ILLINOIS SECTION
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GEO-INSTITUTE – DECEMBER MEETING

Underpinning Prairie: Micropiles Support Prairie Du Sac Dam

PLACE:	**Online** via Zoom
DATE & TIME:	**Tuesday, December 8th, 2020, 5:30pm – 7:00pm** Schedule: announcements and introductions (~5 min); presentation (~50 min); questions and discussion (~30 min)
SPEAKER:	**Aaron Evans** and **Josh Timmreck**, Nicholson Construction Company
COST:	**Free**, but note that **registration is required** via the link below
REGISTRATION:	(1) Click HERE or (2) copy the complete link below to your browser: https://northwestern.zoom.us/meeting/register/tJIrcOyoqD4iE9JRoQp_SFyy5khlcu7WQ_25
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Abstract: In its heyday, Prairie Du Sac Hydroelectric Facility was the largest capacity hydroelectric generation facility of its kind west of Niagara Falls. The original facility was completed in 1914 after four grueling years of construction at a cost of $1-million. It was the vision of Norwegian immigrant, engineer, financier and investor Magnus Swenson who knew, after the successful completion and operation of the Niagara Falls Hydroelectric Facility in 1896, that harnessing the Wisconsin River's energy would provide the same results. And he was right. Located a little over 1.5-miles due North of Prairie Du Sac, WI which is approximately 23-miles NW of Madison, WI in South Central Wisconsin, the Prairie du Sac Hydroelectric Facility is made up of two main components. The facility includes Prairie Du Sac Dam, which impounds the Wisconsin River creating the 9,000-acre Lake Wisconsin, and a powerhouse that contributes 31-MW of power to Wisconsin Power & Light's (Owner), an Alliant Energy company, customer base of 470,000 people in Southern and Central Wisconsin. The dam's spillway, one of the few hollow gravity structures in the United States, is approximately 1,188-LF in length and contains 41 gates that are approximately 40-feet in height and 20-feet in width. The dam sits entirely upon a vast network of over 12,000 steam-driven timber piles. The original timber piles have proven to be extremely durable in their 105-years of service. However, with historic tailwater recession and subsequent wetting and drying of the timber piles, some of the piles began to deteriorate from open air exposure. The Owner proactively initiated a program to investigate the severity of the situation and ultimately develop a plan to remediate the foundation system supporting the dam to maintain its integrity. After a thorough vetting process, micropiles were ultimately chosen as the

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means to support the century old dam. The Nicholson Construction/GEI Consultants team was chosen as the Design/Build Contractor to perform the pre-production test program and production installation. The work was performed over three main construction phases/years to account for high water flows and winter conditions. The test program was performed during a fourth initial phase. This presentation will discuss the project, highlighting the analysis period through production work.

About the Speakers:

Aaron Evans: Evans is the Preconstruction Area Manager for Nicholson Construction Company's Midwest Region, where he is responsible for preconstruction, sales/business development, and estimating. He began his career in 2006 with Nicholson, and his roles have included engineering, project management, estimating, and business development. He is experienced in Nicholson's various geotechnical capabilities, with extensive experience in jet grouting and diaphragm walls. He has been intimately involved in major infrastructure projects, including the North Shore Connector in Pittsburgh and the Second Avenue Subway in Manhattan. Aaron led the pursuit of the Prairie Du Sac Dam project.

Josh Timmreck: Timmreck is an Area Manager for the Midwest Region of Nicholson Construction Company. Josh has been involved in the geotechnical construction industry since 2007 where he started his career with Northwest Geotech, Inc. as an Inspector. Shortly after he worked for Kiewit as Project Engineer before joining Nicholson Construction in 2014 as a Superintendent/Project Manager in Kalamazoo, MI. Today, he operates as the Area Manager for the Midwest region, overseeing all aspects of project operations. Josh also served as the Project Manager for the Prairie Du Sac Dam micropile underpinning.