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The CSSC (Chicago Sanitary Ship Canal) was constructed in the 1890's to reverse the natural flow of the Chicago River preventing Lake Michigan pollution. Today, it is used for sanitary, hydropower, flood control, and navigation. The CSSC is a perched canal for 2 miles north of the Lockport Lock. Both banks combine with the Lockport Lock and the Hydro-Powerhouse and Controlling Works to form an intricate water retaining complex that was classified as the riskiest, high-hazard navigation dam in 2004. The west side water retaining structure is a zoned earth embankment. On the east side, water is retained by a concrete wall backed by rock fill.

The 120-year-old system suffered from deterioration as evidenced in the canal walls by the visible deterioration, poor investigative cores, and numerous seepage areas. The opposite approach dike has experienced sloughing, sinkholes, and constant seepage. In 2004, a reliability assessment identified stability and pool loss concerns.

A series of four major projects were done in the Lockport pool including a hydromill-constructed slurry wall, precast concrete panels, rehabilitation of a control structure, and most recently a roller compacted concrete (RCC) wall. This case study focuses on the the roller compacted concrete wall which required intensive design under significant financial constraints within a very constrained site working around an existing 100+ year old concrete wall. This design heavily relied on 3D modeling to ensure the project footprint was very precisely constructed. Construction of the RCC wall was completed ahead of schedule in September 2016.