

## CASE STUDY/RIVERWALK CASINO

1046 Warrenton Rd, Vicksburg, MS 39180

### Background

The Riverwalk Casino and Hotel is located in Vicksburg, MS, where its property joins the banks of the Mighty Mississippi River. The Mississippi River is rich with industry and history and when paired with the Riverwalk Casino, they both provide income and entertainment for the city of Vicksburg. Although they have a mutually beneficial relationship, the powerful river waters have taken a toll on the soil and foundations that support the operations of The Riverwalk Casino and Hotel.

### The Problem

The casino property has a large parking lot and sidewalk adjacent to the river. Over time, the soil under the parking lot grew weak due to poor compaction and water erosion. This caused the concrete structures atop the soil to sink. The sinking concrete put strains on the property drainage system, that ultimately resulted in a pipe joint failure. This pipe failure caused the flowing drain water to rush freely under the parking lot. The water then forced its way into a concrete basin where it began pulling away soil and rocks from the Mississippi River Bank, creating a large void, and causing the river bank to collapse. After two failed repair attempts, utilizing a full demolition and replacement of soil and concrete, Churchill Downs and Riverwalk Casino decided it was time to fix the problem permanently. They called the soil stabilization professionals at Helms Polyfoam.

### The Solution

Helms Polyfoam, along with a forensic engineering firm, conducted a thorough site evaluation to determine not only how to fix the current problem, but how to stop it from recurring. First, the main void was filled with AP 475 to create a strong foundation for heavy equipment to work. Second, all concrete structures were stabilized by utilizing deep injection methods at pre-determined points surrounding problem areas. Next, we performed a multilayer soil squeeze in a grid pattern, spanning 110' of the Mississippi River bank. This soil squeeze compacted all weak soils that collapsed as well as created a water impermeable barrier along the bank. After this, we performed the exact same method on the opposite side of the void to ensure stabilization of soils throughout the entire problem area. We monitored the entire process with zip levels and rotating laser levels. Once we reached positive pressures, the structures as well as the levee began to rise to an even height, giving us confirmation that the soil was stabilized. With the void filled and the soil stabilized, the parking lot was ready for new sidewalks and a fresh layer of landscape to further prevent erosion.



*"Helms Polyfoam did a great job, restoring the elevations of the parking lot and stopping the erosion from the Mississippi River. The project was done to the satisfaction of both the owner and the insurance company. Looking forward to working with Helms Polyfoam in the future."*