



Coastal Land Design, PLLC

Civil Engineering/Landscape Architecture

Village of Bald Head Island

Client:

Village of Bald Head Island
P.O.Box 3009
Bald Head Island, NC 28461
Contact: Chris McCall

Phone: 910-457-9700 Fax: 910-457-6206
Email: cmccall@villagebhi.org
Website: www.villagebhi.org

The Village of Bald Head Island is the governing body of Bald Head Island. The geographic location of the island renders it prone to large stormwater producing events such as tropical storms and hurricanes. The geography of the island is essentially a spinal dune ridge and oceanfront dune ridge creating a bowl effect that traps stormwater. It was not unusual for the Island to suffer from 20" to 30" of standing water on roadways several weeks after a rain event. Because of this, The Village of Bald Head Island enlisted Coastal Land Design, PLLC to find a solution.



*Phase 1 – Site Evaluation and Lagoon Interconnectivity -
Engineered by CLD Principals prior to formation of CLD
Began: Jan. 2000 Completed: May 2003*

After acquiring a full island topographic survey, the island was broken into 5 major and 31 minor drainage basins. The 12 inter-island lagoon system was monitored to determine connectivity. A complex hydraulic model was built with existing and proposed interconnectivity and routed with large storm events. From the monitoring and modeling, the most cost effective interconnections were proposed and constructed. Areas where the dunes have historically been breached by ocean water were also modeled and control structures designed to prevent salt water intrusion into the remainder of the lagoon system which provides irrigation water.

*Phase 2 – Establishment of Lagoon Outlets
Began: Oct. 2005 Completed: June 2007*

This phase of the project focused on moving the excess surface water off the island. With minimal elevation change to work with and only one existing outlet, a two part solution was developed. The existing outlet was rebuilt with a reverse sluice gate to give elevation control while preventing salt water intrusion. The second part was the design and construction of two strategically placed stormwater pumping stations with the ability to move large quantities of water thousands of feet to Oceanside outlets. CLD authored procedural manuals and secured all necessary permits.

*Phase 3 – Floodwater Removal in Isolated Areas
Began: July 2008 Completed: In Progress*

The last phase of this project involved locating isolated flood areas and designing conveyance to surface waters. With the help of Village staff and residents, this process is ongoing. Several areas have been pinpointed and a few gravity drainage systems have already been installed. We are currently designing a pressure system to alleviate other problem areas.

