

# **Conceptual Stormwater Management Narrative**

## **Barco Reserve Subdivision**

Crawford Township, Currituck County, NC

October 24, 2024; Revised 11-14-24

### **General**

Barco Reserve Subdivision is proposed as a single family residential conservation subdivision to be located on a 94.84 acre parcel located on US 158 (Shortcut Road) just east of the intersection of Barco Road with US 158. The development will consist of 45 single family lots, with associated open space and infrastructure.

### **Summary of Existing Conditions**

The subject property is currently undeveloped farmland that generally drains to the south via existing farm ditches and perimeter ditches. Swains Lane Ditch Number 3 is a major drainage feature that runs along the western property boundary and drains to a large expanse of wetlands to the south of Swains Lane. According to the NRCS Soils Report, the soils in this area consist of State fine sandy loam, Dragston loamy fine sand, and Tomotley fine sandy loam. There is also a small area of wetlands in the northwest corner of the site that contains Wasda mucky soils. These soils range from well-drained to poorly drained, with the lots located in the better soils to the greatest degree practicable.

These soil conditions do not lend themselves very well to the installation of stormwater infiltration systems. The existing site is farmland, with farm ditching, and slopes generally from the northeast to the southwest (existing surface elevations generally range from about 8 feet near the northeast corner to close to 0 feet MSL near the southwest corner where a wetland pocket is located. There are two small wetland areas on the site, which have been delineated and confirmed by the Corps of Engineers.

### **Summary of Proposed Conditions**

Since the majority of the soils are not particularly well drained, and do not readily support the installation of infiltration based stormwater management systems, it is proposed to meet Currituck County's Stormwater Management Ordinance requirements by installing wet ponds. A small pond is proposed adjacent to the wetlands near the northeast corner of the site, and a large pond will be located south of the proposed lots and will drain via a slow release outlet control structure into Swains Ditch Number 3, where the site naturally drains. These ponds will be sized in accordance with Currituck County Stormwater Ordinance requirements to mitigate peak flows / mitigate increases in downstream water surface elevations associated with the proposed development. The small pond will discharge via a control structure to the adjacent wetlands that drain to Shortcut Road. Swales that will be constructed along the proposed roadways will accept runoff from the lots and convey it to the proposed BMPs.

Minimal grading is necessary to establish drainage within the subdivision. Lot line swales and roadway swales will convey surface drainage into the proposed stormwater management system.

Surface drainage from the lots will flow via shallow lot-line swales that will be installed to convey runoff to roadside swales and collector ditches behind the lots. Lots are generally anticipated to be 1 to 2 feet above existing grade, based on the site evaluation reports received from the health department, roads are anticipated to be at about 0.5' to 1' above grade, unimproved open space will be at grade, and stormwater improvements will be below grade. The permanent pool within the ponds will be established based on a report from a soil scientist, which will be commissioned and utilized for final design.

## **Engineering Design**

Once the preliminary plat is approved, the engineer will build a drainage model of the proposed development and incorporate it into a model of the existing outfall ditch. The drainage model will demonstrate the interactions of the proposed system with the existing ditch system and will provide the basis for the sizing of the ponds, sizing and layout of conveyances, and establishment of final grades throughout the subdivision. This model / design will then be presented to Currituck County for review as is customary in the Construction Drawing approval phase of the subdivision approval process.

The large pond will be oversized and berming provided around the development as necessary to provide stormwater protection in excess of that required by the UDO and stormwater manual.