

CASE STUDY

DAM SPILLWAY REHABILITATION IN GENESSEE COUNTY, MI

County searching for spillway rehabilitation solution.

THE CHALLENGE

In early 2022, Genessee County, Michigan discovered that one of its spillway pipes was in need of serious repair. The county's Atlas Dam Spillway is next to a large lake that stores runoff captured from a nearby township. It carries all overflow to the river on the other side of the Atlas Dam. This 204" x 134" corrugated metal spillway was experiencing groundwater infiltration via leaks in the piping. Genessee County reached out to Vortex Lining Services (VLS) about rehabilitating the asset based on the VLS team's high level of experience. Together, Genessee County and the VLS squad created a plan and proposal to fit the county's rehabilitation needs.

THE SOLUTION

Once the setting up and staging of the jobsite was complete, the VLS crew got to work in earnest. In mid-April, they began the rehabilitation stage of the job, which necessitated difficult flow diversion measures. The bypass was very tricky, as heavy rain caused all the runoff to move into the reservoir above the spillway. This meant that the team could not control the lake's water level as much as they wanted to. To mitigate the flow of water, the



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PROJECT SNAPSHOT

PROJECT OWNER

Genessee County

CONTRACTOR

Vortex Lining Services

PROBLEM

Genessee County's 204" x 134" corrugated metal dam spillway pipe was deteriorating and suffering from ground infiltration.

SOLUTION

The VLS team spin-cast a 4" thick lining of Quadex® GeoKrete® structural geopolymer onto the spillway piping and applied an additional 1" of GeoKrete geopolymer with #57 stone aggregate embedded to the floor of the pipe.

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VORTEX PRODUCTS USED



GeoKrete®

CASE STUDY

crew had to use temporary concrete barrier walls on top of the lake's weir wall and then built a headwall inside the pipe itself with two additional 12" pipes built in to allow for internal bypass.

Next, the team started spin-casting a 4" thick liner of Quadex® GeoKrete® structural geopolymer onto the piping. GeoKrete geopolymer fills in corrugations and cracks, eliminating infiltration and restoring an asset's structural integrity. Then, the crew applied an additional 1" of GeoKrete geopolymer with #57 stone aggregate embedded to the floor of the pipe. The team wrapped up this project in about three weeks.

THE RESULTS

The VLS crew completed this rehabilitation project within Genesee County's timeframe and budget. The county is satisfied with the team's efforts and overall end result. Without this intervention, Genesee County was facing the possibility of catastrophic road failure and damage to nearby homes, as the Atlas Dam could have broken and flooded the surrounding area.



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IMPACT

1

Restored the piping's structural integrity by filling cracks with GeoKrete® geopolymer.

2

Completed this lining project on time and within budget despite the difficulties associated with flow diversion.

3

Helped the county avoid potential failure of the road and degradation of nearby homes, as the Atlas Dam could have broken and flooded the surrounding area if left unchecked.