

**SHORELINES – December 2002**  
**As presented to the Island Review Magazine.**

**“PHASE II”**

November 16<sup>th</sup> marks the first day of the 2003-04 environmental window that initiates beach restoration projects across the State and the South Atlantic seaboard. This window permits dredges to excavate material from offshore borrow sites, and allows heavy equipment and piping on the beach in a time frame that minimizes adverse impacts to offshore, nearshore, intertidal, and beach resources. The 16<sup>th</sup> also initiates the Eastern Emerald Isle (EI) Restoration Project that represents “Phase II” of the larger-scale Bogue Banks Restoration Project. Phase I was completed last year as the Pine Knoll Shores/Indian Beach (PKS/IB) Restoration Project. So where does Phase II begin and end? How much sand will be placed on the beaches of EI? Will there be a uniform fill or will the project be scaled up and down depending on the condition of the beach? These are just some of the questions we’ll briefly discuss this month. You will see a lot of numbers below, but these numbers will soon become our friends and actually help us envision the project in a manner we can all comprehend.

Phase II is perhaps best conceptualized as 31,111 foot (5.9 mile) long project including tapers, that essentially extends near the old IB Pier (just east of the IB/EI town boundary) westward to Pinta Drive, located in the Columbus Square subdivision. Project engineers use “stations” along the beach to track the project and to verify in-place volumes of sand placed on the beach by the dredging contractor. These station numbers conveniently correspond to feet, thus “0” represents the very easternmost extent of the Bogue Banks Restoration Project at the Atlantic Beach/PKS town boundary. Phase II will generally progress westward from Station 382+43, or the 38,243 foot mark, to Station 693+54 (69,354 foot mark at Pinta Drive). The map below ([View Map](#)) identifies the project area with key station numbers. If you visit the beaches of eastern EI this winter you may see wood or metal stakes at the base of the dunes that will identify these station numbers. This will allow all of us to keep track of the construction progress. For instance, station 468+00 (46,800 foot mark) is located at 15<sup>th</sup> Street, the 53,218-foot mark is located at the eastern EI regional access (Old EI Pier), the 63,870-foot mark coincides with Hurst Road, etc.

1.81 million cubic yards of sand from borrow site “B2” will be placed on the beaches as part of the Phase II construction process. This includes a taper at each end, which are fillets of the beachfill that extend diagonally from the non-project beach to where the full construction profile begins. Tapers are necessary to avoid radical, abrupt changes in the shorelines between the project and non-project beaches. There are also three main subdivisions of the project where the designed volume of the beachfill will vary. The eastern, most critically eroded portion of the project will receive approximately 82 cubic yards per linear foot (cy/ft) and extends for almost 12,300 feet from the IB/EI town boundary westward. The middle zone encompassing almost 4,000 linear feet should receive approximately 58 cy/ft, and a westernmost zone encompassing almost 12,900 linear feet that should receive approximately 35 cy/ft. These fill volumes should widen the high tide beach by approximately 50 to 125 feet.

Coastal Science & Associates LLC is the project engineering firm and the dredging contract has been awarded to Weeks Marine, Inc. Weeks will be using both cutterhead suction and hopper dredging technologies for Phase II. It is anticipated that a cutterhead suction dredge will be used for an approximate two-week period in late November/early December followed by

**SHORELINES – December 2002**  
**As presented to the Island Review Magazine.**

hopper dredging that will be initiated in early January 2003. The cutterhead suction dredge, as the name implies, uses a large rotating drill bit mechanism to take sediments from the offshore borrow sites and transports the material directly to the beach via a pipeline. A self contained, hopper dredge on the other hand, has two side arms with vacuum dragheads that collect sediments and temporarily stores this material in its hopper, or affectionately known as its belly. Subsequent to completing a cut, the full hopper dredge will travel and discharge sand to a buoyed pipeline with a floating booster pump that extends to the pre-construction dry beach. Hopper dredges were used exclusively for last year's Phase I restoration effort. In both cases, a secondary "Y-valve" discharge pipe will be situated on the beach to transport sand eastward, then westward to complete each ~1-2 mile section.

As far as land-based equipment logistics are concerned, Weeks will use a portion of the eastern EI regional access to stage heavy machinery and piping, and use the 4-wheel drive ramp located at the "dogleg" of Ocean Drive, just west of the regional access to allow heavy equipment on to the beach. A portion of the regional access will remain open for the public. When the dredges arrive off the coast of EI this year, remember they will be working "24-7" – that's 24 hours a day, seven days a week notwithstanding weather, mechanical or any other unforeseen shutdowns. Here's to a successful restoration effort!!!