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OVER - UNDER PIPELINE REHABILITATION

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ABSTRACT: The Massachusetts Water Resources Authority's Weston Aqueduct Supply Main No. 4 (WASM 4), a 60-inch diameter riveted-joint steel water pipeline in a busy roadway in Boston, was badly in need of repair as a result of external corrosion. Originally installed in 1933, in recent years the main was leaking frequently. The recommendation to insert a new 54-inch steel liner in the old pipeline was complicated in about a one-mile stretch by the presence of a 110 year old oval 54-inch by 62-1/2-inch brick sewer directly beneath the WASM 4. The sewer and water main were vertically separated in places by as little as 4 feet. CCTV inspection of the old sewer resulted in a recommendation to install a cured in place (CIP) structural lining.

The rehabilitation of both pipelines had to limit interruption of traffic and businesses along the busy route. So, a unique approach to sewer bypassing was developed; the primary bypass header was installed within the dewatered WASM 4 below the roadway. In addition, the one mile of CIP liner was inserted into the sewer through only two access locations. After the liner installation in the sewer, a steel liner was inserted in the WASM 4 above. The contractor's choice to install HDPE guides on the walls of the WASM 4 very effectively centered and guided the new steel insertion liner into its place while avoiding the rivets.