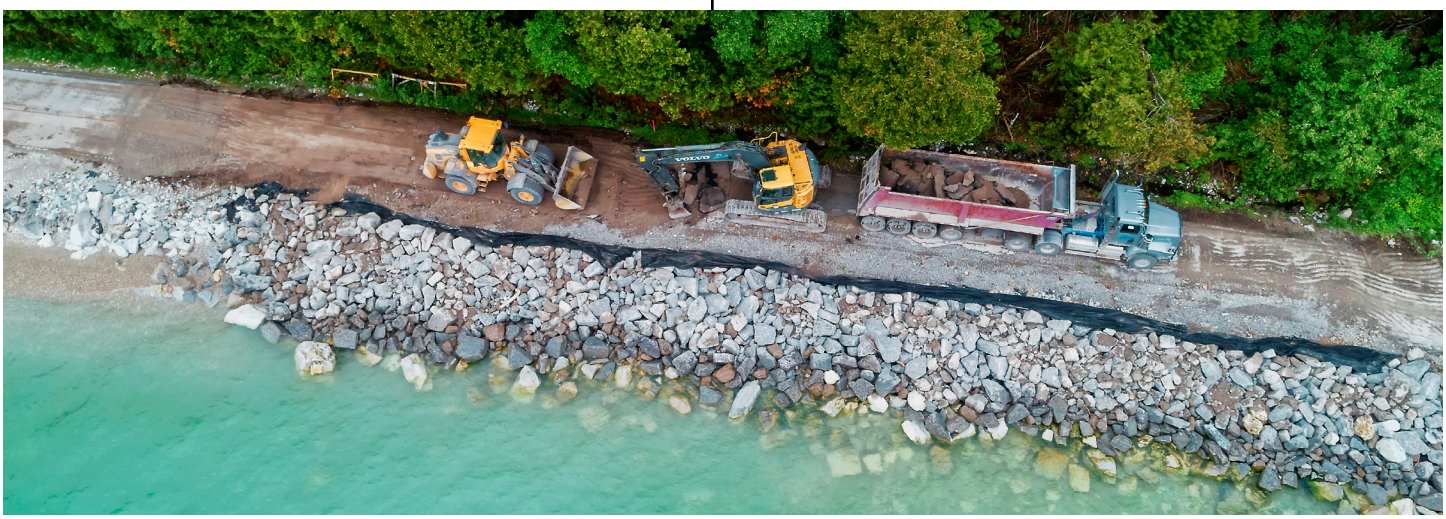
TEAM ELMER'S PROJECT PROFILE | Mackinac Island M-185



CHALLENGE: Historic high waters and heavy wind conditions cause severe erosion along scenic M-185 that rings Mackinac Island. Reconstruction occurs on an island during historic high traffic volumes and a global pandemic.

SOLUTION: Careful coordination, planning, attention to detail, and respect for all during the reconstruction of erosion barriers above and below the ordinary high water mark of Lake Huron.

OWNER: MDOT Newberry TSC, Mackinac Island State Park

CONTRACT AMOUNT: $1,461,995

DESIGN ENGINEER: MDOT

LOCATION: Mackinac Island, MI

DATE STARTED: 5/27/2020

DATE COMPLETED: 12/31/2020

SELF-PERFORMED: 65%

PARTNERS: Give 'Em A Brake Safety, Kokosing Industrial, Surveying Solutions, Inc.

BY THE NUMBERS

2020 Lake Huron Water Level: 582.22 feet

Ordinary High Water Mark: 581.85 feet

Barged Armor Stone: 12,801.5 ton

Number Of Barge Trips: 8 loads

Maximum Barge Load: 4,500 ton

Time For Barge Trip: 8-12 hours

Vehicles On Island: 3 fire trucks, 3 police vehicles, 1 ambulance

Horses On Island: 600

M-185 is the only state highway in the nation where motor vehicles are banned, creating a popular 8.2 mile route around Mackinac Island for 800,000 annual hikers and cyclist. But high lake levels and numerous winter storms wreaked havoc on the island, eroding the shoreline and washing out sections of the road.

In 2020, Team Elmer's was called in to rebuild 1,000 lineal feet of shoreline near Arch Rock and install more than 12,000 ton of rock.

Rebuilding the bed of the road was Phase 2 of a 3-phase project. The repairs began the previous fall (Phase 1) with emergency repairs and salvaging the road from further damage before another winter made its mark. Phase 3 was repaving of the road.

Phase 2 of project began by first separating the existing rock and putting it off to the side for later use. Fabric was laid before the grade, 48" - 72" diameter toe stones were added, the existing rock was re-used, and then a four-foot thick barrier of armor stone was put in place.

A mild winter the previous year had cemented the decision to use the

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method of placing large toe stone at the water's edge. With very little ice produced that winter, the shoreline had never been given a break from the strength of the waves.

Using tons of boulders placed on top of existing ground helps by breaking the waves as they roll into shore – dissipating their energy and protecting the shoreline from the full force of the waves.

Ferrying heavy equipment and material to an island located 5 miles out into Lake Huron presented a unique challenge, but waiting for the material to get from the staging area to the job site was the biggest hurdle. All the material had to be transported almost 2 miles on a road that was built to be just wide enough for horses and bikes!

In order to accommodate the construction, 4 miles of the 8.2 mile road had to be shut down. The tourism department looked at that as an opportunity. Instead of taking the trip around the entire perimeter of Mackinac Island, tourists were encouraged to take half the trip and then head up through to the middle of the island to see something they hadn't seen before.

While running motorized equipment on an island that's been car-free since 1895 felt a bit out of place, the result is a much-improved erosion-protected road that can be enjoyed for many decades to come.

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