

CASE STUDY

North Shore Tunnel Connector

Pittsburgh, Pennsylvania

HISTORY

The North Shore Tunnel Connector project is a light rail transit (LRT) expansion from downtown Pittsburgh to the north side of town. The new extension line will tunnel bore across the Allegheny River and surface at Heinz Field and PNC Park.

PROBLEM

Although this project was a tunnel boring operation, support of excavation was required for the receiving pit and terminal locations. The temporary wall for these areas was a combination of a few methods. Soldier beam and lagging and cement slurry secant piles were incorporated based on site conditions, water table and depth of excavation. Once excavated, these temporary shoring systems had to be braced to limit deflection for control of soil movement and provide a safe open pit work environment.

SOLUTION

There may have been multiple shoring methods implemented on this site, but the bracing material would remain constant. Although steel beams are excellent bracing elements, their shape is susceptible to sagging and buckling over long spans under compressive loads. Vertical and cross supports would be required, thus making the excavation process more costly. Steel pipe derives an inherent mechanical strength from its shape, offering better compressive load capacity while resisting lateral buckling for longer spans. Designer DMJM Harris and North Shore Constructors JV recognized this and specified spiralweld pipe for the bracing. In addition to the wide flange sections provided for the soldier pile, secant pile and waler applications,



Architectural rendering

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Fabricated pipe strut configuration

Nucor Skyline supplied 24" & 30" diameter spiralweld pipe.

RESULT

Nucor Skyline is not just a distributor of steel beams; we have state-of-the-art spiralweld pipe plants throughout North America. Our mill partnerships, stocking facilities and pipe production capabilities allowed Nucor Skyline to deliver an all inclusive material package that no one else could provide. This proved invaluable to North Shore Constructors JV as they kept their foundation contractor on pace with a constant flow of steel for a very aggressive schedule.



Material staged for delivery

PROJECT PARTNERS

Owner

Port Authority of Allegheny County
Pittsburgh, PA

General Contractor

North Shore Constructors JV

Foundation Contractor

Nicholson Construction Co.
Cuddy, PA

PRODUCTS

340 NT of Spiralweld Pipe
24" & 30" diameter