

## PROJECT DESCRIPTION

### *East Church Street Bridge Replacement*

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**Location:**  
Eden, New York

**Client:**  
TVGA Consultants for  
Erie County DPW

**Client Contact:**  
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#### ***Drilled Shaft Excavation for the West Pier***

McMahon & Mann Consulting Engineers, P.C. (MMCE) served as the project's geotechnical engineering consultant for the design and construction of the replacement for the East Church Street Bridge over the South Branch of Eighteen Mile Creek, in Eden, New York. The replacement bridge is a three span structure. Drilled shafts extended into competent shale support the piers. Steel H-piles driven into the shale support the abutments.

MMCE explored the subsurface conditions with test borings to measure the elevation of competent shale and mapped the joint structure of the shale in the creek to assist with our evaluation of the stability of the gorge walls along the creek.

During construction, MMCE observed the rock conditions in the drilled shaft excavations to identify the top of the competent shale elevation and provide recommendations for the length of the drilled shaft embedment. We also used the Wave Equation Analysis of Piles to estimate the pile driving criteria and used dynamic testing techniques to measure the capacity of the piles for the abutments. The testing revealed that the shale relaxed following driving, resulting in a decrease of the pile capacity. We used the measurement data and observations to adjust the driving criteria.