

CASE STUDY:

GUANGZHOU TUNNEL, CHINA

Guanfeng (Andy) An, chief engineer of Guangzhou Municipal Group, first saw Sprayroq protective and structural coatings at an industry conference last year. He found a trenchless rehabilitation project on 200 feet of an arch tunnel, in old town Guangzhou in Guangdong Province of the People's Republic of China, an ideal opportunity to demonstrate Sprayroq products for the city's utility departments.

SOLUTION

As general contractor on this project, Guangzhou Municipal Group contacted Xiamen Anyue Trenchless Technology Engineering Ltd., southeast China's Sprayroq Certified Partner. They would be responsible for rehabilitation of the tunnel following inspection and cleaning.

The brick-and-masonry structure was more than a century old, and root intrusion and corrosion had caused severe damage. With one of China's largest rivers just a block away, the high groundwater table's hydraulic pressure had collapsed the line, causing severe leaking. Heavy silt covered more than 30 percent of the bottom. The City was seeking a structural rehabilitation and infiltration control solution, with a 50-year service life. Sprayroq and Xiamen Anyue provided consultation on specific technology, installation, and design.

The tunnel had an irregular shape, 800 mm square at the bottom, and 800 mm diameter rounded top, providing an unusual design challenge. This is also a relatively small size line to accommodate necessary man entry for the application process. Traffic is heavily congested, so work started after 8 p.m. and equipment, occupying one traffic lane, had to leave before 6 a.m.

RESULTS

Xiamen Anyue fielded a 10-man crew for the one-month job: three weeks cleaning and preparation, and one week applying 6 mm of Spraywall structural coating. Tons of silt were shoveled out by hand. The collapsed section was reinforced with a steel plate, and the entire surface repaired with concrete prior to spraying. The bypassed line was returned to service after final inspection, 24 hours later.



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