



DSI References



Reference Details

Owner Metropolitan Water Reclamation District of Greater Chicago, Chicago, IL, USA +++
General Contractor IHC/FHP Tectonics JV, Elgin, IL USA +++
Subcontractor Hayward Baker, Inc., Roselle, IL, USA +++
Engineers Metcalf & Eddy / AECOM, USA

DSI Unit DSI USA, BU Geotechnics, Bolingbrook, USA

DSI Scope Supply of permanent DYWIDAG Strand Anchors, DYWIDAG Soil Nails and Tie Rods including accessories; technical assistance



Difficult Excavation Stabilized Using Flexible DYWIDAG Geotechnical Systems

Calumet Water Reclamation Plant, Chicago, IL, USA

The water reclamation plant in Calumet, IL, at the southern tip of Lake Michigan, is the oldest wastewater treatment plant in the municipal area of Chicago. Its catchment area of approximately 800km² includes the southern suburbs as well as parts of the city of Chicago. The current plant's design provides a purification level of more than 90%, which is considered to be very high. To further optimize the process, the project "Hydraulic Optimization" – designed to begin working in 2010 – is currently underway. Among other things, it includes the construction of a new raw-wastewater pumping station, a new screen building, diversion chambers and additional buildings.

Since foundations for the new buildings are to be located up to 20m below the current grade, extensive excavations and a deep building pit were necessary. More than 75,000m³ of soil had to be moved. The excavation pit is located in an extensive network of existing underground structures, including several tunnels. During the stabilization of the excavation pit, the protection of existing structures was a major concern.

Consequently, an extensive system of tie back walls, soil nails and shotcrete walls was designed especially for this pit. In particular, engineers had to make sure that the tie backs did not accidentally damage tunnels or similar structures during installation. 3D computer modeling supported the engineers by calculating the exact points of installation for the 15 – 27m long anchors and soil nails. Due to these constraints, more than 30 different types of soldier beams and tie backs were needed for the extensive stabilization of the excavation walls with their total surface area of approximately 4,200m².

For the tie back walls, DSI USA supplied approximately 300 permanent DYWIDAG Strand Anchors as well as DYWIDAG Soil Nails and Tie Rods including accessories from their plant in Bolingbrook near Chicago. The flexibility and easy handling of DYWIDAG Anchor Systems and the close proximity of the Bolingbrook plant to the job site made it possible for DSI to precisely meet the project's exacting requirements.

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