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LARGE DIAMETER WATER MAIN LINING – CHALLENGES AND LESSONS LEARNED IN REHABILITATING A LARGE DIAMETER TRANSMISSION WATER MAIN

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ABSTRACT: Built in 1940, the 30” diameter Welded Steel transmission main located in Oregon Avenue from 21st Street to 20th Street has been showing signs of significant deterioration. It is located in South Philadelphia and carries the flow from East Park Gravity System to multiple neighborhoods in South Philly. The water main has experienced several leaks and breaks over the last 10 years. To date, our only rehabilitation methods were dig and replace or cleaning and cement lining. Excavation for large mains can be complicated due to heavy utilities throughout the city. Cleaning and cement lining also does not afford any real structural capabilities. A trenchless method would make sense in a densely populated area such as the City of Philadelphia. This project will entail installing a trenchless structural epoxy laminate composite NSF 61 approved liner for the transport of potable water at working pressures ranging from 40 psi to 90 psi and pressure testing peak pressure of 350 psi.

We investigated several lining techniques that would provide a long term rehabilitation solution. Several methods seemed suitable, and future pilot projects will be forthcoming. We initiated a pilot project to test one of those technologies, a spray on epoxy mortar that has structural capacity. We chose to rehabilitate the water main with Neopoxy, which is to be installed by CorrTech. This paper discusses the lessons learned in rehabilitating a large water main.