria enters the recreational beach area, thus protecting Kure Beach's greatest environmental and economic asset – recreational beach areas along the Atlantic Ocean. The installation of stormwater infiltration systems is proven to:

- Reduce stormwater discharge.
- Reduce bacteria discharged.
- Reduce the potential of human contact with polluted stormwater runoff.
- Complement existing stormwater infrastructure.

Photo 4: NC DOT signage at completed dune infiltration system at K – Avenue.
(Photo courtesy of Town of Kure Beach.)

Having already shown to be successful at L, M, & K Avenues the goal of the infiltration project is to analyze the expansion of the footprint of these success stories.

3. Water Quality Analysis

A small number of water quality samples were collected from 1) the Kure Beach stormwater system to provide a snapshot of bacteria concentrations currently discharged from the outfalls and compare that to 2) the groundwater surrounding the three existing dune infiltration systems (DISs). Samples were collected and transported on ice to Environmental Chemists, Inc. in Wilmington N.C. While this provided some valuable information of the quality of the stormwater and a glimpse of how the existing DISs continue to perform, a much more rigorous sampling regime similar to what was used in our previous studies and described in Price et al. (2013) and Burchell et al. (2013) would be required to make more defensible comparisons.

Enterococcus indicator bacteria concentrations in the stormwater sampled was above the NC single sample maximum threshold of 104 MPN/100mL for recreational contact waters at K avenue that drains to one of the existing DISs, and was even higher at J Avenue and I Avenue that drains to two of the outfalls targeted for new systems in this study. These values are similar to those obtained during continuous pre- and post-construction stormwater sampling as part of the original DIS study (Price et al., 2013; Burchell et al., 2013). Note, the flow at M avenue is continuous from infiltration from an unknown source with low bacteria content.

Location	Enterococcus (MPN/100mL)		
	4/11/2019	4/11/2019	5/9/2019
M Ave	2	13	3
K Ave	30	291	----
J Ave	>2420	>2420	>2420
I Ave	----	1120	----

Table 1: Enterococcus concentrations measured in surface water in the stormwater system leading to outfalls at M avenue, K avenue, J avenue, and I Avenue.

Groundwater samples were collected from original wells used to determine the performance of the original DISs. Samples were collected just down slope of the systems to intercept the groundwater moving toward the ocean (- MID locations, Table 2). Wells located 25 m down slope of the systems (-25 locations, Table 2) were at the dune/beach interface. Unfortunately, many had been destroyed during beach erosion and were not sampled. Samples were collected using sterile disposable bailers.

With one exception, (M-25 on 5/9/2019), groundwater *Enterococcus* values were below the recreational water quality contact standard. Although these values were just a snapshot of groundwater bacterial concentrations, they were similar to those obtained in our original more rigorous study. These are the values we would expect to see surrounding new systems that could be installed at Kure Beach.

Location	Enterococcus (MPN/100mL)	
	4/11/2019	5/9/2019
K-MID	36*	5.5*
K-25	4	29.5
L-MID	1*	1*
L-25	----	----
M-MID	1.5*	8.5*
M-25	5*	192*
Control-MID	1	3
Control-25	----	----

*Table 2 Enterococcus concentrations measured in groundwater at (-MID) and 25 m downslope (-25) of the existing dune infiltration systems at K avenue, L Avenue, M avenue, and within the Control dunes. Note * indicates the average of two wells sampled.*

4. Hydrology Modeling

LDSI analyzed all watersheds to the various outfalls utilizing GIS, stormwater inventory, LiDAR, and zoning information. The team utilized the Department of Environmental Quality (DEQ) approved "Simple Method" to size the volume of infiltration basins.

$$Design\ Volume = 3{,}630\ x\ R_D\ x\ R_V x\ A$$

$$R_D = Design\ Storm\ Depth\ (in) = 1\ inch\ for\ this\ project$$

$$A = Watershed\ Area\ (acres)$$

$$R_V\ (Runoff\ coefficient\ (unitless)) = 0.05 + 0.9\ x\ I_A$$

$$I_A = Impervious\ Fraction\ (unitless)$$

The following table summarizes the findings of the hydrology modeling.

Outfall Location	Area (Acres)	Design Volume (CuFt)
Davis Road	8.1	17,348
F – Avenue	8.6	18,419
G – Avenue	2.6	5,568
H – Avenue	7.8	16,705
I – Avenue	6.8	14,564
J – Avenue	8.3	17,776

Table 3: Summary of Hydrology Modeling

Groundwater elevations beneath the dune are a critical component to determine whether infiltration systems are a feasible option at Kure Beach and other locations. Based on the proximity to the other locations, the team felt that the data from the K Avenue site would be sufficient to provide reference information for the other locations for the feasibility study. Figure 1 shows hourly water table elevations from upslope and downslope of the K avenue DIS during February-May 2019. Two locations were monitored to 1) show the general slope of groundwater flow at this location from the bulkhead that protects Atlantic Avenue (Figure 1 – Blue line) and just downslope of the DIS (Figure 1, Green Line), and 2) determine the average elevation of the groundwater at this location in the dunes as a proxy to where the new infiltration systems will be installed.

Monitoring does show a slight a gradient of groundwater flow towards the ocean, as indicated by the higher elevation of the groundwater near the bulkhead compared to the groundwater near the DIS. Also evident, is the increased tidal influence of the groundwater near the DIS, which is closer to the ocean. This tidal fluctuation slows the groundwater flow through the dunes, and during infiltration events, increases residence time and improves water quality treatment potential.

Mean groundwater elevations in the mid dunes was 2.6 feet above MSL, with a maximum depth of 6 feet following an infiltration event, and a minimum level of 1.3 ft. These values are consistent to prior monitoring at the site.

The higher above the mean water table the system is installed, the more efficient it will be in infiltrating stormwater and removing bacteria. However, the invert of the existing stormwater pipe entering the dunes drives the elevation of where the system can be installed. The Site K DIS was installed with an invert elevation of 7.5 feet above MSL, which for this site allowed for 4.5 – 5 feet of sand beneath the dunes for infiltration. While Kure Beach has high dune elevations and low water table elevations within the dunes to accommodate infiltration systems, the feasibility for infiltration future systems at Kure Beach will be strongly tied to the invert elevations of the stormwater pipes at each location evaluated.

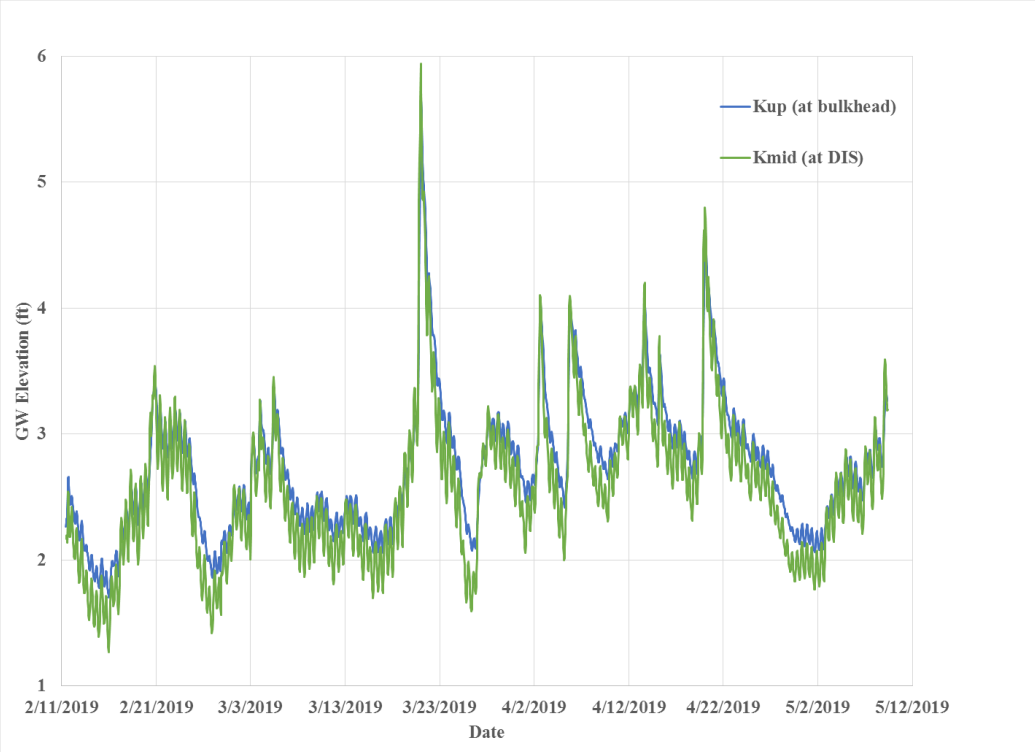

Figure 1: Groundwater elevations around the existing DIS at K avenue, to be used as a guide for conditions expected in the dunes at other locations in Kure Beach under consideration for new infiltration systems

5. Hydraulic Modeling & Sizing of Infiltration Systems

The LDSI team utilized a continuous simulation model to analyze the impacts of the installation of a dune infiltration system at the various outfalls. These simulations included a study period of 1995 to 2005. The simulations are based on one-hour steady state snapshots throughout the time period. The team utilized these modeling efforts to size the systems and check the effects on the existing infrastructure.

Photo 5: By-pass structure within existing infrastructure.

It should be noted that the sixth parameter as shown in Table 5 *Summary of Decision Matrix*, "Depth of Pipe at Dune" is the depth of the existing stormwater system. The base of the infiltration systems was modeled at 3.5 FT to 4.5 FT (NAVD), this is to allow drainage from the existing system into the infiltration system. The groundwater during the modeled period had an average elevation of approximately 2.6 FT (NAVD), providing a separation between the system of approximately one foot. Based on analysis there are periods of time that groundwater would be within the infiltration system and other times that the separation between the system and groundwater exceeds the modeled one foot. The team would like to draw attention that additional modeling would be required during the design phase as this was ground water extrapolated from monitoring data conducted by NCSU at the K – Avenue monitoring site, site specific data will be required during the design of each site.

Outfall	Area Available	# of Hours Analyzed	# of Hours with Infiltration	% of Time with Infiltration	# of Hours in By-pass	% of Time in Bypass
Davis Road	0.04	96,335	12,301	13%	238	0.25%
F – Avenue	0.09	96,335	10,818	11%	237	0.25%
G – Avenue	0.03	96,335	8,759	9%	22	0.02%
H – Avenue	0.05	96,335	10,838	11%	297	0.31%
I – Avenue	0.05	96,335	11,017	11%	165	0.17%
J – Avenue	0.08	96,335	10,991	11%	235	0.24%

Table 4: Summary of Continuous Modeling Efforts

The team analyzed not only the proposed infiltration system, but the affect the system would have on the existing stormwater infrastructure. The freeboard at Fort Fisher Blvd. was used as a control when evaluating the system, with the limited area for infiltration and watershed characteristics a by-pass box will be necessary at each outfall. The sizing of a by-pass weir at each outfall is dependent these parameters and necessary to minimize flooding potential on Fort Fisher Blvd. as well as ensure the infiltration area is not overloaded. All of the outfalls were analyzed with by-pass weirs in order to ensure capacity during large storm events for the safety of Fort Fisher Blvd. After discussion with NCSU, LDSI developed a concept of being able to manage the height of this weir which would allow for maintenance as well as ensure that there are no determents to the integrity of the dunes. Therefore, within the weir inside of the by-pass box there will be a series of flashboard riser style adjustments that can be made in order to allow for this management and maintenance.

6. Multi-Criteria Decision Matrix

Following the analysis and sizing, the team developed a decision matrix to analyze the project against themselves in order to prioritize funding/priorities.

Multi-Criteria Decision							
	Davis	F Avenue	G Avenue	H Avenue	I Avenue	J Avenue	Multiplier
Watershed Size	8.1	8.6	2.6	7.8	6.8	8.3	5
Area Required/Available for Infiltration	0.04	0.09	0.03	0.05	0.05	0.08	11
Hours to Infiltrate the Design Storm	83.9	33.4	32.3	54.7	46.0	37.8	9
Percent of time with Infiltration	12.8%	11.2%	9.1%	11.3%	11.4%	11.4%	3
Percent of time with By-Pass	0.2%	0.2%	0.0%	0.3%	0.2%	0.2%	10
Depth of Ex Pipe at Dune (FT)	3.7	6.0	6.5	7.6	7.8	6.2	8
Depth of Ex Pipe to Groundwater (assume GW@ 2 MSL) (FT)	3.9	5.0	5.1	3.9	3.8	5.1	2
Depth of Pipe Below Fort Fisher BLVD	7.1	6.2	6.4	6.3	6.9	6.8	1
Percent of Storms By-Passed	4.0%	4.0%	0.4%	5.0%	2.8%	4.0%	4
Freeboard at Fort Fisher Blvd	0.76	0.48	5.68	0.09	1.90	1.45	6
Project Cost (**PLANNING LEVEL**)	$ 83,480.59	$143,996.17	$84,965.50	$102,814.90	$104,241.24	$148,788.18	7
Ranking	**4**	**6**	**1**	**3**	**2**	**5**	

****All values are based on 1-hour rainfall and continuous simulation model with a data range from 1995 to 2005**

Table 5: Summary of Decision Matrix

Note: Depth of Pipe at Dune is the depth of the existing pipe infrastructure below the average dune surface, depth to groundwater is the depth of the existing pipe infrastructure to the GW assumed at 2 MSL.

As shown by several of the ranking questions the importance of being able to be implemented within the existing infrastructure were key components within the evaluation. The G – Avenue outfall ranked first within the matrix due to the watershed size, the existing topography characteristics, as well as depth of existing infrastructure.

7. Monitoring Plan

Conditions at each of the site locations we evaluated were somewhat different than the original sites. Most notably, the first row of houses in these locations are not separated from the dunes like they were by Atlantic Avenue at sites K, L, and M avenue. Additionally, the infiltration systems will likely be installed lower in the dunes, closer to the groundwater, than at the original sites, because the elevations of the existing stormwater pipes entering the dunes are lower. Therefore, post-construction monitoring of these sites will remain an important component of these projects.

As at the previous sites, continuous stormwater flow monitoring during the first year in the diversion chambers will be important to check our watershed runoff models, and provide estimates of the amount of runoff treated and the percentage of time overflow events occurred. This type of monitoring was used in our previous work to show that 97% of the stormwater from the watersheds that drained to L and M, and 80% of the stormwater that drained to K, was captured in the DIS. Storm event Enterococcus sampling of water entering the system should also be employed to determine runoff characteristics, and could be used for source tracking.

Groundwater monitoring wells equipped with continuous water level dataloggers will be critical since the system will be installed deeper and the beachfront properties are not as isolated as at the previous sites. A transect of 3-4 wells perpendicular to each new system installed will provide the data needed to evaluate how the groundwater responds, particularly closest to the beachfront houses, following infiltration events. We have investigated the potential of use of real-time water level measurements like those employed by USGS to remotely observe changes in groundwater during rainfall events. If adjustable weirs are employed in the diversion boxes, this type of data could allow the Town to make real-time decisions to divert water away from the infiltration systems in the unlikely event that groundwater levels are too high.

8. Funding Opportunities

There are several potential funding options for implementing the Town's stormwater outfall infiltration projects. Some of these are included in the table below.

Name	Funding Cycle	Application Deadline(s)
North Carolina's Clean Water Management Trust Fund (CWMTF)	1 – per year	Early February
EPA Section 319 Grant Program	1 – per year	Early May
Water Resource Development Grant	2 – per year	Late June, Late December
Clean Water State Revolving Fund (CWSRF) Loan	NA	NA
Stormwater Utility Fee	NA	NA

Table 6 Summary of funding opportunities.

The following sources were utilized for this list of funding opportunities: The Environmental Finance Center at the University of North Carolina, Chapel Hill Methods and Strategies for Financing Green Infrastructure, and Individual web sites from funding sources.

8.1 NC's Clean Water Management Trust Fund (CWMTF)

Overview: This funding source was established by the General Assembly in 1996 as a non-regulatory organization with a focus on protecting and restoring the State's land and water resources. Grants are awarded to non-profit and governmental organizations to protect land for natural, historical and cultural benefit, limit encroachment on military installations, restore degraded streams, and develop and improve stormwater treatment technology.

According to the Environmental Finance Center at the University of North Carolina, Chapel Hill the available resources for this program are greatly reduced and can no longer fund conventional stormwater or wastewater projects but this makes the fund a good opportunity for green infrastructure projects like the dune infiltration systems.

Award Decision Range: Annual award ranges vary with the total funding statewide at approximately 25 million. Innovative stormwater projects are generally awarded less than acquisition projects.

Cycles: CWMTF has one grant cycle per year. The application form is available in early December through the Online Grants Management System. For example, the application deadline for 2019 was February 4th, and final award decisions will be made in the fall of 2019.

Information: https://cwmtf.nc.gov/

8.2 EPA Section 319 Grant Program

Overview: Through Section 319(h) of the Clean Water Act, the U.S. Environmental Protection Agency provides states with funding to reduce nonpoint source pollution. Funds may be used to conduct watershed restoration projects such as stormwater and agricultural best management practices and restoration of impaired streams. Section 319 grant projects must be used to help restore waterbodies currently impaired by nonpoint source pollution in areas with approved watershed restoration plans. It is recommended that the Town of Kure Beach consider development of a watershed restoration plan to become eligible for the Section 319 funding.

Award Decision Range: North Carolina typically receives around $1 million for competitive funding of watershed restoration projects

Cycles: Late January: Request for Proposals released, Early May: 319 Grant Application deadline, Early June: Applicants notified whether they will be invited for in-person interviews, Late June: Notified applicants interviewed in Raleigh; selected projects announced, January of following year: Projects may start (estimated, depending on grant award date to NCDEQ and time for contract preparation)

Information: https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/319-grant-program/recent-319

8.3 Water Resource Development Grant

Overview: This grant program provides cost-share grants and technical assistance to local governments. Applications for grants are accepted for seven eligible project types: general navigation, recreational navigation, water management, stream restoration, water-based recreation, Natural Resources Conservation Service Environmental Quality Incentives Program (EQIP) stream restoration projects and feasibility/engineering studies. The non-navigation projects are collectively referred to as state and local projects.

Award Decision: Range $10,000 ~ $200,000

Cycles: There are two grant application cycles per fiscal year for state and local projects. The current spring 2019 grant cycle began Jan.1 and applications are due by June 30. The second cycle is from July 1 – December 31.

Contact: Amin Davis amin.davis@ncdenr.gov

Information:
https://files.nc.gov/ncdeq/Water%20Resources/documents/WRDG%20WSN%20New%20Bern%20102317_A%20Davis.pdf

8.4 Clean Water State Revolving Fund (CWSRF) Loan

The North Carolina State Water Infrastructure Authority (SWIA) overseas a number of water and wastewater loan and grant programs including the joint state/federal (EPA) funded Clean Water State Revolving Fund (CWSRF). According to the UNC Environmental Finance Center report entitled Methods and Strategies for Financing Green Infrastructure, local governments can obtain loans at rates as low as 0% for 20 years to fund eligible projects including stormwater projects.

8.5 Stormwater Utility Fee

Under North Carolina law, stormwater fees can be used to cover a wide range of stormwater quality and quantity programs. Kure Beach currently implements a stormwater utility fee.

9. Conclusion and Recommendations

LDSI evaluated the all six (6) outfalls and deemed them feasible for the installation of an infiltration system. The recommendation is for the Town to seek funding for installation and design of all six. It is the belief of LDSI that the installation of these systems will add to the resiliency of the Town and improve water quality for its residents, tourists, and aquatic species within the area. During the design of each outfall infiltration system it is highly recommended that the following occur:

- Installation of monitoring wells at each planned dune location,
- A groundwater hydrology be conducted to estimate impact of design,
- Soils analysis,
- Monitoring of installed system,
- Re-evaluation of infrastructure following hurricane events.

The summary of planning-level cost information and estimated design cost is shown below.

Outfall Location	Design Costs	Construction Costs
Davis Street	$20,870	$83,480
F - Avenue	$35,999	$143,996
G - Avenue	$21,241	$84,965
H - Avenue	$25,703	$102,814
I - Avenue	$26,060	$104,241
J - Avenue	$37,197	$148,788
Total	**$167,072**	**$668,287**

Table 7: Summary of Future Costs

FEASIBILITY STUDY

FOR

KURE BEACH DUNE INFILTRATION

PREPARED BY

LDSI, INC,

NORTH CAROLINA COASTAL FEDERATION, &

NORTH CAROLINA STATE UNIVERSITY BIOLOGICAL AND AGRICULTURAL ENGINEERING

TOWN OF KURE BEACH
NANCY AVERY (TOWN CLERK)
KURE BEACH TOWN HALL
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PH: 910.458.8216
N.AVERY@TOWNOFKUREBEACH.ORG

LDSI, INC PROJECT MANAGER
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KINSTON, NC 28504
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LDSI, INC PROJECT SURVEYOR
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NORTH CAROLINA COASTAL FEDERATION
TODD MILLER AND LAUREN KOLODIJ
3609 HWY 24
NEWPORT, NC 28570
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TODDM@NCCOAST.ORG
LAURENK@NCCOAST.ORG

NORTH CAROLINA STATE UNIVERSITY
BIOLOGICAL AND AGRICULTURAL ENGINEERING
MICHAEL BURCHELL, PhD, PE
CAMPUS BOX 7625
RALEIGH, NC 27695-7625
Ph: 919.513.7348
MIKE_BURCHELL@NCSU.EDU

PROPERTY LOCATION
POC: 34° 45' 41.4"N"; LONG: 78° 43' 32.3"W.
BLADEN COUNTY, NORTH CAROLINA

North Carolina Coastal Federation

NEWPORT OFFICE: 3609 HWY 24
NEWPORT, NC 28570
PH: 252.393.8185
WEBSITE: WWW.NCCOAST.ORG

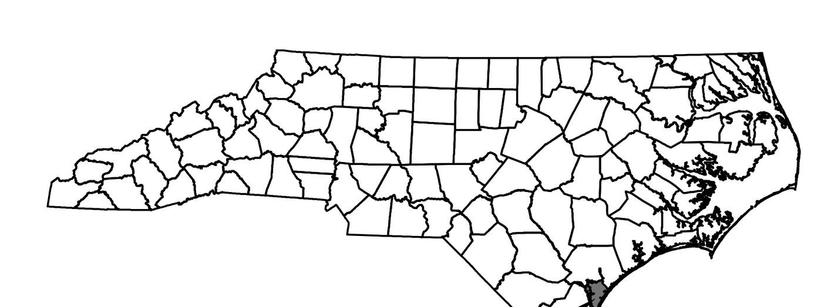
CHARLOTTE OFFICE: 508 WEST 5TH ST., SUITE 125, CHARLOTTE NC 28202
KINSTON OFFICE: 804 FAIRFIELD AVE., KINSTON NC 28504
PHONE: 704.337.8329 | FAX: 704.308.3153
WEBSITE: WWW.LDSI-INC.COM | NC FIRM #: C-1925

NC STATE UNIVERSITY
BAE DEPARTMENT: CAMPUS BOX 7625
RALEIGH, NC 27695-7625
PH: 919.513.7348
WEBSITE: WWW.BAE.NCSU.EDU

PROJECT DESCRIPTION:

THE TEAM CONSISTS OF LDSI AS THE LEAD DESIGNER; WITH CONSULTING ASSISTANCE FROM THE NCSU BIOLOGICAL AND AGRICULTURAL ENGINEERING DEPARTMENT; NC DOT HYDRAULICS ENGINEERING DIVISION, AND THE NC COASTAL FEDERATION. LDSI HAS WORKED WITH NORTH CAROLINA COASTAL FEDERATION ON NUMEROUS PROJECTS AND IS PLEASED TO PARTNER ON THIS PROJECT. LDSI'S PROJECT MANAGER HAS ALSO WORKED WITH NCSU'S BIOLOGICAL AND AGRICULTURAL ENGINEERING STAFF IN THE PAST. THE TEAM WILL ANALYZE SITE CONDITIONS, SOILS DATA, AND TOPOGRAPHIC INFORMATION AND MAKE RECOMMENDATIONS FOR PRACTICABLE ALTERNATIVES AT EACH SITE, AND LDSI WILL PREPARE PRELIMINARY DESIGNS AND COST ESTIMATES FOR EACH SITE.

VICINITY MAP
NTS.



LOCATION MAP
NTS.

ISSUED FOR: ISSUE FOR 95% REVIEW & PLANNING

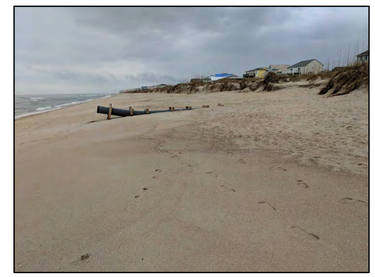
No.	DATE	DESCRIPTION	BY	APVD

NOT FOR CONSTRUCTION

DSGN: JDH DR: JDH CHK: DBB APVD: JDH DATE: 5/31/2019

KURE BEACH DUNE INFILTRATION FEASIBILITY STUDY CWMTF PLANNING GRANT

PROJECT #: 4518040



Vicinity Map - Not to Scale

Point Legend:

Symbol	Abbr	Description
	STMH	Storm Water Manhole
	CI	Curb Inlet
	DI	Drop Inlet

Line Legend:

Symbol	Description
	Road Centerline
	Storm Pipe

NOT FOR CONSTRUCTION

ISSUED FOR: PRELIMINARY REVIEW

Clean Water Management Trust Fund [CWMTF] Dune Infiltration Exhibit

prepared for:

Town of Kure Beach

No.	Revision	By	Date
1			##/##/##
2			
3			
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www.ldsi-inc.com

Graphic Scale 40 20 0 40

Text Scale: 1"=40

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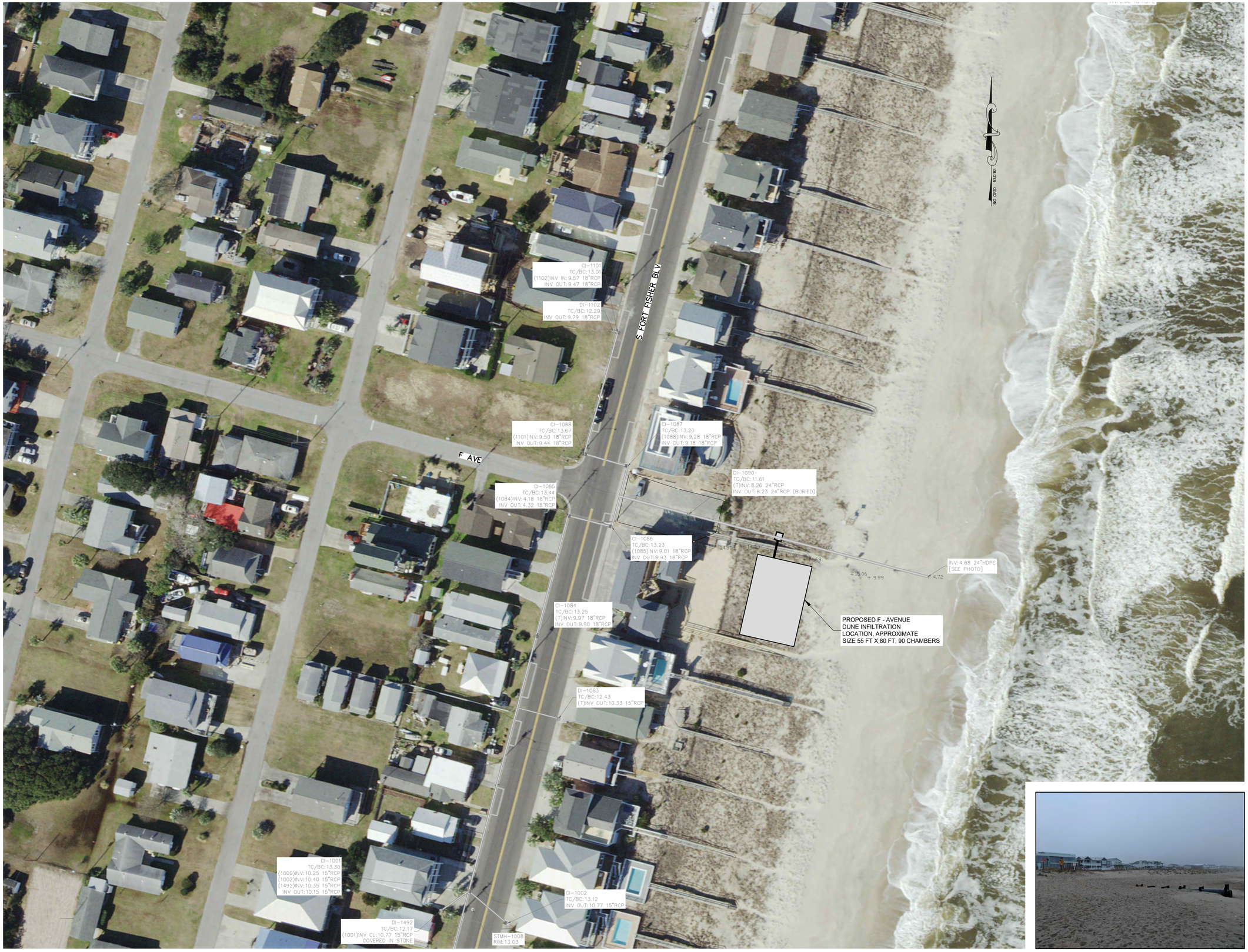
Project Number: 4518040
Drawn By: JDH
Reviewed By:
Sealed By:

Plot Date: 2019-05-31

Sheet 1 of 7



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Text Scale: 1"=40'

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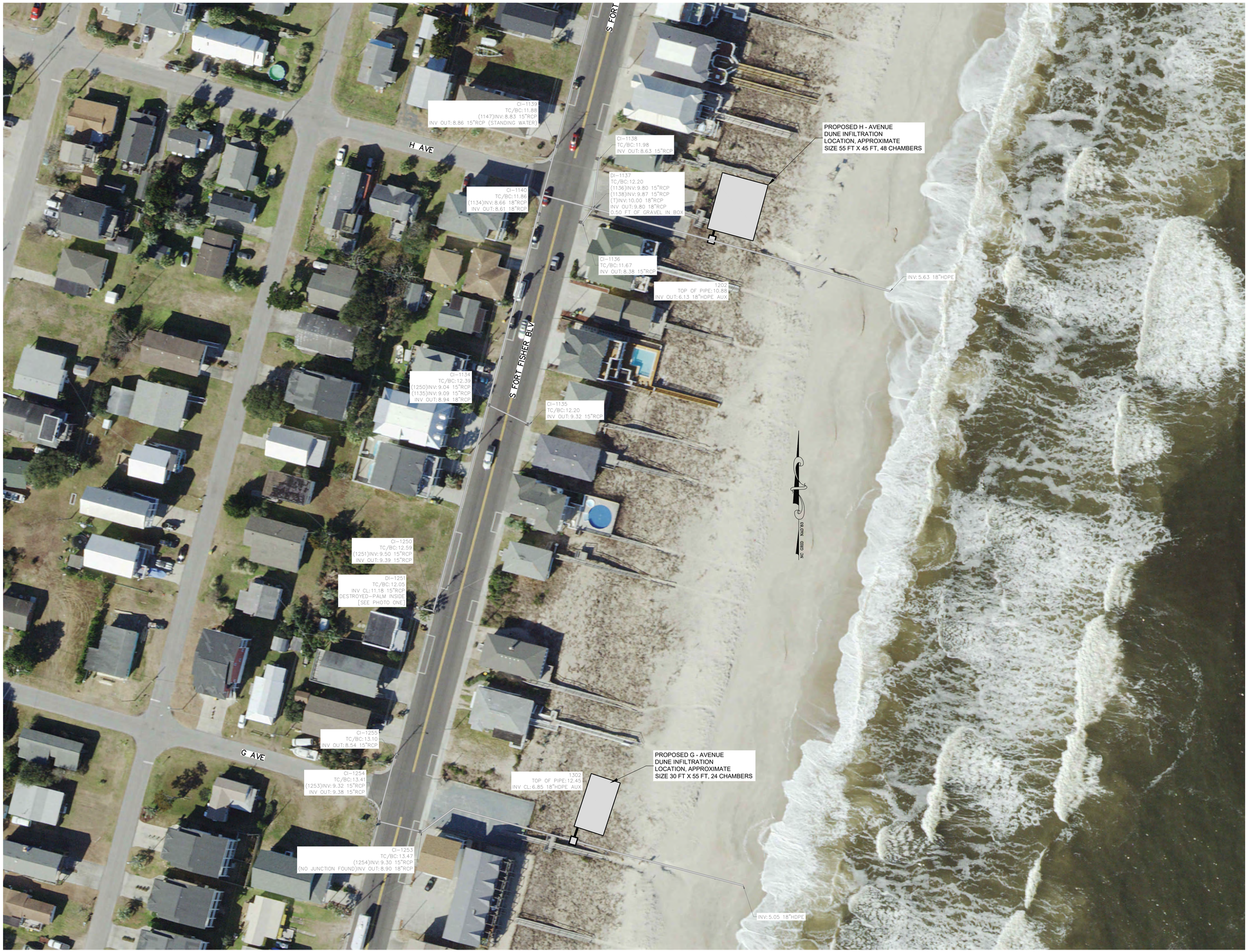
Project Number: 4518040	
Drawn By: JDH	
Reviewed By:	Sheet 2 of 7
Sealed By:	



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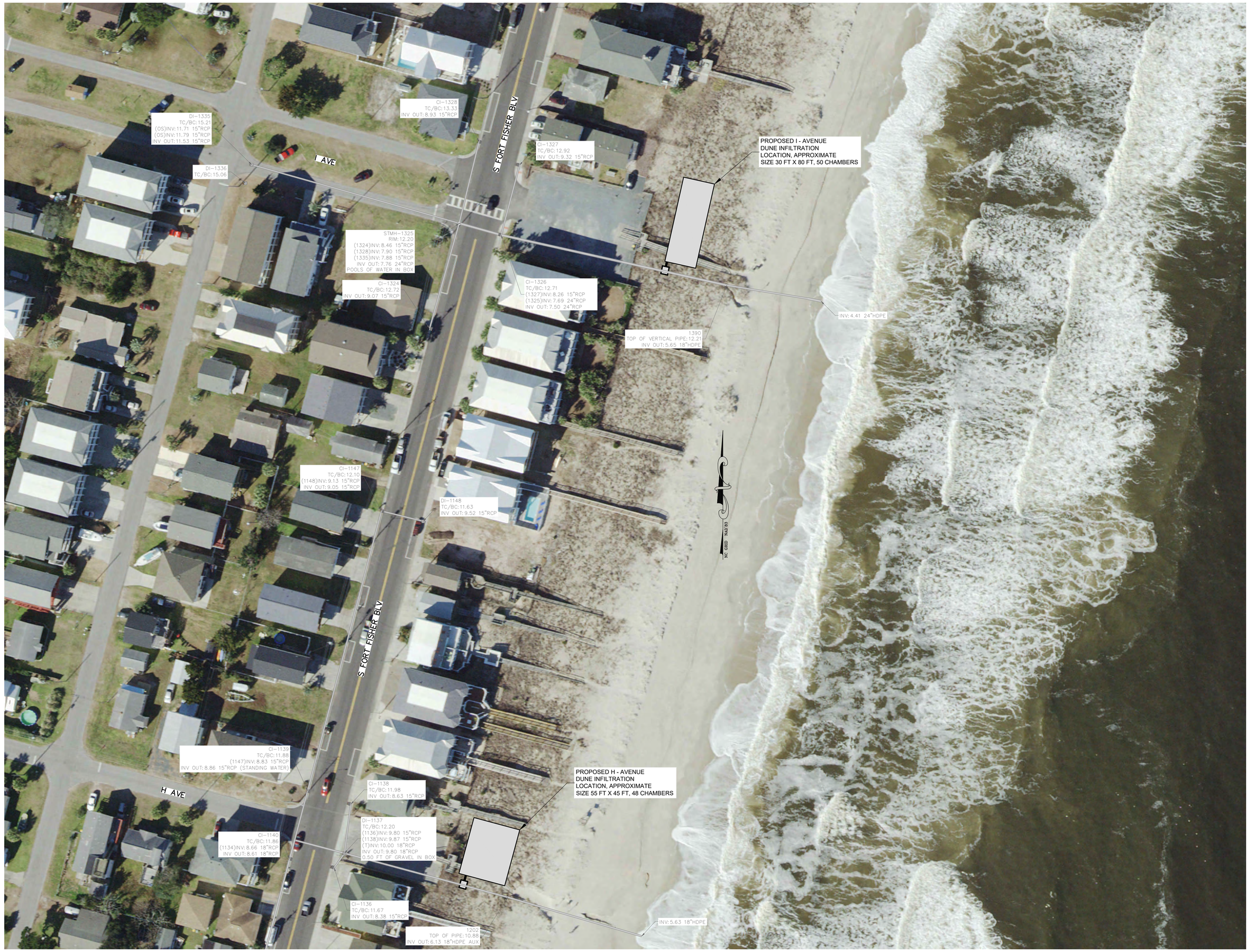
Project Number: 4518040	
Drawn By: JDH	
Reviewed By:	Sheet 3 of 7
Sealed By:	



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Drawn By: JDH	
Reviewed By:	Sheet 4 of 7
Sealed By:	

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Point Legend:

Symbol	Abbr	Description
	STMH	Storm Water Manhole
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Line Legend:

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Flile: 4518040E-1.DWG	Plot Date: 2019-05-31
Project Number: 4518040	
Drawn By: JDH	
Reviewed By:	
Sealed By:	Sheet 5 of 7

EXAMPLE OF INFILTRATION INSTALLATION PLAN VIEW

SCALE: 1" = 20 '

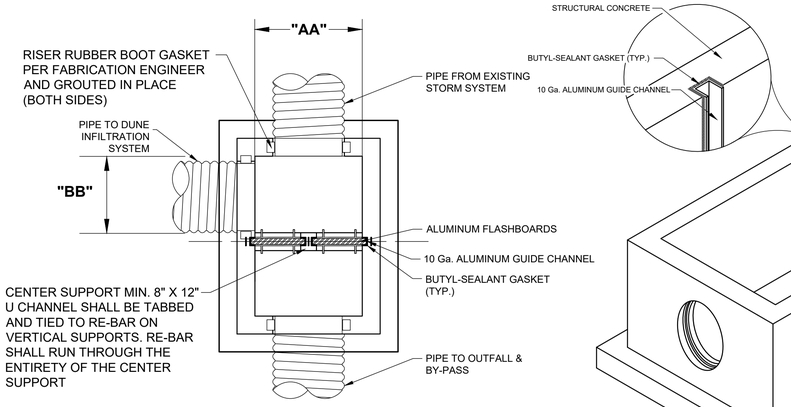
Vicinity Map - Not to Scale

Point Legend:

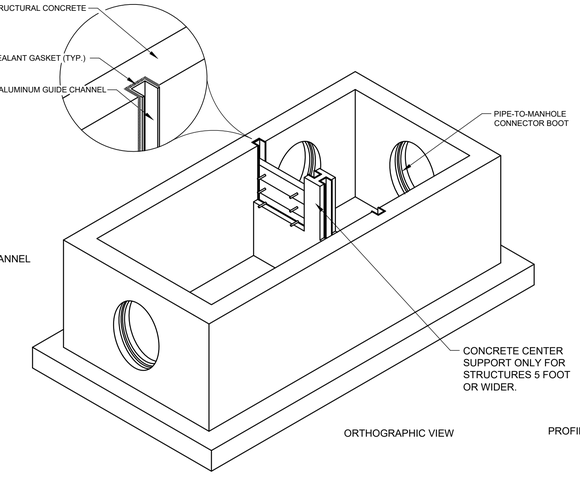
Symbol	Abbr	Description
	STMH	Storm Water Manhole
	CI	Curb Inlet
	DI	Drop Inlet

Line Legend:

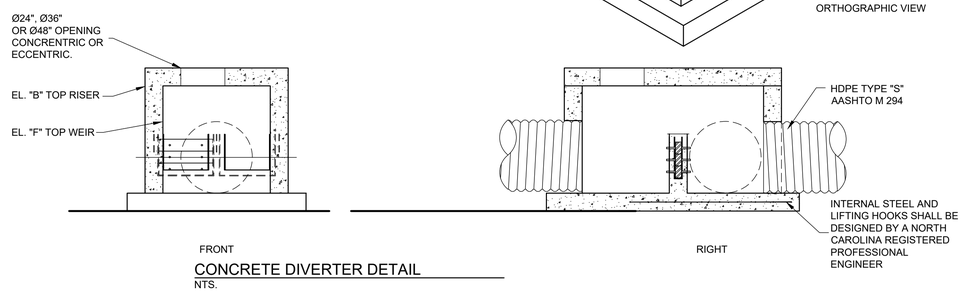
Symbol	Description
	Road Centerline
	Storm Pipe



TOP



ORTHOGRAPHIC VIEW



FRONT RIGHT

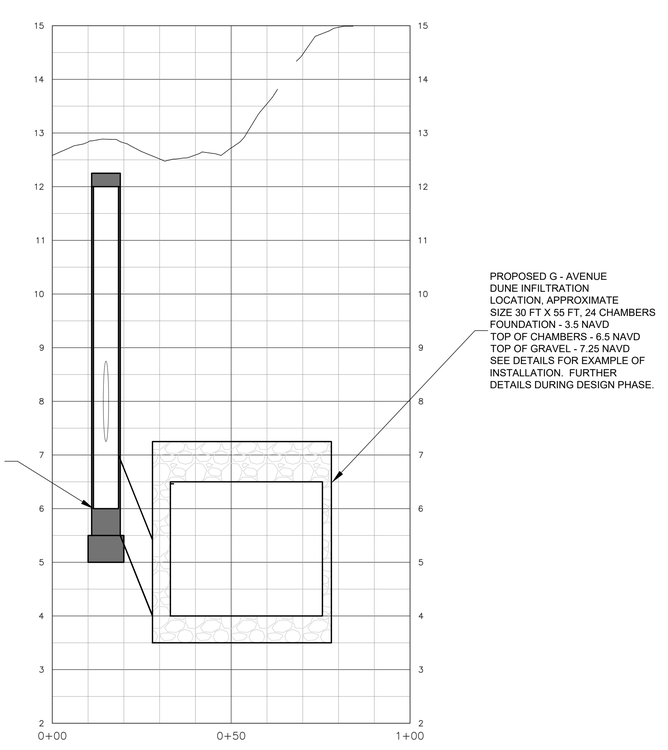
CONCRETE DIVERTER DETAIL

NTS.

NOTE:

ALL DIMENSIONS SHOWN ARE MINIMUM. FABRICATION ENGINEER SHALL SIZE STRUCTURES IN ACCORDANCE WITH THEIR CALCULATIONS, MAINTAINING THE WEIR LENGTH SPECIFIED WITHIN THE TABLE BELOW.

PROFILE EXAMPLE OF DIVERTER
BOX WITH 6 FT WEIR.
TOP - 12.25 NAVD
TOP OF WEIR - 6.0 NAVD
BOTTOM - 5.5 NAVD
BASE - 5.0 NAVD



EXAMPLE OF INFILTRATION INSTALLATION PROFILE VIEW

SCALE: 1" = 20' (H); 1" = 1.5' (V)

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ISSUED FOR: PRELIMINARY REVIEW

Clean Water Management Trust Fund [CWMTF] Dune Infiltration Exhibit

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Town of Kure Beach

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Text Scale: 1"=20'

Filile: 4518040E-1.DWG	Plot Date: 2019-05-31
Project Number: 4518040	
Drawn By: JDH	
Reviewed By:	Sheet 6 of 7
Sealed By:	

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH DC-780.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE DC-780 CHAMBER SYSTEM

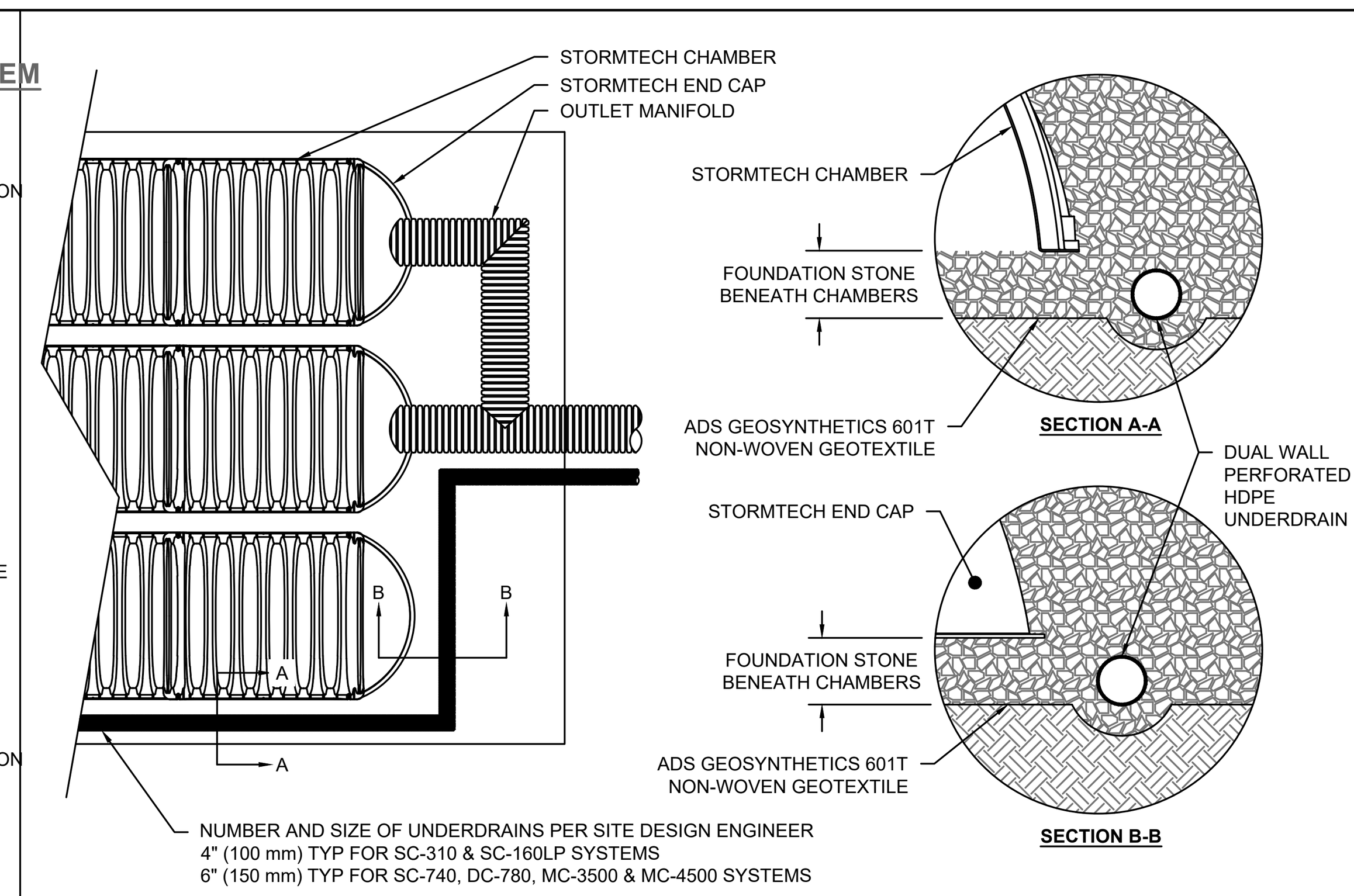
1. STORMTECH DC-780 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

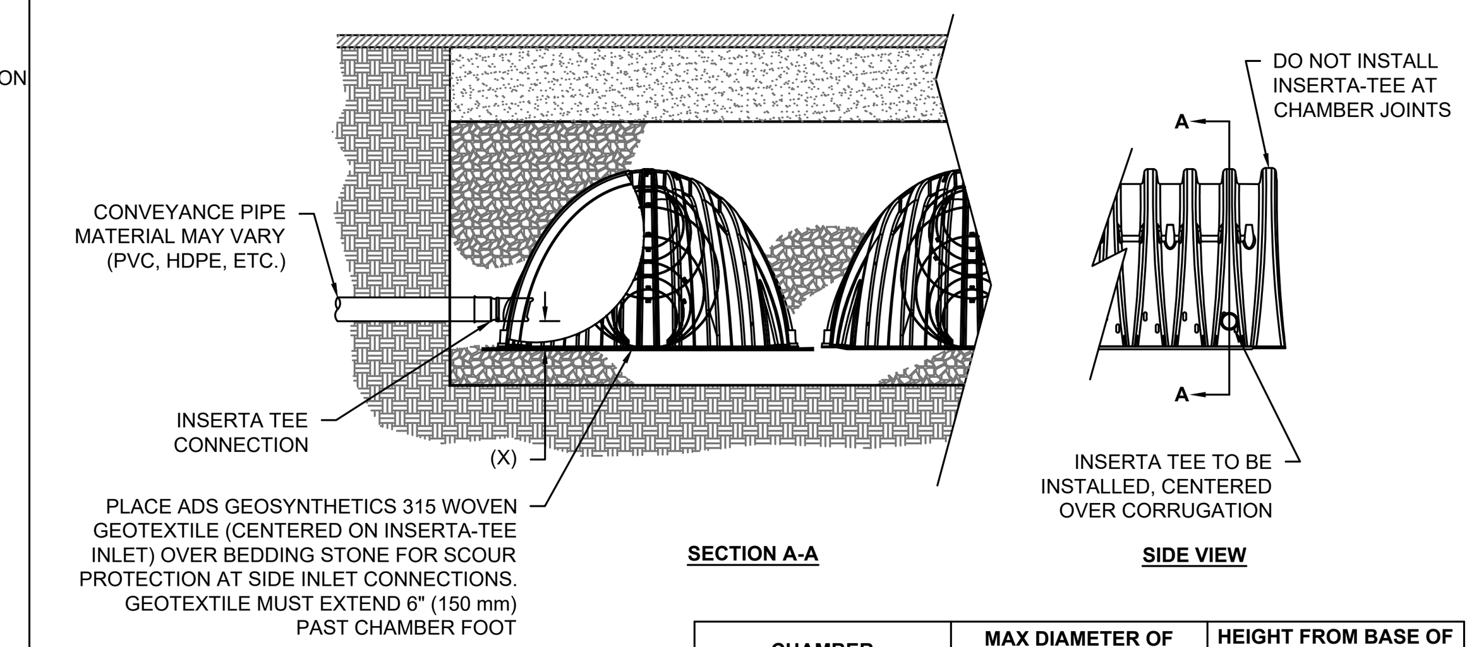
1. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER DC-780 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



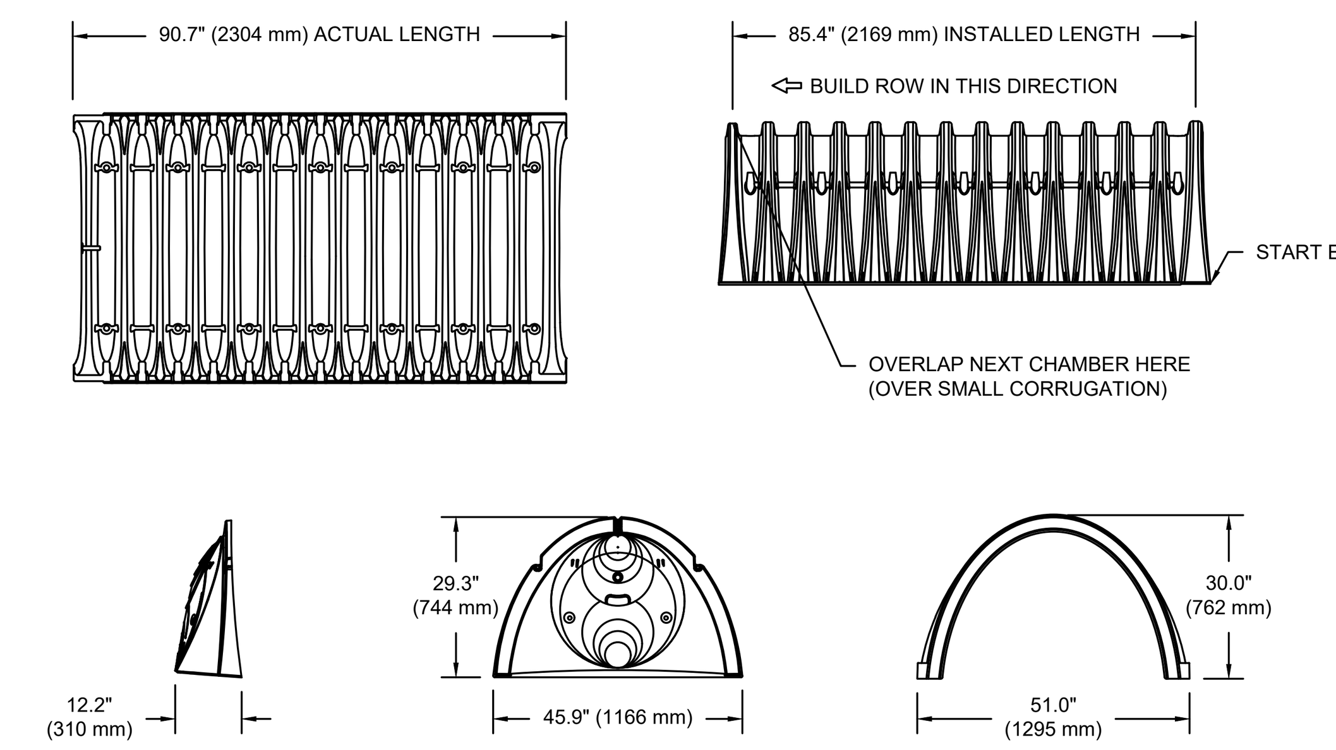
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

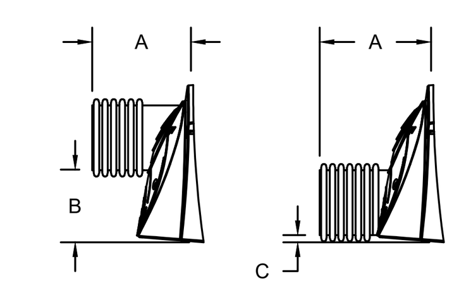
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	46.2 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.20 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, 9" (229 mm) BELOW, AND 6" (152 mm) BETWEEN CHAMBERS



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T/ SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 DC-780 TECHNICAL SPECIFICATIONS

Vicinity Map - Not to Scale

Point Legend:

Symbol	Abbr	Description
	STMH	Storm Water Manhole
	CI	Curb Inlet
	DI	Drop Inlet

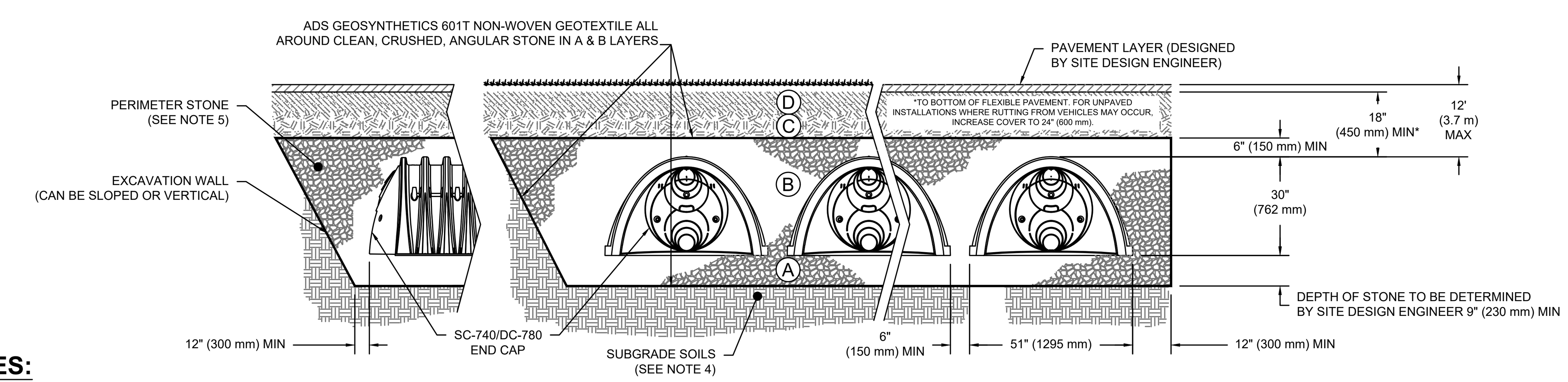
Line Legend:

Symbol	Description
	Road Centerline
	Storm Pipe

ACCEPTABLE FILL MATERIALS: STORMTECH DC-780 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

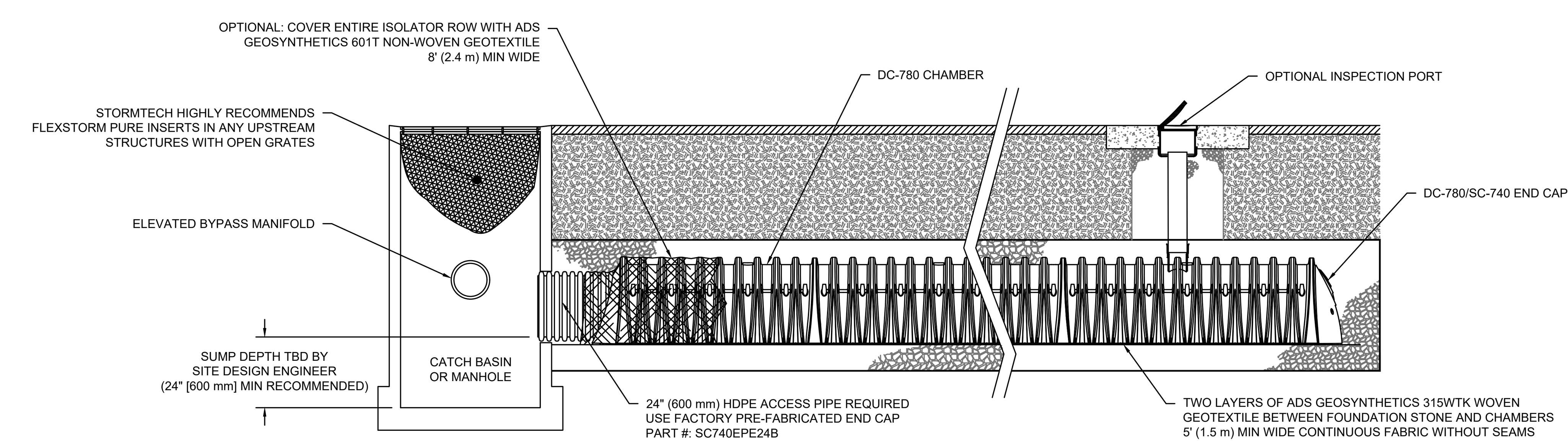
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



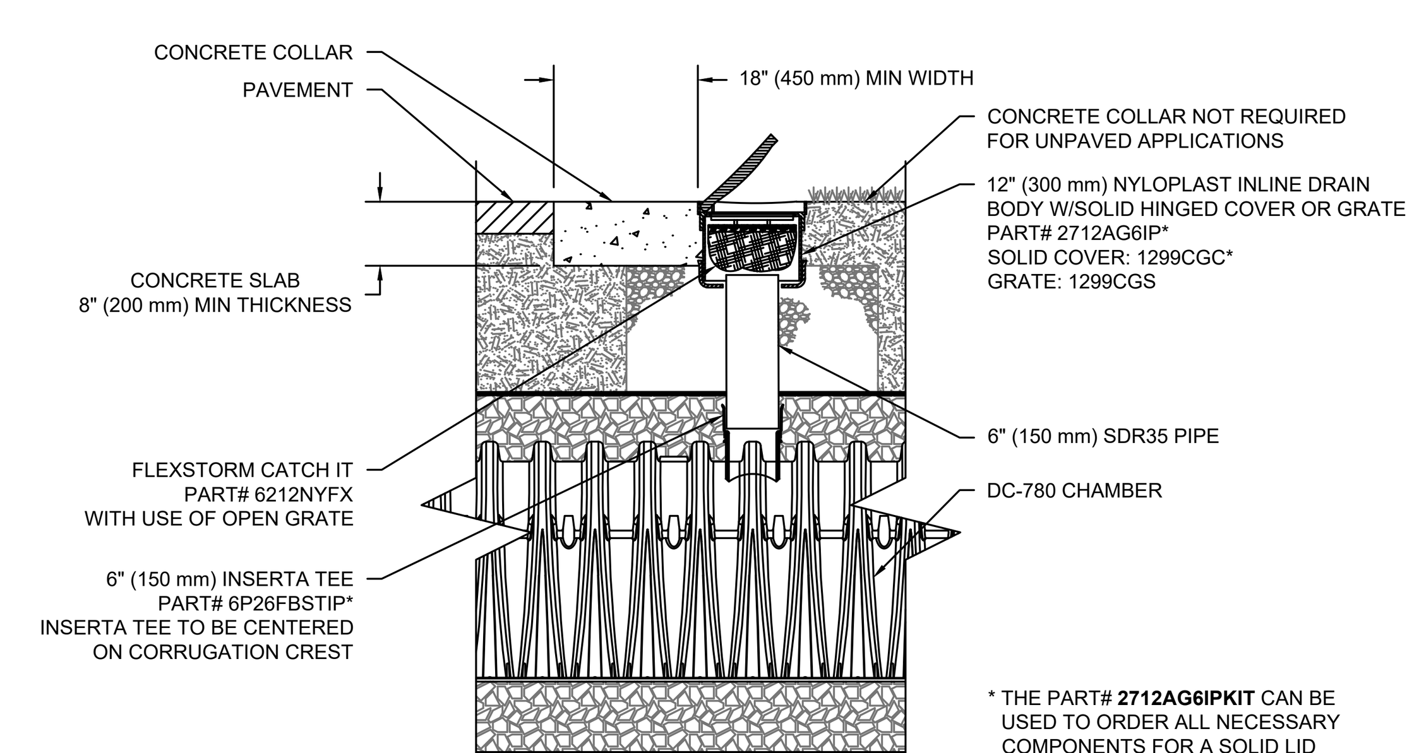
NOTES:

1. DC-780 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. DC-780 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

1 DC-780 CROSS SECTION DETAIL



3 DC-780 ISOLATOR ROW DETAIL



* THE PART# **2712AG6IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

4 DC-780 6" (150 mm) INSPECTION PORT DETAIL

NOT FOR CONSTRUCTION

ISSUED FOR: PRELIMINARY REVIEW

Clean Water Management Trust Fund [CWMTF] Dune Infiltration Exhibit

prepared for:
Town of Kure Beach

No.	Revision	By	Date
1			##/##/##
2			
3			
4			

LDSI SURVEYING GIS ENGINEERING SUE
1308 HWY 258 S
Kinston, NC 28504
Phone: (704) 337-8329
Fax: (704) 308-3153
License No.: C-1925
www.ldsi-inc.com

Graphic Scale 40 20 0 40

Text Scale: 1"=40'

File: 4518040E-1.DWG	Plot Date: 2019-05-31
Project Number: 4518040	
Drawn By: JDH	
Reviewed By:	Sheet 7 of 7
Sealed By:	

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

November 19, 2019

MEMORANDUM **CRC-19-41**

TO: Coastal Resources Commission

FROM: Ken Richardson, *Shoreline Management Specialist*

SUBJECT: Consideration of Comments and Adoption of 15A NCAC 07H. 0304 AECs Within the Ocean Hazard Areas – 2019 Long-Term Average Annual Erosion Rates

Since 1980, the Division of Coastal Management has updated its oceanfront shoreline change rates approximately every five years for calculating both oceanfront development setbacks and the landward boundary of the Ocean Erodible Area of Environmental Concern (AEC) (15A NCAC 07H .0304). Additionally, shoreline change rates are required to be updated every five years to keep North Carolina compliant with Federal Emergency Management Administration (FEMA) guidelines for the Community Rating System (CRS). This ensures that property owners in coastal communities that participate in the National Flood Insurance Program are eligible for fifty (50) additional CRS points, which can potentially reduce insurance rates.

The Commission's setback rules are used to site oceanfront development based on the size of the structure according to the graduated setback provisions in 15A NCAC 7H .0306(a). In areas where there is a high rate of erosion, buildings must be located farther from the shoreline than in areas where there is less erosion. The construction setback equation depicted in Table 1 is used to site oceanfront development and determine the extent of the CRC's jurisdictional area for the Ocean Erodible Area of Environmental Concern (OEA) - the area where there is a substantial possibility of shoreline erosion. A minimum setback factor of two (2) is applied if the erosion rate is less than two feet per year or where there is accretion (Table 1).

Table 1. *Minimum construction setbacks based on structure size and the minimum setback factor of 2.*

Structure Size (square feet)	Construction Setback Equation	Minimum Setback (calculated using Setback Factor = 2 ft./yr.)
Less than 5,000	30 x Setback Factor	60
=>5,000 and < 10,000	60 x Setback Factor	120
=>10,000 and < 20,000	65 x Setback Factor	130
=>20,000 and < 40,000	70 x Setback Factor	140
=>40,000 and < 60,000	75 x Setback Factor	150
=>60,000 and < 80,000	80 x Setback Factor	160
=>80,000 and < 100,000	85 x Setback Factor	170
Greater than 100,000	90 x Setback Factor	180

The report titled, "North Carolina 2019 Oceanfront Setback Factors & Long-Term Average Annual Erosion Rate Update Study: Methods Report", amendments to Rule 15A NCAC 07H. 0304 to reference the 2019 report, and the fiscal analysis were all approved at the Commission's February 2019 meeting in Morehead City.

Pursuant to Coastal Area Management Act, the Division of Coastal Management held public hearings in each of the eight oceanfront counties for the purpose of inviting public participation in the consideration of the proposed amendments to 15A NCAC 07H .0305 of your rules. The following is a list of locations and dates of the public hearings:

1. New Hanover County: October 3, 2019 at 1241 Military Cutoff Rd., Wilmington, NC (Northeast Library)
2. Brunswick County: October 3, 2019 at 223 E. Bay St., Southport, NC (Southport Community Building)
3. Dare County: October 9, 2019 at 5401 S. Croatan Hwy, Nags Head, NC (Nags Head Board of Commissioner Room)
4. Currituck County: October 9, 2019 at 1160 Village Ln., Corolla, NC (Outer Banks Center for Wildlife Education)
5. Pender County: October 15, 2019 at 102 North Shore Dr., Surf City, NC (Surf City Welcome Center)
6. Onslow County: October 15, 2019 at 1330 Highway 210, Sneads Ferry, NC (Sneads Ferry Library)
7. Carteret County: October 17, 2019 at 400 Commerce Ave., Morehead City, NC (DCM HQ Office)
8. Hyde County: October 30, 2019 at 30 Oyster Creek Rd., Swan Quarter, NC (Government Center)

While the hearing record remains open until November 15, 2019; to date, the Division has not received any comments on the updated shoreline change rates. If any comments are received, Staff will provide a summary of at the Commission's upcoming meeting in Emerald Isle.

Staff Recommendation

Provided no substantive comments are received, Staff will recommend that the Commission consider adoption of the rule amendments to 15A NCAC 07H .0304. Pending approval by the Rules Review Commission (RRC), it is anticipated that these rule amendments will become effective on February 1, 2020.

ATTACHMENT A:	CRC Rules Pertaining to Oceanfront Shoreline Change Rates and Setback Factors
ATTACHMENT B:	Fiscal Analysis for the 2019 Update of Oceanfront Shoreline Change Rates and Setback Factors
ATTACHMENT C:	Public Comments (Hearing record remains open until November 15, 2019; therefore, comments will be made available at the November 2019 CRC meeting)

ATTACHMENT A: CRC's Rules Pertaining to Oceanfront Shoreline Change Rates and Setback Factors & Proposed Amendments

15A NCAC 07H .0304 AECS WITHIN OCEAN HAZARD AREAS

The ocean hazard AECs contain all of the following areas:

(1) Ocean Erodible Area. This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the first line of stable and natural vegetation as defined in 15A NCAC 07H .0305(a)(5) to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 180 feet landward from the first line of stable natural vegetation. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data. The current long-term average erosion rate data for each segment of the North Carolina coast is depicted on maps entitled "North Carolina 2019 Oceanfront Setback Factors & Long-Term Average Annual Erosion Rate Update Study" ~~"2011 Long-Term Average Annual Shoreline Rate Update"~~ and approved by the Coastal Resources Commission on May 5, 2011 (except as such rates may be varied in individual contested cases or in declaratory or interpretive rulings). In all cases, the rate of shoreline change shall be no less than two feet of erosion per year. The maps are available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at http://www.nccoastalmanagement.net.

(2) Inlet Hazard Area. The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets. This area extends landward from the mean low water line a distance sufficient to encompass that area within which the inlet migrates, based on statistical analysis, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet, and external influences such as jetties and channelization. The areas on the maps identified as suggested Inlet Hazard Areas included in the report entitled INLET HAZARD AREAS, The Final Report and Recommendations to the Coastal Resources Commission, 1978, as amended in 1981, by Loie J. Priddy and Rick Carraway are incorporated by reference and are hereby designated as Inlet Hazard Areas, except for:

(a) the Cape Fear Inlet Hazard Area as shown on the map does not extend northeast of the Bald Head Island marina entrance channel; and

(b) the former location of Mad Inlet, which closed in 1997.

In all cases, the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area. This report is available for inspection at the Department of Environmental Quality, Division of Coastal Management, 400 Commerce Avenue, Morehead City, North Carolina or at the website referenced in Item (1) of this Rule. Photocopies are available at no charge.

(3) Unvegetated Beach Area. Beach areas within the Ocean Hazard Area where no stable natural vegetation is present may be designated as an Unvegetated Beach Area on either a permanent or temporary basis as follows:

(a) An area appropriate for permanent designation as an Unvegetated Beach Area is a dynamic area that is subject to rapid unpredictable landform change due to wind and wave action. The areas in this category shall be designated following studies by the Division of Coastal Management. These areas shall be designated on maps approved by the Coastal Resources Commission and available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at the website referenced in Item (1) of this Rule.

(b) An area that is suddenly unvegetated as a result of a hurricane or other major storm event may be designated by the Coastal Resources Commission as an Unvegetated Beach Area for a specific period of time, or until the vegetation has re-established in accordance with 15A NCAC 07H .0305(a)(5). At the expiration of the time specified or the re-establishment of the vegetation, the area shall return to its pre-storm designation.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1993; November 1, 1988; September 1, 1986; December 1, 1985;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. April 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;
Temporary Amendment Eff. October 22, 1997;
Amended Eff. July 1, 2016; September 1, 2015; May 1, 2014; February 1, 2013; January 1, 2010; February 1, 2006; October 1, 2004; April 1, 2004; August 1, 1998.

15A NCAC 07h .0306 GENERAL USE STANDARDS FOR OCEAN HAZARD AREAS

(a) In order to protect life and property, all development not otherwise specifically exempted or allowed by law or elsewhere in the Coastal Resources Commission's rules shall be located according to whichever of the following is applicable:

(1) The ocean hazard setback for development shall be measured in a landward direction from the vegetation line, the static vegetation line, or the measurement line, whichever is applicable.

(2) In areas with a development line, the ocean hazard setback shall be set in accordance with Subparagraphs (a)(3) through (9) of this Rule. In no case shall new development be sited seaward of the development line.

(3) In no case shall a development line be created or established on state owned lands or oceanward of the mean high water line or perpetual property easement line, whichever is more restrictive.

(4) The ocean hazard setback shall be determined by both the size of development and the shoreline long term erosion rate as defined in Rule .0304 of this Section. "Development size" is defined by total floor area for structures and buildings or total area of footprint for development other than structures and buildings. Total floor area includes the following:

(A) The total square footage of heated or air-conditioned living space;

(B) The total square footage of parking elevated above ground level; and

(C) The total square footage of non-heated or non-air-conditioned areas elevated above ground level, excluding attic space that is not designed to be load-bearing.

Decks, roof-covered porches, and walkways shall not be included in the total floor area unless they are enclosed with material other than screen mesh or are being converted into an enclosed space with material other than screen mesh.

(5) With the exception of those types of development defined in 15A NCAC 07H .0309, no development, including any portion of a building or structure, shall extend oceanward of the ocean hazard setback. This includes roof overhangs and elevated structural components that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings. The ocean hazard setback shall be established based on the following criteria:

(A) A building or other structure less than 5,000 square feet requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(B) A building or other structure greater than or equal to 5,000 square feet but less than 10,000 square feet requires a minimum setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(C) A building or other structure greater than or equal to 10,000 square feet but less than 20,000 square feet requires a minimum setback of 130 feet or 65 times the shoreline erosion rate, whichever is greater;

(D) A building or other structure greater than or equal to 20,000 square feet but less than 40,000 square feet requires a minimum setback of 140 feet or 70 times the shoreline erosion rate, whichever is greater;

(E) A building or other structure greater than or equal to 40,000 square feet but less than 60,000 square feet requires a minimum setback of 150 feet or 75 times the shoreline erosion rate, whichever is greater;

(F) A building or other structure greater than or equal to 60,000 square feet but less than 80,000 square feet requires a minimum setback of 160 feet or 80 times the shoreline erosion rate, whichever is greater;

(G) A building or other structure greater than or equal to 80,000 square feet but less than 100,000 square feet requires a minimum setback of 170 feet or 85 times the shoreline erosion rate, whichever is greater;

(H) A building or other structure greater than or equal to 100,000 square feet requires a minimum setback of 180 feet or 90 times the shoreline erosion rate, whichever is greater;

(I) Infrastructure that is linear in nature, such as roads, bridges, pedestrian access such as boardwalks and sidewalks, and utilities providing for the transmission of electricity, water, telephone, cable television, data, storm water, and sewer requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(J) Parking lots greater than or equal to 5,000 square feet require a setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(K) Notwithstanding any other setback requirement of this Subparagraph, a building or other structure greater than or equal to 5,000 square feet in a community with a static line exception in accordance with 15A NCAC 07J .1200 requires a minimum setback of 120 feet or 60 times the shoreline erosion rate in place at the time of permit issuance, whichever is greater. The setback shall be measured landward from either the static vegetation line, the vegetation line, or measurement line, whichever is farthest landward; and

(L) Notwithstanding any other setback requirement of this Subparagraph, replacement of single-family or duplex residential structures with a total floor area greater than 5,000 square feet, and commercial and multi-family residential structures with a total floor area no greater than 10,000 square feet, shall be allowed provided that the structure meets the following criteria:

(i) the structure was originally constructed prior to August 11, 2009;

(ii) the structure as replaced does not exceed the original footprint or square footage;

(iii) it is not possible for the structure to be rebuilt in a location that meets the ocean hazard setback criteria required under Subparagraph (a)(5) of this Rule;

(iv) the structure as replaced meets the minimum setback required under Part (a)(5)(A) of this Rule; and

(v) the structure is rebuilt as far landward on the lot as feasible.

(6) If a primary dune exists in the AEC on or landward of the lot where the development is proposed, the development shall be landward of the crest of the primary dune, the ocean hazard setback, or development line, whichever is farthest from vegetation line, static vegetation line, or measurement line, whichever is applicable. For existing lots, however, where setting the development landward of the crest of the primary dune would preclude any practical use of the lot, development may be located oceanward of the primary dune. In such cases, the development may be located landward of the ocean hazard setback, but shall not be located on or oceanward of a frontal dune or the development line. The words "existing lots" in this Rule shall mean a lot or tract of land that, as of June 1, 1979, is specifically described in a recorded plat and cannot be enlarged by combining the lot or tract of land with a contiguous lot or tract of land under the same ownership.

(7) If no primary dune exists, but a frontal dune does exist in the AEC on or landward of the lot where the development is proposed, the development shall be set landward of the frontal dune, ocean hazard setback, or development line, whichever is farthest from the vegetation line, static vegetation line, or measurement line, whichever is applicable.

(8) If neither a primary nor frontal dune exists in the AEC on or landward of the lot where development is proposed, the structure shall be landward of the ocean hazard setback or development line, whichever is more restrictive.

(9) Structural additions or increases in the footprint or total floor area of a building or structure represent expansions to the total floor area and shall meet the setback requirements established in this Rule and 15A NCAC 07H .0309(a). New development landward of the applicable setback may be cosmetically, but shall not be structurally, attached to an existing structure that does not conform with current setback requirements.

(10) Established common law and statutory public rights of access to and use of public trust lands and waters in ocean hazard areas shall not be eliminated or restricted. Development shall not encroach upon public accessways, nor shall it limit the intended use of the accessways.

(11) Development setbacks in areas that have received large-scale beach fill as defined in 15A NCAC 07H .0305 shall be measured landward from the static vegetation line as defined in this Section, unless a development line has been approved by the Coastal Resources Commission in accordance with 15A NCAC 07J .1300.

(12) In order to allow for development landward of the large-scale beach fill project that cannot meet the setback requirements from the static vegetation line, but can or has the potential to meet the setback requirements from the vegetation line set forth in Subparagraphs (a)(1) and (a)(5) of this Rule, a local government, group of local governments involved in a regional beach fill project, or qualified "owners' association" as defined in G.S. 47F-1-103(3) that has the authority to approve the locations of structures on lots within the territorial jurisdiction of the association and has jurisdiction over at least one mile of ocean shoreline, may petition the Coastal Resources Commission for a "static line exception" in accordance with 15A NCAC 07J .1200. The static line exception shall apply to development of property that lies both within the jurisdictional boundary of the petitioner and the boundaries of the large-scale beach fill project. This static line exception shall also allow development greater than 5,000 square feet to use the setback provisions defined in Part (a)(5)(K) of this Rule in areas that lie within the jurisdictional boundary of the petitioner, and the boundaries of the large-scale beach fill project. If the request is approved, the Coastal Resources Commission shall allow development setbacks to be measured from a vegetation line that is oceanward of the static vegetation line under the following conditions:

(A) Development meets all setback requirements from the vegetation line defined in Subparagraphs (a)(1) and (a)(5) of this Rule;

(B) Development setbacks shall be calculated from the shoreline erosion rate in place at the time of permit issuance;

(C) No portion of a building or structure, including roof overhangs and elevated portions that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings, extends oceanward of the landward-most adjacent building or structure. When the configuration of a lot precludes the placement of a building or structure in line with the landward-most adjacent building or structure, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, a distance no less than 30 times the shoreline erosion rate or 60 feet, whichever is greater;

(D) With the exception of swimming pools, the development defined in Rule .0309(a) of this Section shall be allowed oceanward of the static vegetation line; and

(E) Development shall not be eligible for the exception defined in Rule .0309(b) of this Section.

(b) No development shall be permitted that involves the removal or relocation of primary or frontal dune sand or vegetation thereon that would adversely affect the integrity of the dune. Other dunes within the ocean hazard area shall not be disturbed unless the development of the property is otherwise impracticable. Any disturbance of these other dunes shall be allowed only to the extent permitted by 15A NCAC 07H .0308(b).

(c) Development shall not cause irreversible damage to historic architectural or archaeological resources as documented by the local historic commission, the North Carolina Department of Natural and Cultural Resources, or the National Historical Registry.

(d) Development shall comply with minimum lot size and set back requirements established by local regulations.

(e) Mobile homes shall not be placed within the high hazard flood area unless they are within mobile home parks existing as of June 1, 1979.

(f) Development shall comply with the general management objective for ocean hazard areas set forth in 15A NCAC 07H .0303.

(g) Development shall not interfere with legal access to, or use of, public resources, nor shall such development increase the risk of damage to public trust areas.

(h) Development proposals shall incorporate measures to avoid or minimize adverse impacts of the project. These measures shall be implemented at the applicant's expense and may include actions that:

(1) minimize or avoid adverse impacts by limiting the magnitude or degree of the action;

(2) restore the affected environment; or

(3) compensate for the adverse impacts by replacing or providing substitute resources.

(i) Prior to the issuance of any permit for development in the ocean hazard AECs, there shall be a written acknowledgment from the applicant to the Division of Coastal Management that the applicant is aware of the risks associated with development in this hazardous area and the limited suitability of this area for permanent structures.

The acknowledgement shall state that the Coastal Resources Commission does not guarantee the safety of the development and assumes no liability for future damage to the development.
(j) All relocation of structures shall require permit approval. Structures relocated with public funds shall comply with the applicable setback line and other applicable AEC rules. Structures, including septic tanks and other essential accessories, relocated entirely with non-public funds shall be relocated the maximum feasible distance landward of the present location. Septic tanks shall not be located oceanward of the primary structure. All relocation of structures shall meet all other applicable local and state rules.
(k) Permits shall include the condition that any structure shall be relocated or dismantled when it becomes imminently threatened by changes in shoreline configuration as defined in 15A NCAC 07H .0308(a)(2)(B). Any such structure shall be relocated or dismantled within two years of the time when it becomes imminently threatened, and in any case upon its collapse or subsidence. However, if natural shoreline recovery or beach fill takes place within two years of the time the structure becomes imminently threatened, so that the structure is no longer imminently threatened, then it need not be relocated or dismantled at that time. This permit condition shall not affect the permit holder's right to seek authorization of temporary protective measures allowed pursuant to 15A NCAC 07H .0308(a)(2).

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1991; March 1, 1988; September 1, 1986; December 1, 1985;
RRC Objection due to ambiguity Eff. January 24, 1992;
Amended Eff. March 1, 1992;
RRC Objection due to ambiguity Eff. May 21, 1992;
Amended Eff. February 1, 1993; October 1, 1992; June 19, 1992;
RRC Objection due to ambiguity Eff. May 18, 1995;
Amended Eff. August 11, 2009; April 1, 2007; November 1, 2004; June 27, 1995;
Temporary Amendment Eff. January 3, 2013;
Amended Eff. September 1, 2017; February 1, 2017; April 1, 2016; September 1, 2013.

15A NCAC 07J .0210 REPLACEMENT OF EXISTING STRUCTURES

Replacement of structures damaged or destroyed by natural elements, fire or normal deterioration is considered development and requires CAMA permits. Replacement of structures shall be permitted if the replacements is consistent with current CRC rules. Repair of structures damaged by natural elements, fire or normal deterioration is not considered development and shall not require CAMA permits. The CRC shall use the following criteria to determine whether proposed work is considered repair or replacement.

(1) NON-WATER DEPENDENT STRUCTURES. Proposed work is considered replacement if the cost to do the work exceeds 50 percent of the market value of an existing structure immediately prior to the time of damage or the time of request. Market value and costs are determined as follows:
  (a) Market value of the structure does not include the value of the land, value resulting from the location of the property, value of accessory structures, or value of other improvements located on the property. Market value of the structure shall be determined by the Division based upon information provided by the applicant using any of the following methods:
    (i) appraisal;
    (ii) replacement cost with depreciation for age of the structure and quality of construction; or
    (iii) tax assessed value.
  (b) The cost to do the work is the cost to return the structure to its pre-damaged condition, using labor and materials obtained at market prices, regardless of the actual cost incurred by the owner to restore the structure. It shall include the costs of construction necessary to comply with local and state building codes and any improvements that the owner chooses to construct. The cost shall be determined by the Division utilizing any or all of the following:
    (i) an estimate provided by a North Carolina licensed contractor qualified by license to provide an estimate or bid with respect to the proposed work;
    (ii) an insurance company's report itemizing the cost, excluding contents and accessory structures; or
    (iii) an estimate provided by the local building inspections office.

(2) WATER DEPENDENT STRUCTURES. The proposed work is considered replacement if it enlarges the existing structure. The proposed work is also considered replacement if:

(a) in the case of fixed docks, piers, platforms, boathouses, boatlifts, and free standing moorings, more than 50 percent of the framing and structural components (beams, girders, joists, stringers, or pilings) must be rebuilt in order to restore the structure to its pre-damage condition. Water dependent structures that are structurally independent from the principal pier or dock, such as boatlifts or boathouses, are considered as separate structures for the purpose of this Rule;

(b) in the case of boat ramps and floating structures such as docks, piers, platforms, and modular floating systems, more than 50 percent of the square feet area of the structure must be rebuilt in order to restore the structure to its pre-damage condition;

(c) in the case of bulkheads, seawalls, groins, breakwaters, and revetments, more than 50 percent of the linear footage of the structure must be rebuilt in order to restore the structure to its pre-damage condition.

History Note: *Authority G.S. 113A-103(5)b.5.; 113A-107(a),(b);*
Eff. July 1, 1990;
Amended Eff. August 1, 2007.

ATTACHMENT C: Public Comments (Hearing record remains open until November 15, 2019; therefore, comments will be made available at the November 2019 CRC meeting)

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

CRC-19-34

November 19, 2019

MEMORANDUM

TO: Coastal Resources Commission

FROM: Ken Richardson

SUBJECT: Consideration of Comments & Adoption of 15A NCAC 07H. 0304 AECs Within Ocean Hazard Areas – Unvegetated Beach AEC

In September 2018, Hurricane Florence severely impacted the oceanfront dune system along portions of Surf City and North Topsail Beach, completely washing away the primary frontal dune along with any established vegetation, from which oceanfront setbacks are measured. The geographic extent of the affected areas made it impossible to identify a vegetation line by using interpolation and adjacent vegetation. As a result, the Commission at the November 2018 meeting approved temporary Unvegetated Beach Areas of Environmental Concern (AEC) designations in these locations for the purpose of allowing staff the ability to establish a Measurement Line; and also proposed amendments to 7H .0304 and .0305 to remove unnecessary and redundant language and provide clarity to the method utilized to delineate a Measurement Line. Both the rule amendments and fiscal analysis were approved by the Commission at their February 2019 meeting.

As you may recall, the Unvegetated Beach Area of Environmental Concern (AEC) is defined in 15A NCAC 07H .0304(3), and is one of three AECs within the Ocean Hazard system. An Unvegetated Beach can be designated by the Commission in areas where no stable and natural vegetation is present, including areas that have suddenly become unvegetated due to a hurricane or other major storm event. Under 15A NCAC 07H .0304(3)(b), the Unvegetated Beach designation may be for a specific period of time, or until stable and natural vegetation has re-established. Once the CRC designates an Unvegetated Beach, Division of Coastal Management (DCM) staff can establish a Measurement Line (15A NCAC 07H .0305(a)(9)) to serve as the reference feature from which oceanfront construction setbacks are measured until vegetation has re-established. Staff mapped the location of the Measurement Line by determining the average distance the pre-storm vegetation line receded at the closest vegetated site adjacent to the area designated by the Commission as the Unvegetated Beach AEC.

Pursuant to North Carolina General Statute 150B-21.2, the Division of Coastal Management held public hearings in Pender and Onslow Counties on Tuesday, October 15th for the purpose of inviting public participation in the consideration of the proposed amendments to 15A NCAC

07H .0305 of the North Carolina Administrative Code and associated fiscal analysis. The hearing record remains open until November 15, 2019, and Staff will provide a summary of any comments at the Commission's November meeting.

Following the Commission's review of any public comments, Staff will recommend that the Commission consider adoption of the rule amendments to 15A NCAC 07H .0304 designating the Unvegetated Beach AECs. Pending approval by the Rules Review Commission (RRC), Staff anticipates these rule amendments will become effective on February 1, 2020.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

CRC-19-35

November 5, 2019

MEMORANDUM

TO: Coastal Resources Commission
FROM: Mike Lopazanski
SUBJECT: Amendments to 15A NCAC 7H .0309 – Roof Over Decks

After considering a recent variance request, the Commission discussed additions and replacements confined to the original footprint of structures that do not meet applicable oceanfront setbacks. This particular case involved replacement of an upper deck on a structure with expansion of the roof of the structure to cover a lower deck. The proposed development was inconsistent with 15A NCAC 7H .0306(a)(5) which prohibits any portion of a building or structure from extending oceanward of the ocean hazard setback. Among the issues discussed were, the definition of development, what is included in total floor area calculations, and expansion of structures within their original footprint.

The issue was sent to a subcommittee (Bob Emory, Robin Smith, Mary Lucasse and Christy Goebel) for further discussion. Staff relayed the Division's experience with the expansion of oceanfront structures including within the building footprint, conversion of interior spaces, concerns with the enclosure of porches and past issues with cantilevering into the oceanfront setback area. The subcommittee agreed with Staff that there was not a need to amend 15A NCAC 7H .0306(a)(5) in relation to the expansion of structures into the oceanfront setback, but did believe some accommodation could be made for roofs over decks that meet the 15A NCAC 7H .0309 ocean hazard area exception for development within the setback area but landward of the first line of stable and natural vegetation. Under those provisions, unenclosed, uninhabitable gazebos with a footprint no greater than 200 square feet are allowed. The subcommittee is proposing that the provision for elevated decks within the setback area be amended (a copy is attached) to allow for roofing of similar dimensions (500 square feet). The subcommittee believes the amendment will allow for the addition of this structural component to a structure currently allowed within the setback and avoid variance requests of this type in the future.

I look forward to discussing the proposed rule language at our meeting in Emerald Isle.

15A NCAC 07H .0309 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

(a) The following types of development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of the Subchapter if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;
(2) driveways and parking areas with clay, packed sand or gravel;
(3) elevated ~~decks~~ unenclosed decks, which may be roofed, not exceeding a footprint of 500 square ~~feet;~~ feet. Existing decks exceeding a footprint of 500 square feet may be replaced with no enlargement beyond their original dimensions;
(4) beach accessways consistent with Rule .0308(c) of this Subchapter;
(5) unenclosed, ~~uninhabitable~~ uninhabitable, detached gazebos with a footprint of 200 square feet or less;
(6) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;
(7) temporary amusement stands;
(8) sand fences; and
(9) swimming pools.

In all cases, this development shall be permitted only if it is landward of the vegetation line or static vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; has overwalks to protect any existing dunes; is not essential to the continued existence or use of an associated principal development; is not required to satisfy minimum requirements of local zoning, subdivision or health regulations; and meets all other non-setback requirements of this Subchapter.

(b) Where application of the oceanfront setback requirements of Rule .0306(a) of this Subchapter would preclude placement of permanent substantial structures on lots existing as of June 1, 1979, buildings shall be permitted seaward of the applicable setback line in ocean erodible areas, but not inlet hazard areas or unvegetated beach areas, if each of the following conditions are met:

(1) The development is set back from the ocean the maximum feasible distance possible on the existing lot and the development is designed to minimize encroachment into the setback area;
(2) The development is at least 60 feet landward of the vegetation line or static vegetation line, whichever is applicable;
(3) The development is not located on or in front of a frontal dune, but is entirely behind the landward toe of the frontal dune;
(4) The development incorporates each of the following design standards, which are in addition to those required by Rule .0308(d) of this Subchapter.
    (A) All pilings shall have a tip penetration that extends to at least four feet below mean sea level;
    (B) The footprint of the structure shall be no more than 1,000 square feet, and the total floor area of the structure shall be no more than 2,000 square feet. For the purpose of this Section, roof-covered decks and porches that are structurally attached shall be included in the calculation of footprint;
    (C) Driveways and parking areas shall be constructed of clay, packed sand or gravel except in those cases where the development does not abut the ocean and is located landward of a paved public street or highway currently in use. In those cases concrete, asphalt or turfstone may also be used;
    (D) No portion of a building's total floor area, including elevated portions that are cantilevered, knee braced or otherwise extended beyond the support of pilings or footings, may extend oceanward of the total floor area of the landward-most adjacent building. When the geometry or orientation of a lot precludes the placement of a building in line with the landward most adjacent structure of similar use, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, static vegetation line or measurement line, whichever is applicable, a distance no less than 60 feet.
(5) All other provisions of this Subchapter and other state and local regulations are met. If the development is to be serviced by an on-site waste disposal system, a copy of a valid permit for such a system shall be submitted as part of the CAMA permit application.

(c) Reconfiguration and development of lots and projects that have a grandfather status under Paragraph (b) of this Rule shall be allowed provided that the following conditions are met:

(1) Development is setback from the first line of stable natural vegetation a distance no less than that required by the applicable exception;

(2) Reconfiguration shall not result in an increase in the number of buildable lots within the Ocean Hazard AEC or have other adverse environmental consequences.

For the purposes of this Rule, an existing lot is a lot or tract of land which, as of June 1, 1979, is specifically described in a recorded plat and which cannot be enlarged by combining the lot or tract of land with a contiguous lot(s) or tract(s) of land under the same ownership. The footprint is defined as the greatest exterior dimensions of the structure, including covered decks, porches, and stairways, when extended to ground level.

(d) The following types of water dependent development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) piers providing public access; and

(2) maintenance and replacement of existing state-owned bridges and causeways and accessways to such bridges.

(e) Replacement or construction of a pier house associated with an ocean pier shall be permitted if each of the following conditions is met:

(1) The ocean pier provides public access for fishing and other recreational purposes whether on a commercial, public, or nonprofit basis;

(2) Commercial, non-water dependent uses of the ocean pier and associated pier house shall be limited to restaurants and retail services. Residential uses, lodging, and parking areas shall be prohibited;

(3) The pier house shall be limited to a maximum of two stories;

(4) A new pier house shall not exceed a footprint of 5,000 square feet and shall be located landward of mean high water;

(5) A replacement pier house may be rebuilt not to exceed its most recent footprint or a footprint of 5,000 square feet, whichever is larger;

(6) The pier house shall be rebuilt to comply with all other provisions of this Subchapter; and

(7) If the pier has been destroyed or rendered unusable, replacement or expansion of the associated pier house shall be permitted only if the pier is being replaced and returned to its original function.

(f) In addition to the development authorized under Paragraph (d) of this Rule, small scale, non-essential development that does not induce further growth in the Ocean Hazard Area, such as the construction of single family piers and small scale erosion control measures that do not interfere with natural oceanfront processes, shall be permitted on those non-oceanfront portions of shoreline that exhibit features characteristic of an Estuarine Shoreline. Such features include the presence of wetland vegetation, and lower wave energy and erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200 and 07K .0203.

(g) Transmission lines necessary to transmit electricity from an offshore energy-producing facility may be permitted provided that each of the following conditions is met:

(1) The transmission lines are buried under the ocean beach, nearshore area, and primary and frontal dunes, all as defined in Rule 07H .0305, in such a manner so as to ensure that the placement of the transmission lines involves no alteration or removal of the primary or frontal dunes; and

(2) The design and placement of the transmission lines shall be performed in a manner so as not to endanger the public or the public's use of the beach.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d; 113A-124;*
Eff. February 2, 1981;
Amended Eff. June 1, 2010; February 1, 2006; September 17, 2002 pursuant to S.L. 2002-116; August 1, 2000; August 1, 1998; April 1, 1996; April 1, 1995; February 1, 1993; January 1, 1991; April 1, 1987.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

November 6, 2019

MEMORANDUM **CRC-19-36**

TO: Coastal Resources Commission

FROM: Jonathan Howell

SUBJECT: Refinement of Amendments to 15A NCAC 07J .0403; .0403 Development Period/Commencement & Development Period Extension

At the September 2019 CRC meeting, the Commission approved the fiscal analysis associated with amendments to 15A NCAC 7J .0403 and 7J .0403 to lengthen the initial expiration date for most new Major Permits to five years from the date of permit issuance; eliminate the ability to obtain a single two-year renewal when permitted development has not begun; lengthen the initial expiration date for publicly sponsored, multi-phased beach nourishment projects to 10 years from the date of permit issuance, and allow for 10-year renewals and; eliminate the provisions of 15A NCAC 07J .0404(b), which allow for the circulation of renewal requests to commenting State agencies when the requests do not meet the criteria for permit renewal.

Since that meeting, the Division has encountered several situations where a CAMA Major permit was about to expire and there was some question as whether enough work had been completed in order to meet the criteria for renewal. As these were fairly large projects that were delayed due to the recession, the Division utilized the provisions of 7J .0404(c) and (d) to recirculate the permits to the applicable review agencies for any changes in rules or site conditions that would preclude renewal of the permit. In one case, the US Army Corps of Engineers objected based on changes in site conditions therefore requiring a new permit due to required modifications.

While the Division believes applicants and review agencies will realize a time savings as the proposed amendments will eliminate the need to develop a new application, DCM has solicited comment on this process from the reviewing agencies.

I will report on the comments from other agencies and discuss the refinements to these amendments at the upcoming meeting in Emerald Isle.

North Carolina Department of Environmental Quality | Division of Coastal Management
Morehead City Office | 400 Commerce Avenue | Morehead City, North Carolina 28557
252.808.2808

PROPOSED AMENDMENT TO 15A NCAC 7J .0403 & 7J .0404 NOVEMBER 6, 2019

15A NCAC 07J .0403 DEVELOPMENT PERIOD/COMMENCEMENT/CONTINUATION

(a) New dredge and fill permits and CAMA ~~permits, excepting~~ Major permits shall expire five years from the date of permit issuance, with the exception of publicly-sponsored, multi-phased beach nourishment projects, which shall expire ten years from the date of permit issuance. Minor permits, except those authorizing beach bulldozing when authorized through issuance of a CAMA minor permit, shall expire on December 31 of the third year following the year of permit issuance.

(b) ~~Pursuant to Subparagraph (a) of this Rule, a minor permit~~ CAMA minor permits authorizing beach bulldozing shall expire 30 days from the date of permit ~~issuance when issued to a property owner(s)~~ issuance. Following permit expiration, the ~~applicant~~ permit holder is entitled to request an extension in accordance with Rule .0404(a) of this Section.

(c) Development After Permit Expiration Illegal. Any development ~~done~~ undertaken after permit expiration shall be considered unpermitted and shall constitute a violation of G.S. 113A-118 or G.S. 113-229. Any development ~~to be done~~ to be undertaken after permit expiration shall require either a new permit, or renewal of the original permit according to ~~15A NCAC 7J .0404 with the exception of Paragraph (e) of this Rule.~~ 15A NCAC 7J .0404

(d) Commencement of Development in Ocean Hazard AEC. No development shall begin until the oceanfront setback requirement can be established. When the possessor of a permit or a ruling of exception is ready to begin ~~construction, he~~ development, they shall arrange a meeting with the appropriate permitting authority at the site to determine the oceanfront setback. This setback determination shall replace the one done at the time the permit was processed and approved and construction must begin within a period of 60 days from the date of that meeting. In the case of a ~~major~~ shoreline change within that ~~period~~ period, a new setback determination will be required before construction begins. Upon completion of the measurement, the permitting authority will issue a written statement to the permittee certifying the same.

~~(e) Continuation of Development in the Ocean Hazard AEC. Once development has begun under proper authorization, development in the Ocean Hazard AEC may continue beyond the authorized development period if, in the opinion of the permitting authority, substantial progress has been made and is continuing according to customary and usual building standards and schedules. In most cases, substantial progress begins with the placement of foundation pilings, and proof of the local building inspector's certification that the installed pilings have passed a floor and foundation inspection~~.

~~(f)~~(e) Any permit that has been suspended ~~pursuant to G.S. 113A-121.1 as a result of a contested case petition or~~ by order of superior court for a period longer than six months shall be extended at the ~~applicant's~~ permit holder's written request for a period equivalent to the period of permit suspension, but not to exceed the development period authorized under ~~Paragraph~~ Paragraph (a) or (b) of this Rule.

~~(g)~~(f) ~~An applicant~~ A permit holder may voluntarily suspend development under an active permit that is the subject of judicial review by filing a written notice with the Department once the review has started. ~~An applicant~~ A permit holder shall obtain an extension of said permit if the permitting authority finds:

(1) That the ~~applicant~~ permit holder notified the permitting authority in writing of the voluntary suspension;
(2) The period during which the permit had been subject to judicial review is greater than six months;
(3) The ~~applicant~~ permit holder filed a written request for an extension of the development period once the judicial review had been completed; and
(4) The ~~applicant~~ permit holder undertook no development after filing the notice of suspension. The period of permit extension shall be equivalent to the length of the judicial review proceeding, but not to exceed the development period authorized under Paragraph (a) of this Rule.

History Note: *Authority G.S. 113A-118;*
Eff. March 15, 1978;
Amended Eff. August 1, 2002; April 1, 1995; July 1, 1989; March 1, 1985; November 1, 1984.

History Note: *Authority G.S. 113A-119; 113A-119.1; 113A-124(c)(8);*

Eff. March 15, 1978;
Amended Eff. August 1, 2002; August 1, 2000; April 1, 1995; March 1, 1991; March 1, 1985; November 1, 1984.

15A NCAC 07J .0404 DEVELOPMENT PERIOD EXTENSION

(a) For CAMA minor permits authorizing beach bulldozing, the ~~applicant~~ permit holder is entitled to request a one-time ~~30 day~~ 30-day permit extension. No additional extensions shall be granted after the 30-day extension has expired. Notwithstanding this Paragraph, the ~~applicant~~ permit holder is eligible to apply for another minor permit authorizing beach bulldozing following expiration of the ~~30 days~~ 30-day permit extension.

~~(b) Where no development has been initiated during the development period, the permitting authority shall extend the authorized development period for no more than two years upon receipt of a signed and dated request from the applicant containing the following:~~

~~(1) a statement of the intention of the applicant to complete the work within a reasonable time;~~

~~(2) a statement of the reasons why the project will not be completed before the expiration of the current permit;~~

~~(3) a statement that there has been no change of plans since the issuance of the original permit other than changes that would have the effect of reducing the scope of the project, or, previously approved permit modifications;~~

~~(4) notice of any change in ownership of the property to be developed and a request for transfer of the permit if appropriate; and~~

~~(5) a statement that the project is in compliance with all conditions of the current permit.~~

~~Where substantial development, either within or outside the AEC, has begun and is continuing on a permitted project, the permitting authority shall grant as many two year extensions as necessary to complete the initial development. For the purpose of this Rule, substantial development shall be deemed to have occurred on a project if the permittee can show that development has progressed beyond basic site preparation, such as land clearing and grading, and construction has begun and is continuing on the primary structure or structures authorized under the permit. For purposes of residential subdivision, installation of subdivision roads consistent with an approved subdivision plat shall constitute substantial development. Renewals for maintenance and repairs of previously approved projects may be granted for periods not to exceed 10 years~~.

(b) All other CAMA permits may be extended where substantial development, either within or outside the AEC, has begun and is continuing. The permitting authority shall grant as many two-year extensions as necessary to complete the initial development, with the exception that projects involving publicly-sponsored, multi-phased beach nourishment projects, shall be granted ten-year extensions to allow for continuing project implementation. Renewals for maintenance of previously approved dredging projects may be granted for periods not to exceed 10 years. For the purpose of this Rule, substantial development shall be deemed to have occurred on a project if the permittee can show that development has progressed beyond basic site preparation, such as land clearing and grading, and construction has begun and is continuing on the primary structure or structures authorized under the permit. In Ocean Hazard Areas, substantial development begins with the placement of foundation pilings, and proof of the local building inspector's certification that the installed pilings have passed a floor and foundation inspection. For residential subdivisions, installation of subdivision roads consistent with an approved subdivision plat shall constitute substantial development.

(c) To request extension pursuant to Paragraphs (a) and (b) of this Rule, the permit holder shall submit a signed and dated request containing the following:

(1) a statement of the completed and remaining work;

(2) a statement that there has been no change of plans since the issuance of the original permit other than changes that would have the effect of reducing the scope of the project, or, previously approved permit modifications;

(3) notice of any change in ownership of the property to be developed and a request for transfer of the permit if appropriate; and

(4) a statement that the project is in compliance with all conditions of the current permit.

~~(c)~~(d) When an extension request has not met the criteria of Paragraph (b) of this Rule, the Department may circulate the request to the commenting state agencies along with a copy of the original permit application. Commenting agencies will be given ~~three weeks~~30 days in which to comment on the extension request. Upon the expiration of the commenting period the Department will notify the applicant promptly of its actions on the extension request.

~~(d)~~(e) Notwithstanding Paragraphs (b) and ~~(c)~~(d) of this Rule, an extension request may be denied on making findings as required in either G.S. 113A-120 or G.S. 113-229(e). Changes in circumstances or in development standards shall

be considered and applied to the maximum extent practical by the permitting authority in making a decision on an extension request.

~~(e)~~(f) The applicant for a major development extension request must submit, with the request, a check or money order payable to the Department in the sum of one hundred dollars ($100.00).

~~(f) Modifications to extended permits may be considered pursuant to 15A NCAC 07J .0405.~~

History Note: *Authority G.S. 113A-119; 113A-119.1; 113A-124(c)(8);*
Eff. March 15, 1978;
Amended Eff. August 1, 2002; August 1, 2000; April 1, 1995; March 1, 1991; March 1, 1985; November 1, 1984.

David Hoyle, Jr., Chairman
N.C. Wildlife Resources Commission
P.O. Box 708
Dallas, N.C. 28034

Dear Mr. Hoyle:

As Chair of the Coastal Resources Commission, I am writing to express the CRC's objections to the Wildlife Resources Commission proposal to unilaterally change the boundary between coastal and inland waters. The coastal/inland waters boundary has significance far beyond jurisdiction for fisheries regulation. A number of state laws, including the Coastal Area Management Act (G.S. 113A-100, *et seq.)* and the State Dredge and Fill Act (G.S. 113-229), refer to the coastal/inland waters boundary as the extent of the state's estuarine resources. As a result, the coastal/inland waters designation is critical to protection of those estuarine resources under coastal management, water quality and habitat protection programs.

The Coastal Resources Commission has responsibility for implementation of both the Coastal Area Management Act and the State Dredge and Fill Act. The CRC has particular concerns about the potential impact of proposed MFC changes to the coastal/inland waters boundary on our ability to protect estuarine resources. To meet the intent of those laws, the criteria used to mark the extent of estuarine waters must be based on scientific understanding of the conditions that support the state's estuarine resources. The WRC proposal appears to be based solely on a salinity level that may not be representative of conditions in North Carolina's estuarine waters.

A change in the extent of estuarine waters that fails to reflect actual conditions in North Carolina estuaries and the streams feeding those estuaries could have serious consequences by removing protections against dredging and other development activities that can physically damage estuarine habitat and degrade water quality.

State law makes it clear that the decision on coastal/inland waters jurisdiction must be by agreement between the Department of Environmental Quality and the Wildlife Resources Commission. DEQ has already expressed its concerns about the WRC proposal. The Coastal Resources Commission shares the department's concerns and encourages the WRC to withdraw the current proposal and return to negotiation with DEQ on a basis for delineation of the coastal/inland waters boundary that will adequately protect the state's estuarine resources.

We look forward to working with other DEQ agencies and the WRC to reach an agreement that will allow all of our agencies to meet our responsibilities for stewardship of the state's resources.

In the absence of an agreement, the CRC will oppose any unilateral WRC rule change affecting the coastal/inland water boundary as we believe the WRC lacks statutory authority to make such a change.

Respectfully,

Cc: Gordan Myers, Executive Director, WRC
Michael Regan, Secretary of Environmental Quality

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

November 6, 2019

MEMORANDUM **CRC-19-37**

TO: Coastal Resources Commission

FROM: Ken Richardson, *Shoreline Management Specialist*

SUBJECT: Amendments to 15A NCAC 07H. 0306 and 07J. 1301 – Development Line Setback Exceptions.

At the September 2019 CRC meeting in Wilmington, Commissioners and DCM Staff discussed some notable differences between the Static Vegetation Line (SVL) Exception and Development Line (DVL) that make implementation of these rules complex and present some management challenges, specifically, when it comes to what structures, or parts of the primary structure, can or cannot be located seaward of one or more of the management lines (vegetation line, static line, or development line).

As you may recall, Development Line Rules (15A NCAC 07J .1300) and Static Vegetation Line Exception Rules (15A NCAC 07H .0306(a)(K)) allow construction setbacks to be measured from the existing first line of stable and natural vegetation (FLSNV). What makes the DVL different from the SVL Exception are the procedures within the rules, and the process of defining the limits of development, including how to consider decks and other accessory structures outlined in 07H.0309 - such as dune crossovers, gazebos, and parking areas. Although it is not clearly stated in the rule, the Commission expressed its intent was to discourage the use of decks and accessory structures (i.e., pools) from being used to delineate DVLs. However, due to the ambiguity in the rule DVLs have been delineated differently from one community to the next, and these structures may or may not be seaward of the DVL in some locations. Because the current Rule (15A NCAC 07H .0306(a)(2)) states that "in no case shall new development be sited seaward of the development line," difficulties have been encountered during permit reviews when decks and other structures listed under 7H .0309 oceanfront setback exceptions are being proposed seaward of a DVL.

After consideration and discussion of the types of development currently allowed within the oceanfront setback area under 07H. 0309, the CRC agreed at that excluding pools, elevated decks, and driveways, the remaining types of development listed as exceptions in 07H .0309 should be allowed oceanward of the DVL if other CRC rules and state and local regulations are met.

At the recommendation of the CRC, Staff is providing draft amendments to 15A NCAC 07H .0306 and 07J .1301 for the Commission to consider for approval at the upcoming meeting.

It should be noted that where local governments have mapped their DVLs to intersect or be located landward of pools, elevated decks, or driveways, there is the ability for communities to make changes to their DVL and ask for the CRC's approval. Based on an initial evaluation using county tax office structure footprints and 2016 imagery, it is estimated that the following are seaward of, or intersected by existing DVLs:

- 67 decks
- 53 single-family residential structures
- 1 multi-family structure
- 6 commercial structures
- 18 pools
- 2 boardwalks (not beach accessways)

If there are no further amendments required, the CRC can approve these draft amendments.

ATTACHMENT A: List of Communities with Static Vegetation Lines (SVL), SVL Exceptions, Development Lines (DVL), and Measurement Lines.

Attachment B: Proposed Amendments to 07H.0306 General Use Standards for Ocean Hazard Areas

Attachment C: Appendix B: Proposed Amendments to 07J.1300 Development Line Procedures

ATTACHMENT A: List of Communities with Static Vegetation Lines (SVL), SVL Exceptions, Development Lines (DVL), and Measurement Lines.

Community	SVL	SVL Exception	DVL	Measurement Line
Ocean Isle	**Yes**	**Yes**	*No*	*No*
Oak Island	**Yes**	*No*	**Yes**	*No*
Caswell Beach	**Yes**	*No*	*No*	*No*
Bald Head Island	**Yes**	*No*	*No*	*No*
Kure Beach	**Yes**	*No*	**Yes**	*No*
Carolina Beach	**Yes**	**Yes**	**Yes**	*No*
Wrightsville Beach	**Yes**	**Yes**	*No*	*No*
Figure Eight Island	*No*	*No*	**Yes**	*No*
Topsail Beach	**Yes**	*No*	*No*	*No*
Surf City	*No*	*No*	*No*	**Yes**
North Topsail Beach	**Yes**	*No*	*No*	**Yes**
Emerald Isle	**Yes**	**Yes**	*No*	*No*
Indian Beach	**Yes**	**Yes**	*No*	*No*
Salter Path	**Yes**	**Yes**	*No*	*No*
Pine Knoll Shores	**Yes**	**Yes**	*No*	*No*
Atlantic Beach	**Yes**	**Yes**	*No*	*No*
Buxton	**Yes**	*No*	*No*	*No*
Rodanthe	**Yes**	*No*	*No*	*No*
Nags Head	**Yes**	*No*	*No*	*No*
Kill Devil Hills	**Yes**	*No*	*No*	*No*
Kitty Hawk	**Yes**	*No*	*No*	*No*
Southern Shores	**Yes**	*No*	*No*	*No*

ATTACHMENT B: Proposed Amendments to 07H.0306 General Use Standards for Ocean Hazard Areas

15A NCAC 07H .0306 GENERAL USE STANDARDS FOR OCEAN HAZARD AREAS

(a) In order to protect life and property, all development not otherwise specifically exempted or allowed by law or elsewhere in the Coastal Resources Commission's rules shall be located according to whichever of the following is applicable:

(1) The ocean hazard setback for development shall be measured in a landward direction from the vegetation line, the static vegetation line, or the measurement line, whichever is applicable.

(2) In areas with a development line, the ocean hazard setback shall be set in accordance with Subparagraphs (a)(3) through (9) of this Rule. With the exception of those types of development defined in 15A NCAC 07 .1301, in ~~In~~ no case shall new development be sited seaward of the development line.

(3) In no case shall a development line be created or established on state owned lands or oceanward of the mean high water line or perpetual property easement line, whichever is more restrictive.

(4) The ocean hazard setback shall be determined by both the size of development and the shoreline long term erosion rate as defined in Rule .0304 of this Section. "Development size" is defined by total floor area for structures and buildings or total area of footprint for development other than structures and buildings. Total floor area includes the following:

(A) The total square footage of heated or air-conditioned living space;

(B) The total square footage of parking elevated above ground level; and

(C) The total square footage of non-heated or non-air-conditioned areas elevated above ground level, excluding attic space that is not designed to be load-bearing.

Decks, roof-covered porches, and walkways shall not be included in the total floor area unless they are enclosed with material other than screen mesh or are being converted into an enclosed space with material other than screen mesh.

(5) With the exception of those types of development defined in 15A NCAC 07H .0309, no development, including any portion of a building or structure, shall extend oceanward of the ocean hazard setback. This includes roof overhangs and elevated structural components that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings. The ocean hazard setback shall be established based on the following criteria:

(A) A building or other structure less than 5,000 square feet requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(B) A building or other structure greater than or equal to 5,000 square feet but less than 10,000 square feet requires a minimum setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(C) A building or other structure greater than or equal to 10,000 square feet but less than 20,000 square feet requires a minimum setback of 130 feet or 65 times the shoreline erosion rate, whichever is greater;

(D) A building or other structure greater than or equal to 20,000 square feet but less than 40,000 square feet requires a minimum setback of 140 feet or 70 times the shoreline erosion rate, whichever is greater;

(E) A building or other structure greater than or equal to 40,000 square feet but less than 60,000 square feet requires a minimum setback of 150 feet or 75 times the shoreline erosion rate, whichever is greater;

(F) A building or other structure greater than or equal to 60,000 square feet but less than 80,000 square feet requires a minimum setback of 160 feet or 80 times the shoreline erosion rate, whichever is greater;

(G) A building or other structure greater than or equal to 80,000 square feet but less than 100,000 square feet requires a minimum setback of 170 feet or 85 times the shoreline erosion rate, whichever is greater;

(H) A building or other structure greater than or equal to 100,000 square feet requires a minimum setback of 180 feet or 90 times the shoreline erosion rate, whichever is greater;

(I) Infrastructure that is linear in nature, such as roads, bridges, pedestrian access such as boardwalks and sidewalks, and utilities providing for the transmission of electricity, water,

telephone, cable television, data, storm water, and sewer requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(J) Parking lots greater than or equal to 5,000 square feet require a setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(K) Notwithstanding any other setback requirement of this Subparagraph, a building or other structure greater than or equal to 5,000 square feet in a community with a static line exception in accordance with 15A NCAC 07J .1200 requires a minimum setback of 120 feet or 60 times the shoreline erosion rate in place at the time of permit issuance, whichever is greater. The setback shall be measured landward from either the static vegetation line, the vegetation line, or measurement line, whichever is farthest landward; and

(L) Notwithstanding any other setback requirement of this Subparagraph, replacement of single-family or duplex residential structures with a total floor area greater than 5,000 square feet, and commercial and multi-family residential structures with a total floor area no greater than 10,000 square feet, shall be allowed provided that the structure meets the following criteria:

(i) the structure was originally constructed prior to August 11, 2009;

(ii) the structure as replaced does not exceed the original footprint or square footage;

(iii) it is not possible for the structure to be rebuilt in a location that meets the ocean hazard setback criteria required under Subparagraph (a)(5) of this Rule;

(iv) the structure as replaced meets the minimum setback required under Part (a)(5)(A) of this Rule; and

(v) the structure is rebuilt as far landward on the lot as feasible.

(6) If a primary dune exists in the AEC on or landward of the lot where the development is proposed, the development shall be landward of the crest of the primary dune, the ocean hazard setback, or development line, whichever is farthest from vegetation line, static vegetation line, or measurement line, whichever is applicable. For existing lots, however, where setting the development landward of the crest of the primary dune would preclude any practical use of the lot, development may be located oceanward of the primary dune. In such cases, the development may be located landward of the ocean hazard setback, but shall not be located on or oceanward of a frontal dune or the development line. The words "existing lots" in this Rule shall mean a lot or tract of land that, as of June 1, 1979, is specifically described in a recorded plat and cannot be enlarged by combining the lot or tract of land with a contiguous lot or tract of land under the same ownership.

(7) If no primary dune exists, but a frontal dune does exist in the AEC on or landward of the lot where the development is proposed, the development shall be set landward of the frontal dune, ocean hazard setback, or development line, whichever is farthest from the vegetation line, static vegetation line, or measurement line, whichever is applicable.

(8) If neither a primary nor frontal dune exists in the AEC on or landward of the lot where development is proposed, the structure shall be landward of the ocean hazard setback or development line, whichever is more restrictive.

(9) Structural additions or increases in the footprint or total floor area of a building or structure represent expansions to the total floor area and shall meet the setback requirements established in this Rule and 15A NCAC 07H .0309(a). New development landward of the applicable setback may be cosmetically, but shall not be structurally, attached to an existing structure that does not conform with current setback requirements.

(10) Established common law and statutory public rights of access to and use of public trust lands and waters in ocean hazard areas shall not be eliminated or restricted. Development shall not encroach upon public accessways, nor shall it limit the intended use of the accessways.

(11) Development setbacks in areas that have received large-scale beach fill as defined in 15A NCAC 07H .0305 shall be measured landward from the static vegetation line as defined in this Section, unless a development line has been approved by the Coastal Resources Commission in accordance with 15A NCAC 07J .1300.

(12) In order to allow for development landward of the large-scale beach fill project that cannot meet the setback requirements from the static vegetation line, but can or has the potential to meet the setback requirements from the vegetation line set forth in Subparagraphs (a)(1) and (a)(5) of this Rule, a local government, group of local governments involved in a regional beach fill project, or qualified "owners' association" as defined in G.S. 47F-1-103(3) that has the authority to approve the locations of structures on lots within the territorial jurisdiction of the association and has jurisdiction over at

least one mile of ocean shoreline, may petition the Coastal Resources Commission for a "static line exception" in accordance with 15A NCAC 07J .1200. The static line exception shall apply to development of property that lies both within the jurisdictional boundary of the petitioner and the boundaries of the large-scale beach fill project. This static line exception shall also allow development greater than 5,000 square feet to use the setback provisions defined in Part (a)(5)(K) of this Rule in areas that lie within the jurisdictional boundary of the petitioner, and the boundaries of the large-scale beach fill project. If the request is approved, the Coastal Resources Commission shall allow development setbacks to be measured from a vegetation line that is oceanward of the static vegetation line under the following conditions:

(A) Development meets all setback requirements from the vegetation line defined in Subparagraphs (a)(1) and (a)(5) of this Rule;

(B) Development setbacks shall be calculated from the shoreline erosion rate in place at the time of permit issuance;

(C) No portion of a building or structure, including roof overhangs and elevated portions that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings, extends oceanward of the landward-most adjacent building or structure. When the configuration of a lot precludes the placement of a building or structure in line with the landward-most adjacent building or structure, an average line of construction shall be determined by the Division of Coastal Management on a case-by-case basis in order to determine an ocean hazard setback that is landward of the vegetation line, a distance no less than 30 times the shoreline erosion rate or 60 feet, whichever is greater;

(D) With the exception of swimming pools, the development defined in Rule .0309(a) of this Section shall be allowed oceanward of the static vegetation line; and

(E) Development shall not be eligible for the exception defined in Rule .0309(b) of this Section.

(b) No development shall be permitted that involves the removal or relocation of primary or frontal dune sand or vegetation thereon that would adversely affect the integrity of the dune. Other dunes within the ocean hazard area shall not be disturbed unless the development of the property is otherwise impracticable. Any disturbance of these other dunes shall be allowed only to the extent permitted by 15A NCAC 07H .0308(b).

(c) Development shall not cause irreversible damage to historic architectural or archaeological resources as documented by the local historic commission, the North Carolina Department of Natural and Cultural Resources, or the National Historical Registry.

(d) Development shall comply with minimum lot size and set back requirements established by local regulations.

(e) Mobile homes shall not be placed within the high hazard flood area unless they are within mobile home parks existing as of June 1, 1979.

(f) Development shall comply with the general management objective for ocean hazard areas set forth in 15A NCAC 07H .0303.

(g) Development shall not interfere with legal access to, or use of, public resources, nor shall such development increase the risk of damage to public trust areas.

(h) Development proposals shall incorporate measures to avoid or minimize adverse impacts of the project. These measures shall be implemented at the applicant's expense and may include actions that:

(1) minimize or avoid adverse impacts by limiting the magnitude or degree of the action;

(2) restore the affected environment; or

(3) compensate for the adverse impacts by replacing or providing substitute resources.

(i) Prior to the issuance of any permit for development in the ocean hazard AECs, there shall be a written acknowledgment from the applicant to the Division of Coastal Management that the applicant is aware of the risks associated with development in this hazardous area and the limited suitability of this area for permanent structures. The acknowledgement shall state that the Coastal Resources Commission does not guarantee the safety of the development and assumes no liability for future damage to the development.

(j) All relocation of structures shall require permit approval. Structures relocated with public funds shall comply with the applicable setback line and other applicable AEC rules. Structures, including septic tanks and other essential accessories, relocated entirely with non-public funds shall be relocated the maximum feasible distance landward of the present location. Septic tanks shall not be located oceanward of the primary structure. All relocation of structures shall meet all other applicable local and state rules.

(k) Permits shall include the condition that any structure shall be relocated or dismantled when it becomes imminently threatened by changes in shoreline configuration as defined in 15A NCAC 07H .0308(a)(2)(B). Any such structure shall be relocated or dismantled within two years of the time when it becomes imminently threatened, and in any case

upon its collapse or subsidence. However, if natural shoreline recovery or beach fill takes place within two years of the time the structure becomes imminently threatened, so that the structure is no longer imminently threatened, then it need not be relocated or dismantled at that time. This permit condition shall not affect the permit holder's right to seek authorization of temporary protective measures allowed pursuant to 15A NCAC 07H .0308(a)(2).

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1991; March 1, 1988; September 1, 1986; December 1, 1985;
RRC Objection due to ambiguity Eff. January 24, 1992;
Amended Eff. March 1, 1992;
RRC Objection due to ambiguity Eff. May 21, 1992;
Amended Eff. February 1, 1993; October 1, 1992; June 19, 1992;
RRC Objection due to ambiguity Eff. May 18, 1995;
Amended Eff. August 11, 2009; April 1, 2007; November 1, 2004; June 27, 1995;
Temporary Amendment Eff. January 3, 2013;
Amended Eff. September 1, 2017; February 1, 2017; April 1, 2016; September 1, 2013.

ATTACHMENT C: Proposed Amendments to 07J.1300 Development Line Procedures

SECTION .1300 – DEVELOPMENT LINE PROCEDURES

15A NCAC 07J .1301 REQUESTING THE DEVELOPMENT LINE

(a) Any local government, group of local governments involved in a regional beach fill project, or qualified owner's association with territorial jurisdiction over an area that is subject to ocean hazard area setbacks pursuant to 15A NCAC 07H .0305 may petition the Coastal Resources Commission for a development line for the purpose of siting oceanfront development in accordance with the provisions of this Section. A "qualified owner's association" is an owner's association, as defined in G.S. 47F-1-103(3), that has authority to approve the locations of structures on lots within the territorial jurisdiction of the association and has jurisdiction over at least one mile of ocean shoreline.

(b) A development line request shall apply to the entire large-scale project area as defined in 15A NCAC 07H .0305(a)(7) and, at the petitioner's request, may be extended to include the entire oceanfront jurisdiction or legal boundary of the petitioner.

(c) In determining where to position a requested development line, the petitioner shall use an adjacent neighbor sight-line approach, resulting in an average line of structures. In areas where the seaward edge of existing development is not linear, the petitioner may determine an average line of construction on a case-by-case basis. In no case shall a development line be established seaward of the most seaward structure within the petitioner's oceanfront jurisdiction.

(d) The following types of development shall be permitted seaward of the development line if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;
(2) beach accessways consistent with Rule 15A NCAC 07H .0308(c);
(3) unenclosed, uninhabitable gazebos with a footprint of 200 square feet or less;
(4) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;
(5) temporary amusement stands; and
(6) sand fences consistent with Rule 15A NCAC 07H .0311.

In all cases, this development shall be permitted only if it is landward of the vegetation line, measurement line or static vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; has overwalks to protect any existing dunes; and is not essential to the continued existence or use of an associated principal development; is not required to satisfy minimum requirements of local zoning, subdivision or health regulations.

(e)~~(d)~~ An existing structure that is oceanward of an approved development line may remain in place until damaged greater than 50 percent in accordance with Rule .0210 of this Subchapter. At that time it may only be replaced landward of the development line and shall meet the applicable ocean hazard setback requirements as defined in 15A NCAC 07H .0306(a).

(f)~~(e)~~ A request for a development line or amendment shall be made in writing by the petitioner and submitted to the CRC by sending the written request to the Director of the Division of Coastal Management. A complete request shall include the following:

(1) A detailed survey of the development line using on-ground observation and survey or aerial imagery along the oceanfront jurisdiction or legal boundary, including;
  (A) The development line, static vegetation line, mean high water line, and any other information necessary for a review of the petitioner's proposed development line, such as a pre-nourishment project mean high water line, local ordinances, or easements; and
  (B) Surveyed development line spatial data in a geographic information systems (GIS) format referencing North Carolina State Plane North American Datum 83 US Survey Foot, to include Federal Geographic Data Committee (FGDC) compliant metadata;
(2) All local regulations associated with the development line;
(3) A record of local adoption of the development line by the petitioner; and
(4) Documentation of incorporation of a development line into local ordinances or rules and regulations of an owner's association.

(g)~~(f)~~ Once a development line is approved by the Coastal Resources Commission, only the petitioner may request a change or reestablishment of the position of the development line.

(h)~~(g)~~ A development line request shall be submitted to the Director of the Division of Coastal Management, 400 Commerce Avenue, Morehead City, NC 28557. Written acknowledgement of the receipt of a completed development

line request, including notification of the date of the meeting at which the request will be considered by the Coastal Resources Commission, shall be provided to the petitioner by the Division of Coastal Management.

(i)~~(h)~~ The Coastal Resources Commission shall consider a development line request no later than the second scheduled meeting following the date of receipt of a complete request by the Division of Coastal Management, unless the petitioner and the Division of Coastal Management agree upon a later date.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. April 1, 2016;
Amended Eff. September 1, 2017.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

November 6, 2019

MEMORANDUM **CRC-19-38**

TO: Coastal Resources Commission

FROM: Ken Richardson, *Shoreline Management Specialist*

SUBJECT: Static Line Exceptions and Development Lines

While the Development Line (DL) and the Static Line Exception (SLE) are intended to allow local governments an alternative to the use of the Static Vegetation Line in determining oceanfront setbacks, there are no rules preventing communities from having both a DL and a SLE. Although both alternatives allow oceanfront construction setbacks to be measured from the existing first line of stable and natural vegetation (FLSNV) instead of the static vegetation line, there are distinct differences in the rules that make implementation of these rules complex and challenging.

Both the DL and SLE create the potential for seaward encroachment in areas with known erosion problems, however, the SLE is landward oriented, limiting seaward movement of structures to no further than the landward-most adjacent neighbor. The DL is waterward oriented, allowing structures to be sited no further seaward than the locally-created line that can represent the most seaward structure within the local jurisdiction (Tables 1-4). Aside from measuring setbacks from the existing FLSNV, there are three provisions in both rules that may be applied in manner seemingly inconsistent with the Commission's intent during the development of the rules:

1. Once a DL has been approved by the Commission, only the Town can change or re-establish the position of the DL; there is no periodic oversight by the CRC, or required long-term commitment to beach nourishment;
2. An approved DL does not restrict the placement of a new structure to its landward-most adjacent neighbor; new and replacement structures can be located waterward of adjacent neighbors if the DL allows; and

3. An authorized SLE requires minimum setback of 120 feet, or 60 times the erosion rate setback factor, whichever is greater, for structures 5,000 square feet or greater. This provision provides relief from the graduated setback defined in 07H .0306(a)(5) and is contingent upon a long-term commitment to beach nourishment, with five-year review and reauthorization by the Commission.

Currently, there are approximately 1,160 structures adjacent to development lines approved by the CRC for the Towns of Carolina Beach, Kure Beach, Oak Island, and Figure Eight Island. Of those, there are approximately 937 structures adjacent to static vegetation lines. Application of SLE rules would allow 66 structures to move seaward of their current position, while the DL rules allow 888 structures to move an average of 32 feet seaward relative to their current position (Tables 1-4).

Figure 1. Distance (ft.) measured between development line and structure at Oak Island.

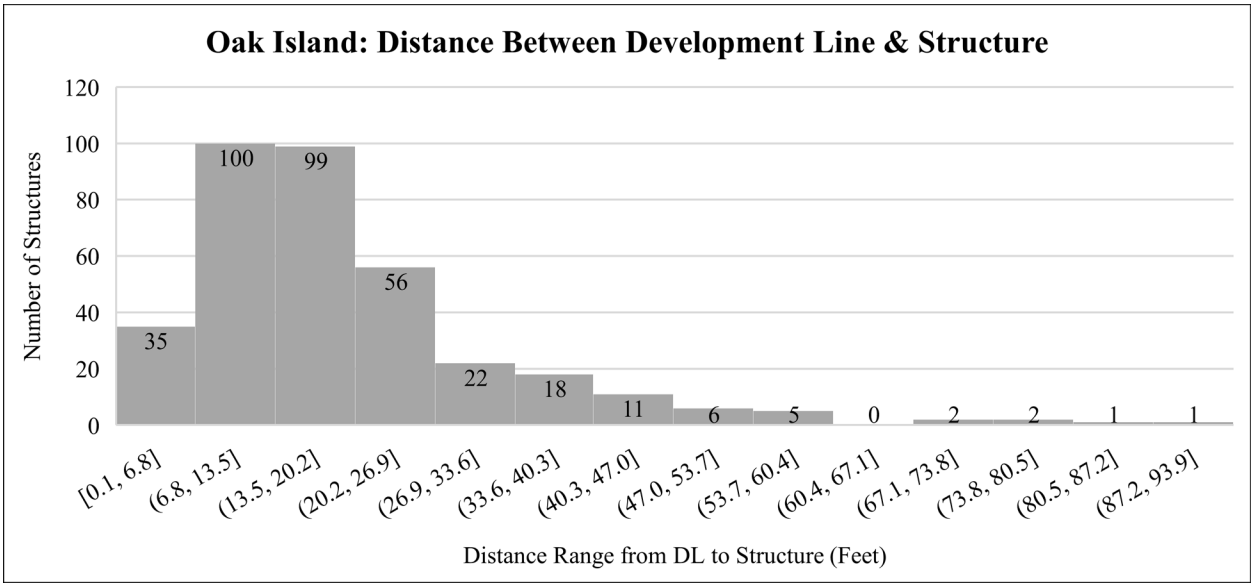


Figure 2. Distance (ft.) measured between development line and structure at Kure Beach.

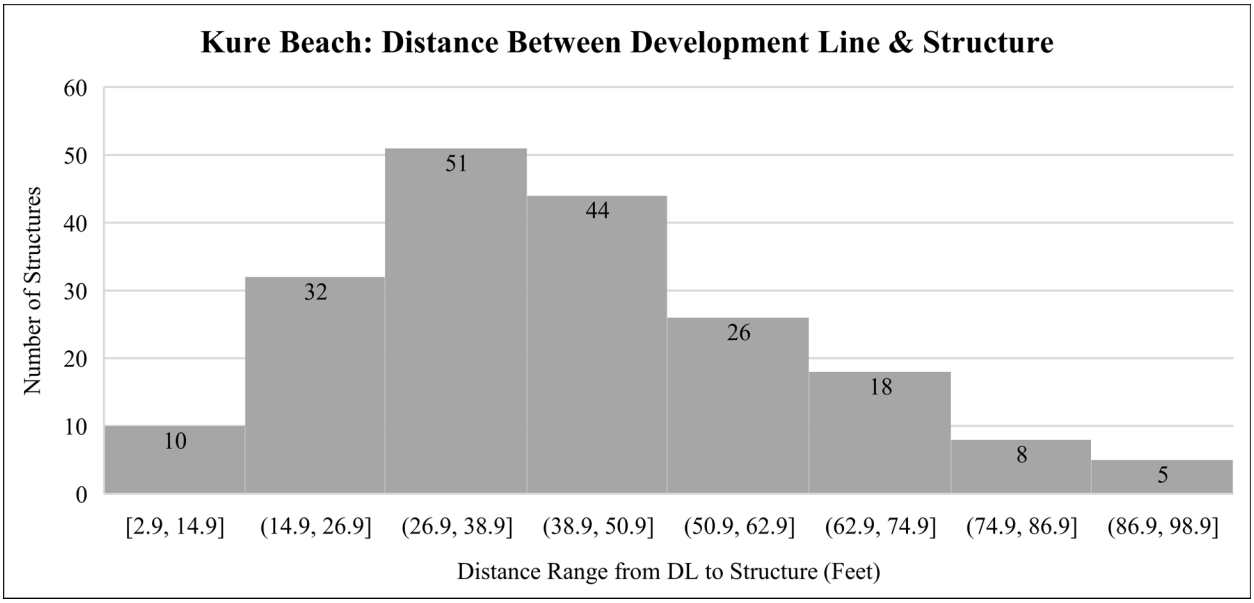
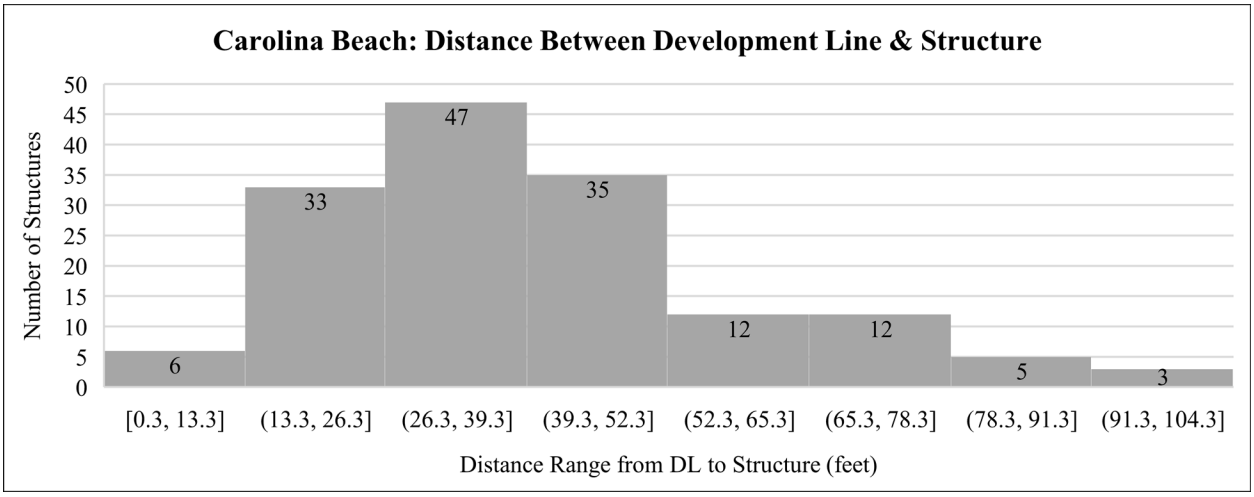
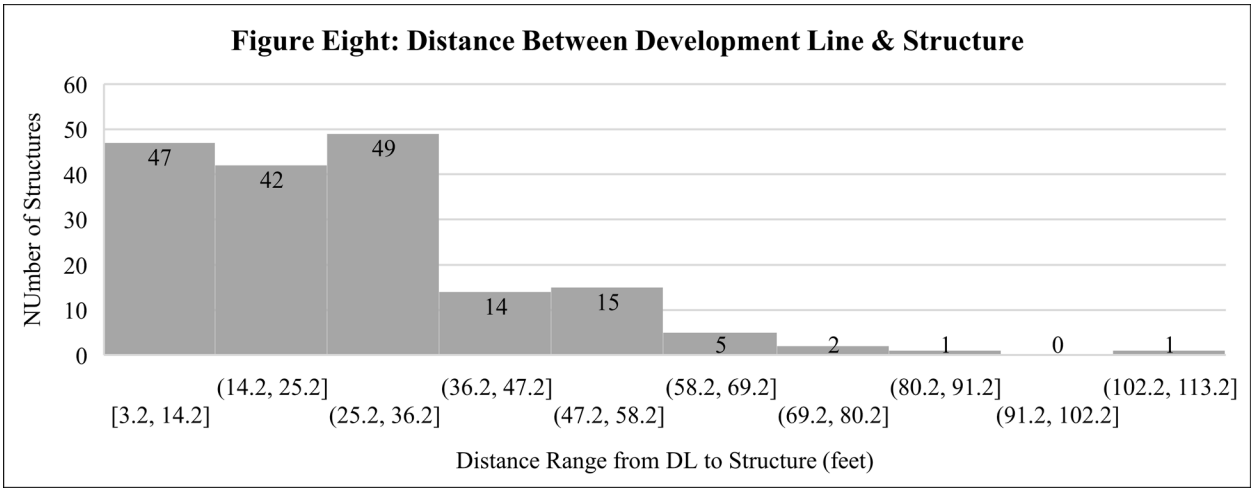


Figure 3. Distance (ft.) measured between development line and structure at Carolina Beach.



North Carolina Department of Environmental Quality | Division of Coastal Management
Morehead City Office | 400 Commerce Avenue | Morehead City, North Carolina 28557
252.808.2808

Figure 4. Distance (ft.) measured between development line and structure at Figure Eight Island.



Staff Recommendation:

Because DL rules allow for higher potential seaward encroachment than the SLE rules which also have specific review and performance criteria, utilization of both rules in the same community can create management conflicts. Staff is requesting guidance from the CRC, including consideration of clarifying rule amendments, on determining setbacks in communities with both a Static Line Exception and a Development Line.

Staff looks forward to discussing the nuances of both these beach management strategies at the upcoming meeting.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

CRC-19-39

November 13, 2019

MEMORANDUM

TO: Coastal Resources Commission

FROM: Jonathan Howell

SUBJECT: Shellfish Lease Update

You will recall that the Divisions of Marine Fisheries and Coastal Management agreed in 2016 that DCM should have a role in the review of proposed shellfish leases and has been reviewing shellfish leases and providing comments for almost three complete shellfish leasing cycles.

Through these informal comments, DCM recommended DMF establish a 20' buffer adjacent to coastal wetlands. DCM also commented on navigational impacts associated with lease location, allowance and size of pilings on a lease and riparian property owner coordination whether private, public or governmental. As the process evolved and to provide clarity to DMF and growers, DCM began to explore activities determined to be exempt from CAMA. These activities were presented at the April CRC meeting at which time the Commission directed staff to explore General Permit language. Staff developed General Permit language and reached out to growers, regulatory agencies and DMF to receive feedback. This language was presented at the September meeting and introduced a riparian property and local government notification process, piling size limitations, limitations on floating upweller systems and other guidance associated with our rules. DCM staff also met with DMF to discuss how to better incorporate some of the CRC's concerns into the application process. To do this, DMF Staff proposed to draft rule language for Marine Fisheries Commission consideration that can be shared with the CRC at your February 2020 meeting.

In the meantime, in reviewing shellfish applications, DCM Staff has seen an increase in request for the type of structural components that may require a CAMA permit. This includes pilings to anchor gear, new growing systems, platforms to work and floating upweller systems. We are also seeing requests for enclosed floating structures to be used for processing, which may be inconsistent with your floating structures policy at 15A NCAC 07M .0600. To address some of these requests, DCM has decided to process these

activities through the Major Permit process (floating upwellers, pilings, Lentz System, etc.), but in the absence of specific use standards the outcome of these requests is unclear.

As the State continues to encourage the commercial cultivation of shellfish, DCM is seeking guidance from the Commission on how to best develop a management strategy for this emerging industry in estuarine and public trust waters. I will be providing additional information and review of the issue at our upcoming meeting.

North Carolina Department of Environmental Quality | Division of Coastal Management
Washington Office | 943 Washington Square Mall | Washington, North Carolina 27889
252.946.6481

JOSH STEIN
ATTORNEY GENERAL

REPLY TO:
MARY L. LUCASSE
(919) 716-6962
MLUCASSE@NCDOJ.GOV

Memorandum

To: North Carolina Coastal Resource Commission

Fr: Mary L Lucasse, Esq.

Re: Legal Update to the Coastal Resources Commission ***(CRC 19-40)***

Date: November 6, 2019

I. MULTISTATE LITIGATION

U.S. District Court, District of South Carolina Charleston Division: The National Marine Fisheries Service (NMFS) granted incidental harassment authorizations (IHA) on November 30, 2018 pursuant to the Marine Mammal Protection Act allowing five companies to conduct seismic testing for potential oil and gas resources in the Atlantic. NC and other states intervened in the litigation filed by various environmental organizations challenging the IHAs. The Court consolidated this case with another complaint brought by local governments in South Carolina in which the State of South Carolina intervened. To date no permits for geophysical surveys have been issued. The IHAs are effective for one year from the date of issuance and may not extend beyond two years from date of issuance. Under the terms of the IHA, the Holder may submit a suspension request that if granted may not extend the effective period for more than the equivalent of a one-year period.

II. FEDERAL CASES

U.S. District Court, Eastern District of North Carolina, Northern Div., *Zito v. CRC, 2:19-cv-11-D.*
Plaintiffs filed a complaint claiming the CRC's decision denying their variance request resulted in a taking of private property without just compensation in violation of the United States Constitution and the North Carolina Constitution. The parties have fully briefed three motions for the Court's consideration: 1) Defendant's second motion to dismiss arguing the 11th Amendment bars Plaintiffs' remaining claim; 2) NC Coastal Federation motion to intervene; and 3) Plaintiffs' motion requesting the Commission be bound by the stipulated facts in its FAD. We are waiting for the Court's rulings on these motions. On Nov. 6, 2019, the Court issued its scheduling order requiring expert reports by January 21, 2020, discovery completed by March 27, 2010, and dispositive motions filed by April 24, 2020. A trial date has not been set. .

Consistency Appeal to US Dep't of Commerce, NOAA.
On July 11, 2109, WesternGeco submitted a Notice of Appeal to the U.S. Secretary of Commerce pursuant to the Coastal Zone Management Act of 1972 from an objection by DCM to WesternGeco's consistency certificate for its proposed project to conduct a geological and geophysical seismic survey in the Atlantic Ocean. Appellant filed its brief and supplemental material for the record on Oct 21, 2019. The State's principal brief and supplemental materials for the record are due Nov 19, 2020. The State has requested an extension of time to file.

III. SUPERIOR COURT – Carteret County

Beverly Pham v. Blair Pointe, LLC et al. 18 CVS 1289. The Attorney General, on behalf of the people of North Carolina, intervened in litigation filed by Plaintiff seeking a declaratory judgment that a conservation restriction placed on approximately 12 acres (including wetlands) under the Tax Credit Program (repealed by the General Assembly in 2013) was extinguished as a result of a tax foreclosure sale. DCM had done the initial assessment that the land had conservation value. By agreement, the parties moved the mediation to Dec 20 with trial scheduled for May 25, 2020.

IV. PETITIONS FOR JUDICIAL REVIEW

Batson, Baldwin, and Batson/Baldwin Owners' Association v. CRC - Carteret Co. Superior Court
On May 31, 2019, the Chair denied requests for contested case hearings to challenge the CAMA permit issued to NC DOT for a replacement bridge to Harkers Island. Petitioners appealed. Mary Lucasse represents the Commission. She filed the Record of Proceedings in Superior Court. The court granted the parties' joint motion to quash summons issued to the Commission and NC DOT and consolidated the petitions. There has been no activity on this appeal since the Commission's last meeting.

Smuts, Tignor v. NCDEQ, 98 OB LLC, 134 OB LLC (19 CVS 012379) – Wake Co. Superior Ct.
Following a hearing on Respondent's motion for summary judgment, Administrative Law Judge Randolph Ward entered a Final Decision by Summary Judgment granting the motion. ALJ Ward found that Petitioners had failed to show any environmental reason for rejecting the CAMA permit applications and holding that DEQ did not have any obligation or right to withhold approval of the CAMA permits. On September 11, 2019, Petitioners appealed the decision. The Office of Administrative Hearings submitted the record to Superior Court. Petitioner's substantive brief is due Nov. 8, 2019. Mary Lucasse and Sarah Zambon represent NCDEQ on the Petition for Judicial Review.

V. OFFICE OF ADMINISTRATIVE HEARINGS (OAH):

*Sunset Beach Taxpayers Association and NC Coastal Federation v. DCM (*16 EHR 7974) and *Sun's Set LLC v. DCM* (16 EHR 8032). The cases appeal DCM's issuance of Major CAMA Permit No 70-16 for infrastructure development for a residential project at the western end of Sunset Beach in Brunswick County. Shawn Maier represents DCM in OAH. In 2017, the General Assembly allocated $2.5 million to purchase the property. The OAH cases are stayed. On Sept 10, 2019, the NC Council of State approved terms for the State's acquisition of the property. The transfer of the property took place in early November and the OAH cases will be dismissed shortly.

VI. VARIANCES – None outstanding

VII. REQUESTS BY THIRD PARTIES TO FILE CONTESTED CASE IN OAH:

Since your last meeting, the Chair heard one new Third Party Hearing Request submitted by Joel Williams,(CMT 19-10) seeking to challenge a pier permit issued for a permittee in Sneads Ferry, Onslow County. The Chair will issue the Final Agency Decision on Nov 18, 2019. .

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

NORTH CAROLINA
Environmental Quality

MEMORANDUM

TO: Coastal Resources Commission
Environmental Management Commission
Marine Fisheries Commission
Coastal Habitat Protection Plan Steering Committee

FROM: Jimmy Johnson
Albemarle-Pamlico National Estuary Partnership
Anne Deaton
Division of Marine Fisheries

DATE: October 21, 2019

SUBJECT: Coastal Habitat Protection Plan Steering Committee Meeting

The Coastal Habitat Protection Plan Steering Committee met 10:00 a.m. Wednesday, October 15, at the NCSU Center of Marine Science and Technology, 303 College Circle, Morehead City. The following attended:

Advisers: Martin Posey, Bob Emory, Larry Baldwin, David Anderson, Yvonne Bailey

Absent: Pete Kornegay

Commissioners: Mike Blanton, MFC

DEQ Staff: John Nicholson
DMF Staff: Katy West, Dana Gillikin, Anne Deaton, Katy Rawls, Casey Knight, Jacob Boyd, Jason Peters, Curt Weychert
APNEP Staff: Bill Crowell, Jimmy Johnson, Trish Murphey
DCM staff: Mike Lopazanski, Rebecca Ellin, Daniel Govoni
DWR Staff: Anthony Scarborough, Brian Wrenn
DEMLR Staff: Samir Dumpor
WRC staff: Chad Thomas

Public: Perry Wood Beasley, Larry Baldwin, Chris Elkins

WELCOME AND INTRODUCTIONS

Jimmy Johnson, serving as chair, called the meeting to order. He welcomed everyone and asked for members of the committee to introduce themselves. He also asked that those attending to also introduce themselves. Johnson then gave a history and a brief update on recent meetings with Department of Environmental Quality (DEQ) division directors on Coastal Habitat Protection Plan (CHPP), the upcoming review, review process and priority issues. He noted that at a previous meeting of DEQ directors, Inflow and Infiltration (I&I) issues and coastal septic tanks were mentioned as additional priorities.

DEPARTMENT INPUT ON CHPP IMPLEMENTATION

John Nicholson, DEQ Chief Deputy Secretary, provided additional comments on the recent DEQ director meetings, and that the Department strongly supports implementing habitat protection and restoration recommendations of the CHPP. He noted that the CHPP is a natural fit with Governor's Executive Order 80 (EO80) and follows the DEQ Secretary's vision for the direction, implementation and desired results the department would like regarding EO80. Nicholson discussed recent engagement with the Department of Agriculture and Forestry and that we need to foster that relationship.

CHPP IMPLEMENTATION UPDATE AND 2021 REVISION

Implementation Progress

Anne Deaton presented a brief overview of the CHPP and progress on the implementation of the 2016 CHPP. She discussed the four 2016 CHPP priorities; Oyster Restoration, Metric Development, Living Shorelines, and Sedimentation.

Oyster restoration. Development of oyster sanctuaries has been very successful in the past three years. Legislative support and funding for the sanctuary program as well as matching funding from the NC Coastal Federation has resulted in 40 acres of new oyster reef habitat at Swan Island Sanctuary. Other progress that has been made regarding oyster restoration includes cultch planting, monitoring, siting tools and material acquisition. The group discussed how this work has effected overall oyster populations. Division staff commented that there are most likely some positive impacts on a local level, although it is hard to say how it is impacting the overall population.

Development of habitat metrics. Monitoring standards, drone technology and the use of side scan sonar has been incorporated into monitoring oysters. The Albemarle-Pamlico National Estuary Partnership (APNEP) Submerged Aquatic Vegetation (SAV) Partnership has developed monitoring protocols for low and high salinity SAV and have acquired coast wide imagery of the high salinity SAV this summer. Continuous funding is needed for the long-term monitoring of these habitats. The group also discussed wetland monitoring by Division of Water Resources.

Living Shorelines. This has also been a successful implementation priority of the CHPP. There are now general permits for marsh sills through the Division of Coastal Management, thus shortening the permit process for living shoreline development. Research has been completed that shows that living shorelines outperform bulkheads during large storm events, and provide multiple ecological services, including fish habitat, carbon sequestration, and coastal resilience. There has been engagement of realtors, contractors and homeowners through the coastal training

program on living shorelines and there is now a NC Living Shoreline Steering Committee to further advance this method of shoreline stabilization.

Sedimentation. There is a study on sedimentation that should be concluded next year that will provide important information regarding the source and impact of sedimentation in tidal creeks. Sedimentation continues to be a concern of small tributaries filling up with sediment, especially with the fine sediments, that smother oysters and accumulate toxins from runoff. More efforts are needed to address this issue.

2021 Process and Timeline

Deaton then presented the revised process and a rough timeline for the 2021 CHPP update. This new process will focus on priority issues and actions that will have co-benefits for coastal resiliency. SMART (specific, measurable, attainable relevant, and timely) recommended actions will be incorporated into the priority issues. Issue papers on each priority topic will be developed by holding technical workshops to compile key information, issue papers being drafted by CHPP Team members, and review by DEQ and the CHPP Steering Committee. The implementation plan will be eliminated because specific recommended actions will be in the plan itself.

Priority Habitat Issues

Deaton then presented three proposed priority issues for the upcoming 2021 CHPP. They are:

1. SAV protection and restoration with focus on water quality improvements.
2. Wetland shoreline protection and enhancement using nature based methods.
3. Habitat condition monitoring and environmental rule compliance.

The committee discussed the wetland shoreline protection issue. There was concern of only focusing on the shoreline while broader protection of wetlands is also important. Wetlands are under pressure from sea level rise, wave energy and the changing dynamics of wetland species because of these stressors. The group would like to see the priority expand to wetland protection beyond the shoreline. It was suggested that the word "shoreline" could be removed but that shoreline protection could be incorporated through proposed actions under this priority. Other discussion included that there are already rules and regulations in place now to protect wetlands. However, there are changes occurring to the quality of wetlands that need to be considered. The group also discussed the recommendation of looking into I&I and coastal septic tank issues proposed by DEQ directors. Inflow and infiltration due to leaks and breaks in wastewater pipes and infrastructure has been an ongoing problem, especially in smaller communities, and has led to large quantities of raw sewage entering coastal waters. Upgrading and maintenance of sewer systems are expensive and logistically challenging. Contamination from septic tank systems ties into nutrient and bacteria issues.

PUBLIC COMMENT

Perry Wood Beasley, president of NC Watermen United, discussed issues of farming, water treatment plants, and how impacts from these drain to the coast. Fish will move from fresh water. Chemical treatment of crops like cotton by farmers end up in storm water runoff and can kill blue crabs. He commented on his concerns of outdated wastewater treatment plants, and herbicide spraying of invasive species of aquatic vegetation by the state. He discussed how

oyster dredgers in the Chesapeake Bay are using their dredges without the bags to drag to address sedimentation and as a way to clean up the bottom.

Mike Blanton, MFC member, discussed the need to talk to older fishermen who can provide a timeline of the environmental changes that have occurred in Albemarle Sound. He discussed the amount of acreage (two million) that has been drained for farmland and the 20 square miles of ditches that drain it. The coast is overwhelmed by people. He commented about the current lack of grass in the Albemarle Sound. When he was young, it was thick from one end of the river to the other. It is now a desert. We need to give the "neighborhood" back to the fish and animals. They can be resilient then. We need to reverse the cycle. We need to get the message to the legislators who need to be convinced that we need change. He offered to take members of the committee out to see the sound. Development and non-compliance has had impacts. Mr. Blanton suggested that first we need to restore the habitat then protect and enhance. Spending time on regulating fishermen has wasted time that could have been used looking at regulations for the habitat.

Chris Elkins, NC Coastal Conservation Association, discussed his first introduction to the CHPP plan and has seen over the years that a lot of work has been done on the CHPP but there has been no action. There has not been much done at all to improve habitat. The more habitat, the more fish for everybody. He provided a handout to the committee on oysters. The CCA recommends a phase out of oyster dredging. After Florence, there was no oyster dredging, but he had no problems getting oysters either locally or out of state. 95% of the worlds oysters come from aquaculture and NC is moving in that direction. Oysters role as habitat and water filtration is more important than food. Mr. Elkins also discussed aquaculture and oyster relay and stated the oyster relay is wild harvest, not aquaculture. With the expansion of shellfish leases, including large leases in Pamlico Sound, he is concerned there will be increased demand for relaying; CCA therefore proposes that relay no longer be allowed.

EO80 AND THE CHPP

Jacob Boyd, DMF Habitat Enhancement Section Chief, gave a brief update on EO80, specifically Section 9 in reference to the the climate science assessment and the risk and resiliency plans. Through the Natural Working Lands Steering Committee, six subcommittees were formed to make recommendations on carbon sequestration and resiliency. Coastal Habitats was one of the subcommittees formed. The CHPP recommendations fit well into the set of recommendations from this subcommittee. Many of the Coastal Habitat recommendations originated from CHPP and APNEP plans.

Casey Knight, Habitat Enhancement Biologist added that the NC Climate Science Report will be released in December and inter-agency committees are currently working to identify climate related hazards and assess vulnerability and risk to be included in the NC Climate Risk Assessment. The NC Climate Science Report and the NC Climate Risk Assessment will then incorporate the actions of the subcommittees like Natural Working Land and the agency and regional workshops to create the NC Climate Resiliency Plan. This plan will then be disseminated among local government to facilitate community assistance towards resilience.

ALBEMARLE SOUND ALGAL BLOOM UPDATE

Brian Wrenn, Ecosystems, Branch Supervisor, DWR, and coordinator for the Nutrient Criteria Development Committee, presented information on nutrient criteria development in the Chowan River/Albemarle Sound. He provided a brief history on nutrient criteria development in NC and covered algal blooms in the area including existing conditions and the status of the sound. He explained that nutrient criteria are linked to the protection of designated uses of waters. The Scientific Advisory Council (SAC) was created to advise on development of scientifically defensible nutrient criteria and is composed of experts in water quality and nutrient management. The Criteria Implementation Committee (CIC) was created to comment on social and fiscal impacts of draft nutrient criteria and is composed of economists, stakeholders, and academia. DWR plans to have criteria finalized in two years, with a 2024 deadline to have associated rules in place.

There are several sampling stations in the Chowan River system. Organic nitrogen (TKN) has increased over time. In Potecasi Creek, nutrient patterns shifted around 2002, with nitrate concentrations declining and TKN and total Nitrogen increasing. Phosphorus has remained fairly stable. The cause for that is unknown. He presented data of other waterbodies (Blackwater and Nottaway rivers). In Nottaway River, TKN and total Nitrogen have increased similar to the Potacasi, but to a lesser extent. In Blackwater River, they have seen a decline in Nitrogen and Phosphorus over time, in contrast to what is occurring in Chowan. There were initial thoughts that the increases were from Virginia but this data suggests this is a North Carolina problem, not a Virginia problem.

Wrenn discussed the 2019 algal blooms in Chowan, Perquimans, and Pasquotank rivers as well as the different toxins that are encountered, with microcystin being very serious. Concentrations were highly elevated in some blooms (Arrowhead Beach, Indian Creek, Leary Landing), requiring health advisories. In the last two days they have had six reports of blooms near Elizabeth City. He also commented that they are seeing blooms starting earlier and lasting longer.

The group discussed indicators such as chlorophyll a, but Wrenn stated that there are no waters impaired based on chlorophyll a. This is partly due to how the water is collected throughout the water column, so the blue-green algae on the surface is diluted. The SAC will work on determining these criteria.

PROPOSED JURISDICTIONAL BOUNDARY CHANGES

Deaton gave a presentation about the reclassification of jurisdictional waters. This is an ongoing issue with the NC Wildlife Resource Commission (WRC) due to the periodic rule review process. She provided the definitions of the different fishing waters and background on how this issue originated due to periodic rule review, joint rules, and different determinations regarding rule review. WRC determined the joint rules regarding jurisdiction had substantive public interest, while MFC determined they did not and had already submitted those rules to Raleigh. A committee of MFC and WRC commissioners was formed to discuss how to handle the conflict regarding periodic rule review differences. The committee asked DMF and WRC staff to determine a science based method to evaluate joint fishing water boundaries. Deaton summarized the different ways to define the upper limit of an estuary and delineate boundaries, such as head of tide, salinity zones, biologically based salinity zones, and the physiographic line.

She also described the way the group analyzed the data based on these different methods and from a regional and flow year perspective. Based on Bulger at al. 1993 the WRC suggested modifying boundaries based on 4 ppt salinity contour and then ultimately proposed modifications based on a 2.6 ppt salinity contour (Keup and Bayless 1964), DMF suggested if a change was necessary, boundaries approximating a 0.5 ppt salinity contour would be more consistent with scientific literature, EMC saltwater classifications, and the methodologies previously described, and supported by the NC fish data. After several meetings of the committee, the MFC and WRC commissioners were unable to come to consensus on how to revise boundaries and a recess was called. At the August 29th, 2019 WRC business meeting, without input from the MFC, WRC approved preliminary boundary maps and moving forward with revising jurisdictional boundaries based on 2.6 ppt salinity. Deaton then provided information on the impacts of the proposed 2.6 ppt boundaries, including a loss of 144,784 acres of coastal fishing waters to inland waters, and impacts to commercial fishing, MFC designated Primary Nursery Areas, Anadromous Fish Spawning Areas, as well as Coastal Resources Commission's estuarine Areas of Environmental Concern (AEC) designations. Where jurisdiction of coastal waters change to inland, this estuarine AEC classification would change to Public Trust AEC, decreasing storm water runoff restrictions. It would also impact Division of Coastal Management (CAMA) Coastal Counties and their Land Use Plans. It would also require statutory changes in the Coastal Area Management Act and Dredge and Fill Act. The group also discussed possible impacts to EMC water use classifications.

The committee debated the issues of the boundary changes including questioning if there is a problem with the current boundaries. Chad Thomas, WRC biologist explained that these rules had not been revised since 1965 and that they were interested in using science based criteria to base these boundaries. He stated that they will investigate impacts on fishing and other agency rules that provide habitat and environmental protection. He said that commercial fishing could possibly be allowed, but currently gill netting is not. It was also noted that this would impact the ability to catch blue catfish, an invasive introduced species that is devastating other native species through predation, including river herring. Thomas also stated that WRC has not moved forward with any rule making yet. Committee members continued to question why this was going forward if there are no apparent problems with the with the current boundaries. DMF staff stated that their agency proposed no changes in the boundary lines. Committee members continued to discuss their concerns over the process, concerns of impacts to CRC rules and EMC rules, the loss of 1,600 miles of coastal shorelines and the loss of Gates and Herford counties as coastal counties.

OTHER BUSINESS

The next meeting will be sometime in January. Mr. Johnson will send out a poll to determine the best date. Please send him any agenda items for the January meeting.

/plm
Enclosures

Meeting adjourned.

cc: Tim Baumgartner, Bill Crowell, Linda Culpepper, Braxton Davis, Samir Dumpor, Daniel Govoni, Casey Knight, Mike Lopazanski, Ian McMillan, Steve Murphey, Trish Murphey, John Nicholson, Danny Smith

From: James Hargrove [redacted]
Sent: Monday, October 14, 2019 10:42 AM
To: Deaton, Anne <anne.deaton@ncdenr.gov>
Cc: Johnson, Jimmy <jimmy.johnson@ncdenr.gov>; [redacted]
Subject: [External] RE: CHPP Steering Comm Mtg.

Anne,
That is unfortunate considering modern technology. If you guys want more feedback from the general public you should really consider getting a call-in line for every meeting. Seems to me like you do not want user feedback otherwise you would find a way to engage the public better. This is a typical agency status quo rather than inability. Please consider making it a priority to get call in numbers for all public meetings.

Since I won't be able to make it in person I would like for my message to be heard again.

The states Relay Program is killing our estuaries. Just a few weeks ago the permanent closure boundaries were pushed farther out of these tidal creeks to the tune of over 150 acres, and this is in a drought year. If nothing is done to curb this degradation, your inaction will kill the majority of oyster farming locations in the southern portion of the state. Instead od spending millions on re-deploying oyster shells, why not keep it in place where it has the best chance to remove pollution?

We are only as good as the quality of our water, without it we have nothing. As an environmental steward, scientist, and oyster farmer, one practice that stands out as detrimental and archaic to NC's water quality initiative and shellfish mariculture industry. This is the practice of **NCDMF's relay-depuration program**. This program was developed to allow low-output, extensive shellfish gardeners to harvest wild shellfish from polluted tidal creeks that are closed due to bacteria (fecal coliforms and other pollutants), then transplant them to their bottom lease. The problem with this method is, by removing the biological filtration and habitat from these creeks pollutants and sediment from runoff are allowed to flood the greater estuaries and bays of our state. With modern technology in breeding, cultivation, and oyster seed availability, there is no need for the harvest of the biological filters that prevent estuaries from receiving high levels of polluted runoff. **It is absolutely counterproductive to keeping the waters of the state safe and clean**. Along with the negatives associated with removing these water scrubbers (oysters), when the shellfish are relayed to the gardener's lease, the lease shuts down for a number of weeks to allow the oysters to release the bacteria/pollutants (depuration). These leases can be adjacent to other open leases and there is a possibility of contaminating those leases and creating a human health hazard.

James Hargrove

From: Deaton, Anne <anne.deaton@ncdenr.gov>
Sent: Friday, October 11, 2019 11:49 AM

North Carolina Department of Environmental Quality | Division of Human Resources
217 West Jones Street | 1601 Mail Service Center | Raleigh, North Carolina 27699-1601
919.707.8300

To: James Hargrove <[redacted]>
Cc: Johnson, Jimmy <jimmy.johnson@ncdenr.gov>
Subject: CHPP Steering Comm Mtg.

Hi James. I'm happy to see you want to be involved. Unfortunately, we won't be able to have a conference line available for this meeting. I can send you the minutes though or if you can make it to Morehead, that would be great.
Anne

Get Outlook for iOS

North Carolina Department of Environmental Quality | Division of Human Resources
217 West Jones Street | 1601 Mail Service Center | Raleigh, North Carolina 27699-1601
919.707.8300

From: Keith Walls [redacted]
Sent: Monday, October 14, 2019 11:32 AM
To: James Hargrove [redacted]
Cc: Deaton, Anne <anne.deaton@ncdenr.gov>; Johnson, Jimmy <jimmy.johnson@ncdenr.gov>
Subject: [External] Re: CHPP Steering Comm Mtg.

Good morning,

I agree with James. Having a call in number is an easy fix, and there is no excuse not to have one in 2019.

Furthermore, the relay program makes absolutely no sense to me. The oysters in the tidal creeks are closest to the primary source of pollution and our last line of defense. Removing these filters allows closure lines to steadily progress toward our sounds and our aquaculture businesses. **We should be doing the opposite! We should be putting more oysters in the tidal creeks, not removing them.** We need buffers and filters in place to combat the poor planning and overdevelopment that is occurring at an unprecedented rate in the southern part of our state. Otherwise, **the non-point source pollution will continue to increase and aquaculture in the southern part of the state will be gone.** Nobody can be expected to invest money in a business that depends on water quality without having some support from the state that goes into protecting the growing waters, and that starts with ending archaic nonsense like removing oysters from the tidal creeks where they are needed the most. There is now an ongoing effort to restore Bradley Creek and Hewletts Creek due to the overdevelopment in those areas. **We still have an opportunity to preemtively place more oysters in the tidal creeks north of Ogden to defend against what we know is coming (more development). Otherwise, we will see conditionally open areas become conditionally closed, and eventually prohibited.** As a GIS Analyst and marine scientist, it's clear to me from the closure maps that the closure lines are shifting. Moreover, the state has spent a lot of time and money promoting aquaculture over the last several years, and based on that information, a lot of growers are investing their time and money to get into the industry. **If the state does not wake up and begin putting a plan in place to protect the growing areas, it will all be for nothing!** We have to be forward thinking and meet the challenge of overdevelopment and water quality degradation head on! If we continue with a "business as usual" attitude and do not reevaluate outdated programs like the relay/depuration program, we stay stuck in the past and the shellfishing industry in the southern part of the state will not survive. **There is a lot of talk about making NC the Napa Valley of Oysters, well, if you look at the history of the Napa Valley, the first thing the growers there did was create an Agricultural Preserve (the first of its kind in the U.S.) to protect the growing areas from the urban sprawl of San Fransico. You can read about it at this website** http://napaagpreserve.org/ **We need to be thinking the same way! Please consider reevaluating the relay/depuration program and listen to the growers that are asking for your help to protect our fledging Aquaculture industry. We have something special, but we need to protect it!**

North Carolina Department of Environmental Quality | Division of Human Resources
217 West Jones Street | 1601 Mail Service Center | Raleigh, North Carolina 27699-1601
919.707.8300

Keith Walls
[redacted]

On Mon, Oct 14, 2019 at 10:41 AM James Hargrove <[redacted]> wrote:

Anne,

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The states Relay Program is killing our estuaries. Just a few weeks ago the permanent closure boundaries were pushed farther out of these tidal creeks to the tune of over 150 acres, and this is in a drought year. If nothing is done to curb this degradation, your inaction will kill the majority of oyster farming locations in the southern portion of the state. Instead od spending millions on re-deploying oyster shells, why not keep it in place where it has the best chance to remove pollution?

We are only as good as the quality of our water, without it we have nothing. As an environmental steward, scientist, and oyster farmer, one practice that stands out as detrimental and archaic to NC's water quality initiative and shellfish mariculture industry. This is the practice of **NCDMF's relay-depuration program**. This program was developed to allow low-output, extensive shellfish gardeners to harvest wild shellfish from polluted tidal creeks that are closed due to bacteria (fecal coliforms and other pollutants), then transplant them to their bottom lease. The problem with this method is, by removing the biological filtration and habitat from these creeks pollutants and sediment from runoff are allowed to flood the greater estuaries and bays of our state. With modern technology in breeding, cultivation, and oyster seed availability, there is no need for the harvest of the biological filters that prevent estuaries from receiving high levels of polluted runoff. **It is absolutely counterproductive to keeping the waters of the state safe and clean**. Along with the negatives associated with removing these water scrubbers (oysters), when the shellfish are relayed to the gardener's lease, the lease shuts down for a number of weeks to

allow the oysters to release the bacteria/pollutants (depuration). These leases can be adjacent to other open leases and there is a possibility of contaminating those leases and creating a human health hazard.

James Hargrove

From: Deaton, Anne <anne.deaton@ncdenr.gov>
Sent: Friday, October 11, 2019 11:49 AM
To: James Hargrove <[redacted]
Cc: Johnson, Jimmy <jimmy.johnson@ncdenr.gov>
Subject: CHPP Steering Comm Mtg.

Hi James. I'm happy to see you want to be involved. Unfortunately, we won't be able to have a conference line available for this meeting. I can send you the minutes though or if you can make it to Morehead, that would be great.

Anne

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