OCEAN BREEZE & INDIAN RIVER DRIVE
STORMWATER QUALITY RETROFIT

A PROJECT DESIGNED TO REDUCE NUTRIENT LOADS ENTERING THE INDIAN RIVER LAGOON

PROJECT COMPLETION JULY 2018
The Indian River Lagoon (IRL) stretches 156 miles and spans across six Florida counties: Volusia, Brevard, Indian River, St. Lucie, Martin and Palm Beach. It was designated as a National Estuary Program in 1990 by the Environmental Protection Agency (EPA).

The IRL is an “Estuary of National Significance” comprised of a mix of saline oceanic water and freshwater from upland sources and is known as the most biodiverse lagoon ecosystem in the Northern Hemisphere.

The high biodiversity of the IRL makes it a natural habitat to more than 4,000 species of plants and animals, including 50 threatened or endangered species.
OBJECTIVE: IMPROVE THE QUALITY OF STORMWATER RUNOFF

- The main objective of the Ocean Breeze Indian River Lagoon Storm Water Quality Retrofit Project was to reduce nutrient loads entering the IRL via a treatment train that will cleanse untreated stormwater from 46-acres with two major discharge outfalls to the IRL.
- Construction included, planted grass swales, bioswale detention areas, exfiltration trenches, and two nutrient-removing baffle boxes with added bioactive remediation filtration screens.
The treatment train consists of 3 main components:

1. Exfiltration trench
2. Baffle boxes
3. Bio-swale

This system is able to extract nutrients and pollutants from stormwater before it is discharged into the Indian River Lagoon.
An exfiltration trench is a facility that encourages the return of runoff to the ground water. Stormwater enters the perforated pipe, fills the trench and is then absorbed into the natural ground.
The primary function of baffle boxes is to remove sediment, suspend particles and associated pollutants from storm water. Baffle boxes contain trash screen and skimmers to capture larger materials, trash, and floatables. Baffle Boxes are located either in-line or at the end of storm pipes prior to discharge into the Indian River Lagoon.
A bio-swale is a shallow swale with a wide bottom and gently sloped banks. The banks are planted with native vegetation and the bottom of the swale is lined with white limestone rip-rap. The limestone is situated atop a 6” deep base of drain field aggregate. Vegetated bio-swales improve water quality and reduce the volume of storm flows entering the Indian River Lagoon. The storm water is detained within the swales allowing percolation into the ground and giving the bio-swale plants time to absorb nutrients and chemicals from the run-off. This treatment reduces the pollutants from the storm water discharging into the Indian River Lagoon.
RESULTS: CALCULATED POLLUTION REMOVAL

The project is estimated to reduce:

- **Total Suspended Solids (TSS)**: reduced by 92.7% (1,393.81 kilograms per year)
- **Total Phosphorus (TP)**: reduced by 63.5% (8.32 kilograms per year)
- **Total Nitrogen (TN)**: reduced by 52.9% (45.55 kilograms per year)

With completion of this project our beautiful *Indian River Lagoon* receives significant water quality benefits, protecting the ecosystem for our local community.
MONITORING:

Water quality monitoring equipment has been installed at two locations to collect data and confirm the calculated results of pollution removal rates.

Sensors have been installed at the inflow and outflow locations that are able to detect pollutants.

Over the course of one year, during heavy rainfall events, the data will be collected to ensure that the expected water quality is being achieved.
This project was funded by the Florida Department of Environmental Protection's Total Maximum Daily Load (TMDL) Program, the Indian River Lagoon License Plate Program administered by South Florida Water Management District, the Indian River Lagoon National Estuary Program, the Town of Ocean Breeze and Martin County. Additional partners involved in this project include the Martin County Environmental Studies Center and Sun Communities.