



CASE HISTORY

“Houston, We Have A Problem” Manhole Rehabilitation Method Saves Taxpayer Money



*Brick manhole cleaned and ready for
Cement Liner*

The City of Nassau Bay, Texas is located just fifteen minutes south of Houston along the southern Gulf Coast region which services the NASA space center and the surrounding subdivisions. This city consists of thousands of homes and businesses for employees and visitors alike that converge on this great American icon.

This region experiences very hot and humid climate most of the year except for a few weeks in the winter. This type of atmosphere can create an extremely harsh and aggressive environment especially in sanitary sewer manholes. This situation has created manhole failures in dramatic numbers and had forced the city to start taking means of replacing their manholes. Placed close to the ocean and being that the water table is relatively high the city has been trying to combat this problem but, realized that the remove and replace method was too slow, very expensive and would not be able to keep up with the pace of the failing manholes in their area.

Faced with this dilemma, Phil Briscoe, wastewater superintendent knew that another alternative versus the

remove and replace method had to be implemented.

The city has been utilizing some trenchless rehabilitation methods such as pipebursting, sliplining and CIPP for their sewer line repair but was still faced with aging and deteriorating manhole structures.

To deal with this problem, the city turned to a local company; SCM, Inc., that had been working with the City of Houston's Corp of Engineers for over 15 years helping to restore their sanitary sewer manholes. Together Phil Briscoe; city of Nassau Bay, Madhu Kilambi, P.E.; Claunch & Miller Engineer, Houston, TX and Standard Cement Materials, Houston, TX put together a plan to rehabilitate these sanitary sewer manholes by using **StandardShield** microsilica cement liners and 100% solids, high build epoxy coatings.



*Precast manhole experiencing high
deterioration and corrosion with exposed
reinforced and structural fatigue*

Starting in the spring of 2004, the city started the first phase of rehabilitation construction on one of several service areas surrounding the NASA space center. This project would encompass pipebursting, sliplining and

the rehabilitation of over 100 manholes using spray applied microsilica cement liners. In conjunction with the prime contractor; Horseshoe Construction Company, La Porte, Texas and Standard Cement Materials, Houston, Texas; the construction and rehabilitation phase began.

Over the next several months SCM, Inc. would rehabilitate and restore the 100 manholes in this project with great ease and success. SCM, Inc. uses specialized equipment which includes but is not limited to a custom trailer, high pressure washer (min 3500 psi), high capacity water tank with a city approved water gap system, mounted mortar mixer and a rotor-stator pump specifically designed to apply sprayable cements and mortars.



Manhole crew mixing material for application of Reliner MSP cement liner.

After all manholes had been lined with Standard Cement Materials' **StandardShield** cement, vacuum testing was performed to ensure that the manholes were air tight and no leaks were present, confirming that inflow and infiltration problems would be ceased for many years to come.

In addition to the microsilica cement liner, SCM, Inc. also used their 100% solids, spray applied **StandardShield** epoxy coating to add further protection to manholes that were experiencing high concentrations of Hydrogen Sulfate attack. These manholes were identified individually from the group receiving microsilica cement only and were dealt with on a case-by-case basis.



Manhole has been rehabilitated using RelinerMSP cement and StandardShield epoxy coating.

