



Manholes Structures

Project: 10' Diameter RockHardscp® Manholes

Owner: Fulton Street Tunnel - City of Houston, Texas

Engineering Consultant: Montgomery Watson

Contractor: B.R.H. Garver Construction, Inc.

Date of Installation: May 1998

In 1994 the City of Houston initiated the Greater Houston Wastewater Program. The GHWP was funded with \$1 Billion of federal funds to upgrade the City of Houston's sanitary sewer system. The City of Houston contracted Montgomery Watson Engineering to manage and select subcontracting firms such as Black & Veatch, Buchanan, CH2M Hill and others to engineer/design certain projects defined under the funding agreement. The projects included upgrades and additions to waste treatment plants, lift stations, wetwells, manhole structures and pipelines. The City of Houston, under the direction of Jimmie Schindewolf, Director of Public Works and Gary Oradat, Director of Wastewater also used the GHWP to test new and innovative products and designs. One of the products the City of Houston chose to test was RockHardscp® manholes structures.

Certain city officials had been made aware that RockHardscp® manholes and pipe were being successfully used in severe corrosion environments in the chemical processing industry. After several meetings city officials completed their due diligence by touring two of RockHardscp® specialty chemical customers. The City gave final product approval and directed



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RockHardscp® to contact B.R.H. Garver Construction, the low bid general contractor for the Fulton Street Tunnel project. The agreement was that if RockHardscp® manhole structures were not more expensive than T-Lock lined concrete manholes the City of Houston would agree to approve the installation of RockHardscp® manholes structures.

The scope of the project was to install a 10' ID RockHardscp® manhole base to accommodate 6 ½' ID T-Lock lined concrete jacking pipe, then transition to 6 ½' ID RockHardscp® manhole risers to within 4' of the street level where the structure would transition again to a 4 ½' ID RockHardscp® riser to street level. The RockHardscp® structures were installed using a three-component epoxy mortar. The 6 ½' ID concrete jacking pipe was also grouted into the RockHardscp® base structures pipe openings using a three-component epoxy mortar. The 14 completed structures averaged between 50'-60' in depth. The project consumed over 850,000 lbs. of solid cast polymer with the largest individual piece (Base Structure) weighing over 28,000 lbs.

The success of the Fulton Street Tunnel project established RockHardscp® as the product of choice in the municipal wastewater market.

Gary Oradat retired from the City of Houston as Deputy Director of Public Works and is presently the Chief Engineer of the Coast Water Authority and continues to be a RockHardscp® supporter.



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