

# A Wastewater Treatment System for the Placencia Peninsula

*Placencia Peninsula Communities, Belize*



Engineers Without Borders™-USA (EWB-USA) is a non-profit organization established in 2000 to partner with developing communities worldwide in order to improve their quality of life.

For more information:

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## Funds Needed

\$5 Million

## Chapter

Sacramento Valley  
Professionals

## Background

Rapid population growth to 2,200 people, has threatened pollution of groundwater, the Caribbean Sea, and the lagoon. Seeing this, the Placencia Village Council formed an informal committee to seek assistance on this issue. The Seine Bight Village Council, the Placencia Water Board, the Seine Bight Water Board, and the Clean & Green Committee seem to support the project. By project completion, a mechanism will be developed for collecting fees and providing operation and maintenance of the facilities.

Technical assistance is requested to assess the area and provide a wastewater treatment system for the Placencia Peninsula, including the villages of Placencia, Seine Bight, and the Maya Beach Development. Current wastewater systems range from advanced treatment at some of the resorts, septic tanks at many homes, and traditional disposal at some homes, especially Seine Bight.

## The Need

The entire Placencia peninsula is in need of a wastewater system. The peninsula is on the South East coast of Belize. The peninsula is approx 10 miles long and 1000 feet wide. The west side of the peninsula is a tidal lagoon. Currently there are two communities on the peninsula, Placencia Village at the south tip of the peninsula and Seine Bight Village in the middle. Elsewhere along the peninsula, there are numerous individual residences and an occasional beach resort. The current method of wastewater disposal is by direct disposal to the ground from either the house lateral (raw sewage) or septic tank effluent. A hole is dug into the sand and the pipe is plumbed into the hole. Because the soil is all sand, it does not take long to make its way into the ocean or lagoon because of the narrow peninsula for the sewage. Testing has revealed positive fecal coliform counts in both the ocean and lagoon. The lagoon is home to two endangered species, a species of alligator and the manatee. The residents of this peninsula are low income, therefore the area is in need of a low-cost, sustainable wastewater collection and treatment system.



## The EWB-USA Response

### Assessment

Because the peninsula is just above sea level (3 feet), a collection system was needed that collected the sewage in pipes that could be buried above ground water depth. To accomplish this, the system uses individual household pumping (fractional horsepower) units and small diameter force mains to a common collection pipe. The sewage is then pumped to a close by site across the lagoon to the mainland. Here a constructed wetlands treatment system provides sustainable treatment without using power.

### What was done:

The project has gone through several stages at this point. An alternative study was completed looking at different collection and treatment methods. The selected choice was then designed and plans and specs have been completed. The project has gone through EWB plan review and has been approved.



## Moving Forward

The project is currently awaiting funding. Once funding is received, support (assist in enhancing support for the project) and training (train operators in the operation and maintenance of the system) will take place.