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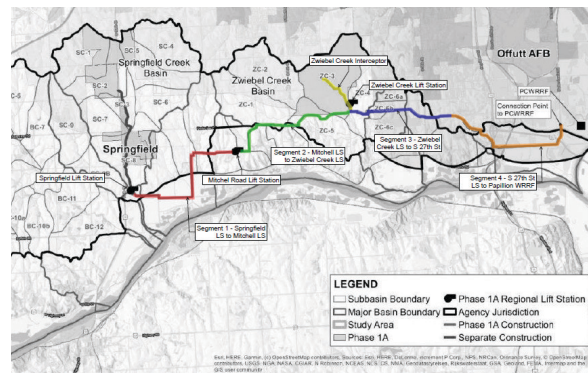


GENERAL CONTRACTOR



BACKGROUND INFORMATION

The Sarpy County and Cities Wastewater Agency (SCCWWA) is set to develop the backbone of a new sewer system to pave the way for developers in the southern portion of the county. The Springfield Creek Lift Station is just one part of the SCCWWA's Phase 1A Project, a \$97 million project including 17 miles of dual force mains, three lift stations, and a mile of gravity fed sewers. Upon completion, it will allow for the transport of wastewater from the City of Springfield to the City of Omaha's Papillion Creek Wastewater Treatment Plant.



INSTALLATION OF INTERSECTING CIRCULAR SECANT SHAFTS

In February of 2023, Hawkins Construction Company contracted with Schnabel to install two intersecting circular secant shafts for the Springfield Creek Lift Station. As part of the project, Schnabel installed 51 columns drilling over 3,315 linear feet. The connecting shafts were to serve as the support of excavation as well as a one-sided form for the exterior walls of the cast-in place lift station. Hawkins also cored three breakouts in the shafts for pipes to be installed to the lift station.



SOIL MIXING GROUND IMPROVEMENT SOLUTION



Schnabel's BG-28 during soil mixing with excavator for spoils control

In August of 2024, after the completion of the secant shafts, Hawkins reached out to Schnabel seeking a solution to their problem of piping sands and water in the trenched excavation for the new sewers connecting to the lift station. Schnabel offered soil mixing ground improvement to safely excavate and insert trench boxes for the precast pipe sections. Soil mixing would solidify the soils both above and below subgrade as well as improve the bearing capacity beneath the pipe. The soil-cement mix design was carefully considered to provide a product that was strong enough to meet performance criteria and weak enough for an excavator to dig the trench without a breaker. Schnabel installed 263 columns of soil mixing totaling over 6,000 linear feet.

CHALLENGES

Schnabel faced a few challenges during both phases of the project. While drilling the secant shafts, running sands and artesian water pressures were encountered and required casing to be advanced far ahead of the drill tooling in addition to placing concrete via tremie methods. Prior to soil mixing, the excavation had already proceeded to the top of the problem soils, resulting in unstable bench conditions. This required crane mats and extra care to prevent tipping of the drill rig. Additionally, the infiltration of soils between the outside of the secant shafts and the connecting soil mixed areas created difficulties while excavating to insert the trench boxes. Schnabel's Research & Development team quickly addressed the issue and helped to complete a permeation grouting program to seal any gaps in the finished product.



Schnabel's BG-28 soil mixing directly adjacent to completed secant shafts.

CONCLUSION

Schnabel completed the second phase of work in October 2024, allowing Hawkins to meet their tight project deadline of substantial completion on the Springfield Creek Lift Station. Ultimately, this project will allow for the further development of surrounding land in Sarpy County and is projected to bring in over \$15,000,000 in annual revenue and over 4,700 new jobs.



Schnabel's jet grout system used for large-diameter soil mixing on the project



Completed and excavated intersecting secant shafts for lift station

