



Eastern New York Chapter of the Association for Bridge Construction & Design, Inc. *2020 Bridge Award Program*

CR4 (North Shore Rd) over Paul Creek Bridge Replacement

Town of Day, Saratoga County, New York

Project Description

On October 31, 2019 a State of Emergency storm event caused the partial collapse of the CR4 (North Shore Road) over Paul Creek Bridge in the Town of Day, Saratoga County. The east stream bank eroded leading to the partial collapse. Creighton Manning's structures group worked with Saratoga County and ING Civil to reestablish traffic with the installation of a temporary bridge just 27 days following the storm. The temporary two lane bridge was built south of the original bridge and was utilized to maintain traffic during the upcoming winter and throughout the construction of a new bridge.

The emergency scope of work included the complete removal of the existing 32 ft. long, single span concrete bridge and design and construction of a temporary 60 ft. long single span multi-girder structure with a timber deck. The realigned temporary roadway integrated Geosynthetically Reinforced Soil System (GRSS) walls and the temporary bridge was constructed of two independent, adjacent superstructures to ensure the temporary roadway could be reduced to a single lane while also not conflicting with excavation during construction of the permanent structure.

After traffic was fully reestablished on the temporary bridge, final design for the permanent structure began. This phase of the project included design of a new 55 ft. single span steel multi-girder structure on the existing roadway alignment featuring micropile foundations, cast-in-place concrete integral abutments, and a galvanized steel beam and concrete deck superstructure.

The GRSS walls functioned as planned, and the temporary roadway was reduced to a single lane with alternating one-way traffic controlled by temporary signals to accommodate construction of the new substructures. We faced a challenge almost immediately during construction when installation of the test micropiles encountered an artesian water condition with flows of approximately 30 gallons per minute coming out of each hole. The project team worked together to quickly develop a solution involving additional piles installed to a depth above the artesian layer. The rest of construction progressed relatively smoothly, and the new bridge was opened on November 9, 2020; approximately one year after the partial collapse.

PROJECT HIGHLIGHTS

- Emergency response included a temporary bridge and reopening the road to traffic in 27 days
- The storm was declared a Federal disaster and FEMA funding was obtained for the temporary bridge and the new permanent bridge
- Design and construction of a new 55 ft. single span steel multi-girder bridge in less than a year

Owner: Saratoga County

Design and Construction Inspection: Creighton Manning Engineering, LLP

General Contractor: ING Civil, Inc.

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Partially Collapsed Bridge

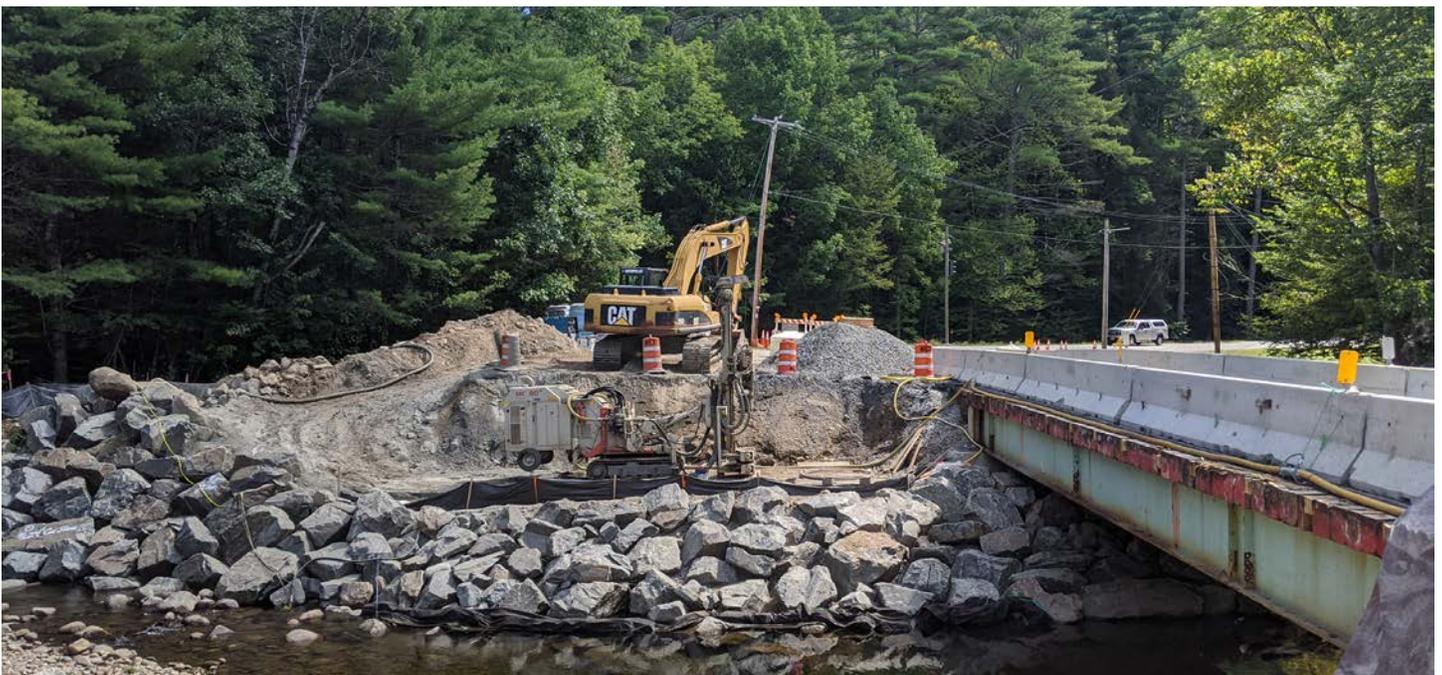


Temporary 2-Lane Bridge Constructed on Adjacent Alignment to Accommodate Traffic During the Winter

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Temporary Bridge Reduced to Single Lane During Construction



Installation of Micropiles

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Pouring Concrete for Integral Abutments



Erecting Galvanized Steel Beam Superstructure

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Concrete Deck Pour



Completed Bridge

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Completed Bridge