

LiquiForce

No-Dig Pipeline Rehabilitation

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Why Dig?

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Our Mission Statement

Liqui-Force provides municipalities with leading edge no-dig solutions for their sewer and water rehabilitation challenges.

Our team is driven to revitalize today's aging underground into tomorrow's environmentally sustainable infrastructure.

For World Class Results...Just Call The Force!



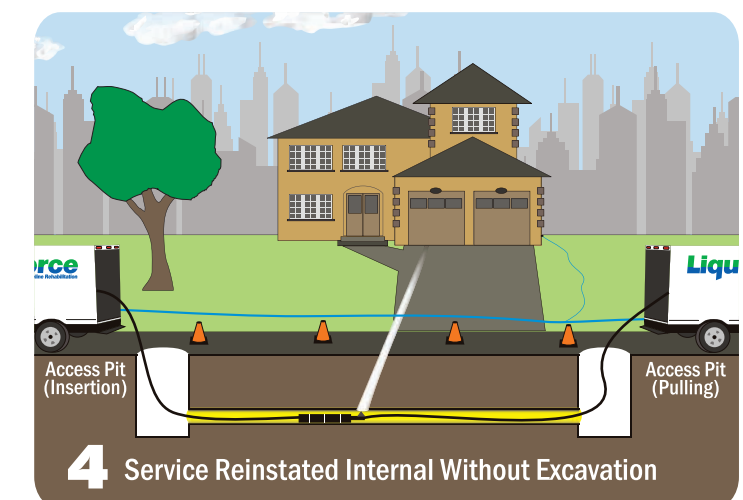
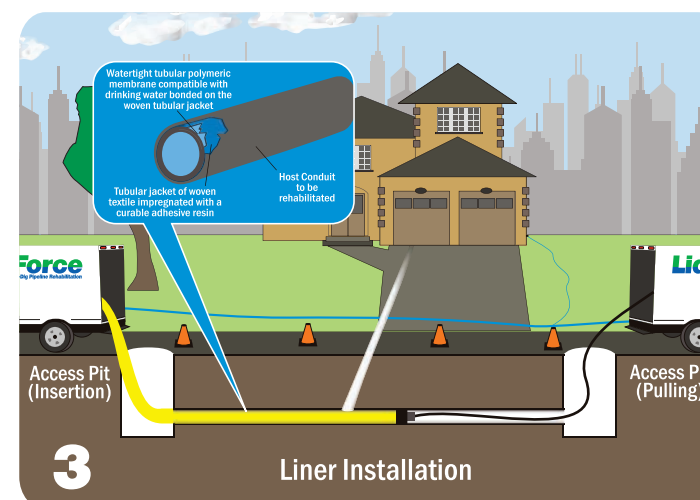
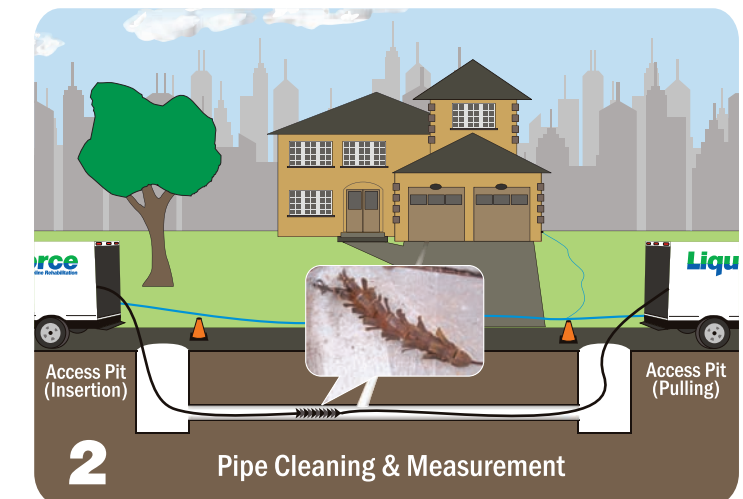
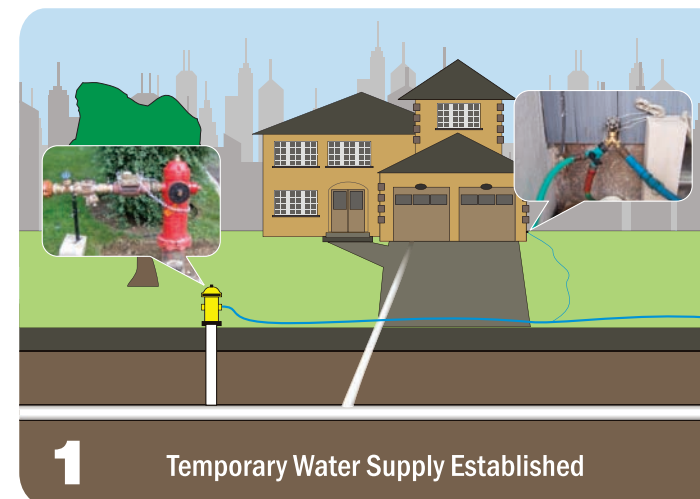
LFS Water Liner

Liqui-Force can structurally rehabilitate potable water mains with the use of Cured in Place Pipe technology. Now the benefits of Cured in Place Pipe techniques, previously available for collection systems, are offered for potable water distribution systems. Our innovative process minimizes disruption when compared to all other methods since services 2" and smaller can be opened without the use of excavation.

The LFS Water Liner is NSF 61 approved and designed to provide a permanent structural solution to failing water distribution systems. The LFS Water Liner is capable of rehabilitating water mains from 6" to 12" in diameter regardless of the existing host pipe material.

The LFS Water Liner does not require the owner to stock, train or purchase specialized tools, fittings, clamps or other materials should new taps, cut ins or work be desired.

The LFS Water Liner is a tight fitting liner which solves the problems associated with aging water main. Water main breaks, leaks, rusty/dirty water complaints, restricted flows, etc. will all be eliminated with the installation of the LFS Water Liner.



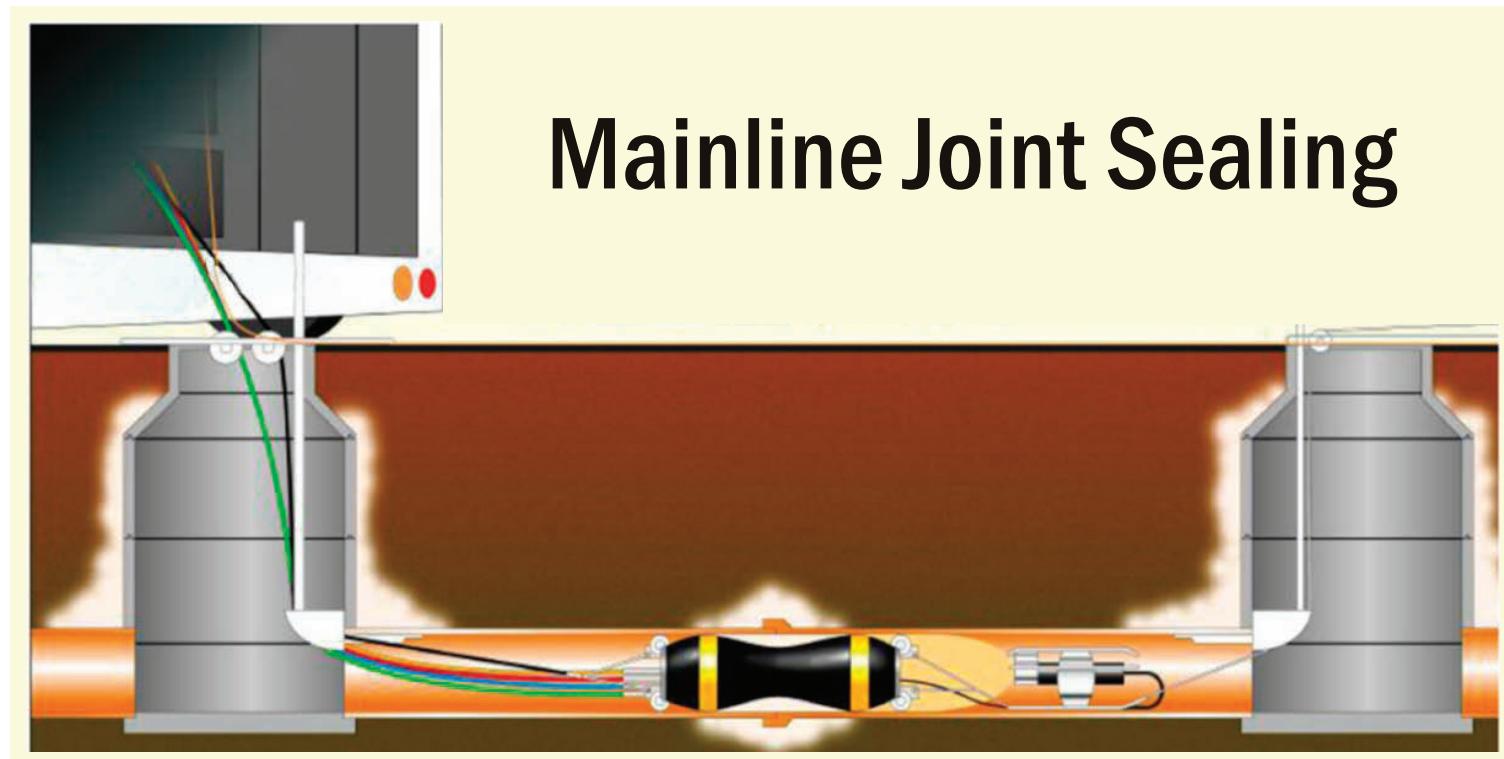
Water Main Cured In Place Pipelining

Chemical Grout

Utilizing chemical grouting techniques Liqui-Force can stop leaks at the four critical points of entry into the collection system: Manholes, mainline joints, service lateral connection to the main and the service lateral.

Chemical grout was first developed and applied in 1955. Since that time it has been successfully used to stop leaks in municipal and industrial collection systems all over the world.

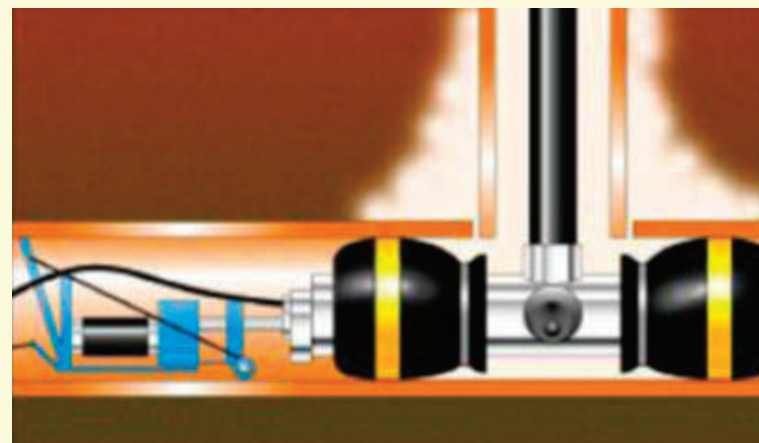
Over 40 years of successes indicate that America's first trenchless technology is still the most cost-effective, long-term defense against infiltration of groundwater into structurally sound sewer systems.



Manhole Sealing



Lateral Connection Sealing

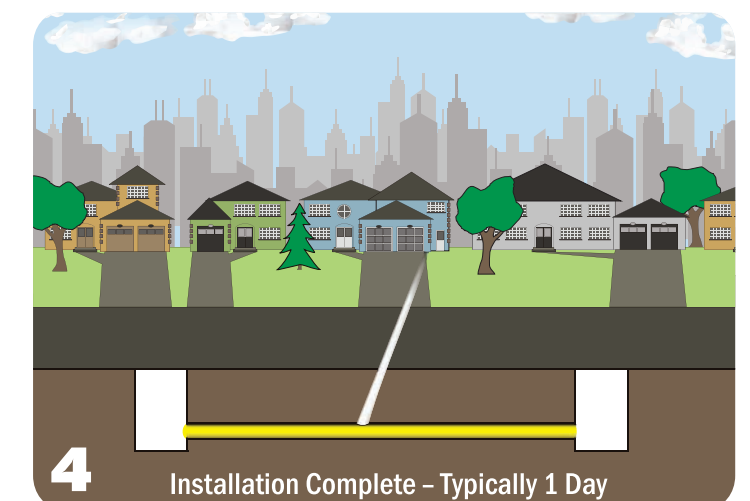
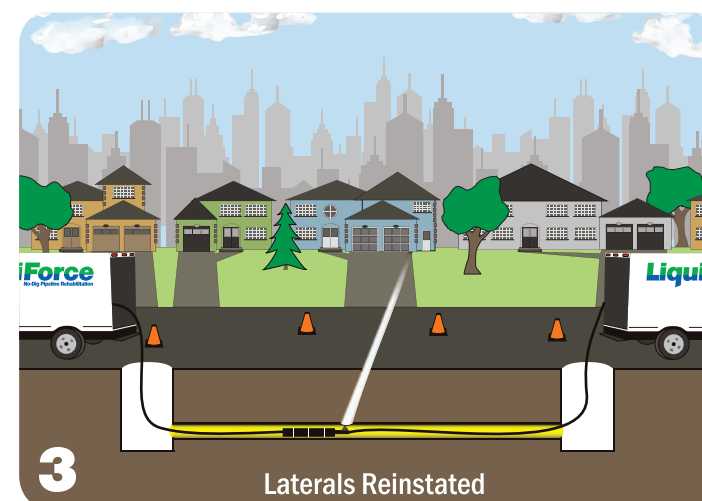
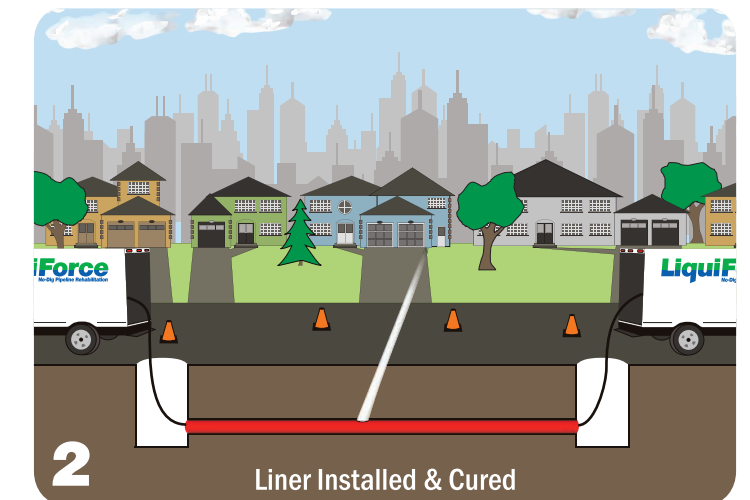
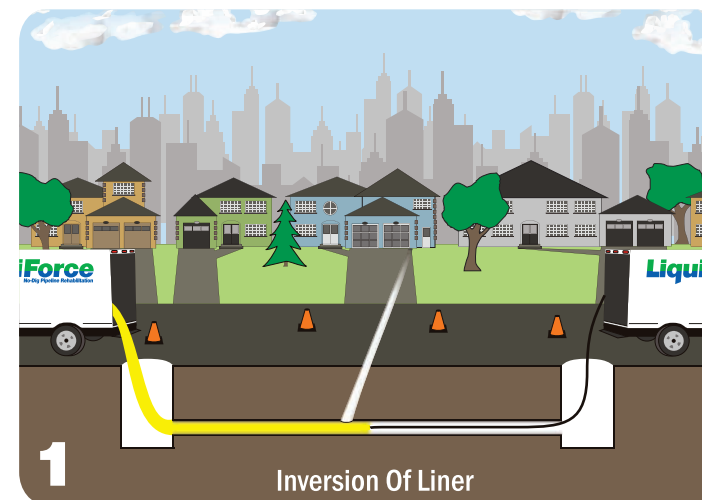


LFS Liner

Liqui-Force can repair pipelines in diameters from 8" and larger, without the need for excavations. Utilizing time proven design principals, we are able to provide full, trenchless, structural rehabilitation systems.

A calculated amount of resin and catalyst is used, according to the liners diameter, thickness and length. Factors such as groundwater, depth, overburden and ovality are used in the design of the LFS Liner. All LFS Liners are designed and installed in accordance with ASTM F1216.

Our process involves the installation of a resin impregnated flexible tube that takes the shape of the original conduit. Once fully inverted, the thermosetting resin is cured with the use of hot water or steam. As a result, the finished Cured-In-Place Pipe (CIPP) is structural, continuous and tight fitting. Once cured, final inspection is performed to document the proper opening of the service laterals and the integrity of the new seamless LFS liner.

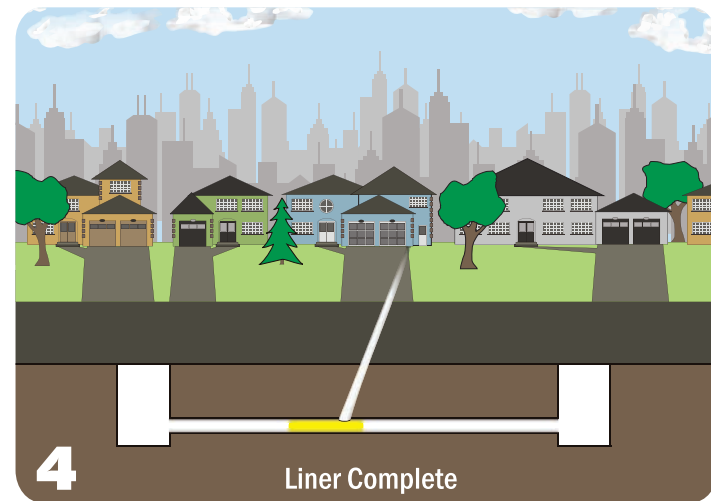
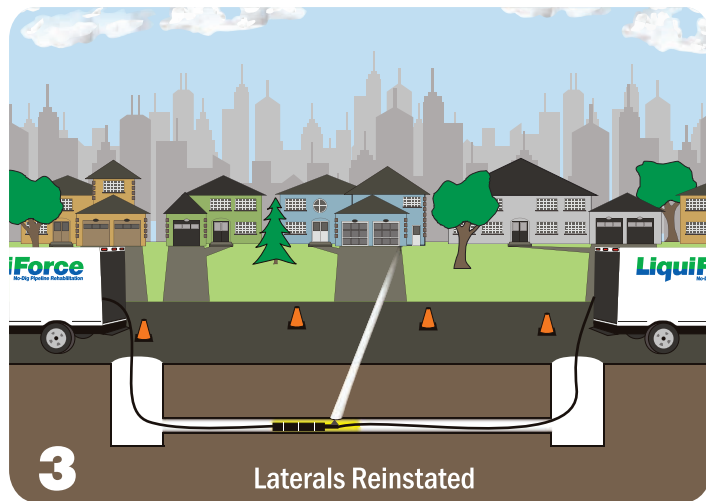
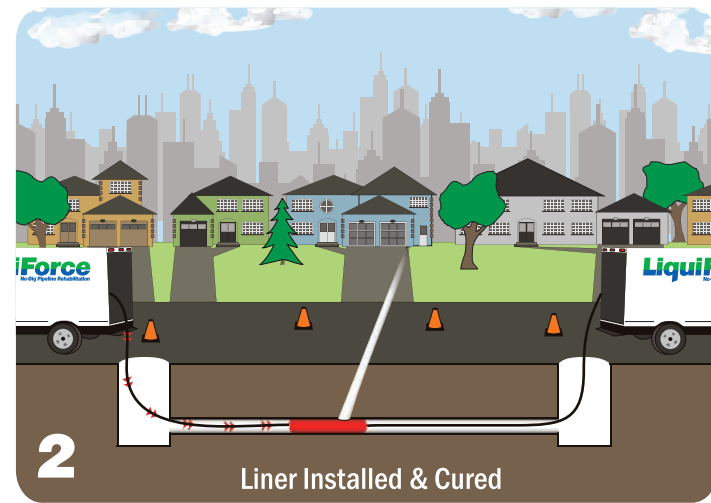
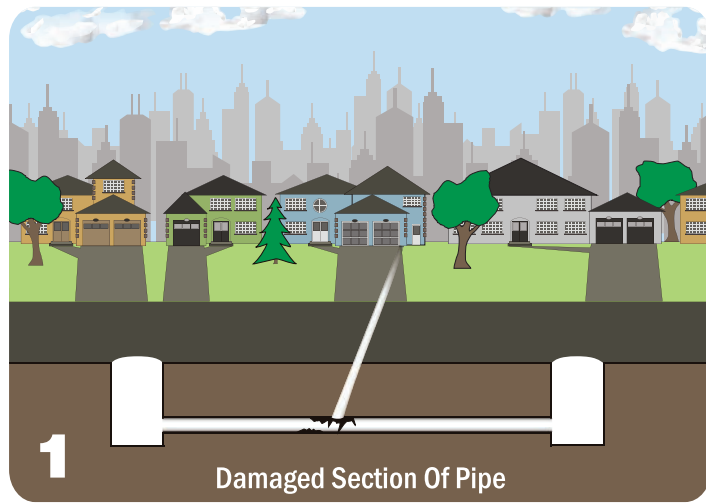


LFS Point Liner

Liqui-Force can repair isolated areas of the pipe in diameters from 8-24" inches, without the need for disruptive and time consuming utility locates and excavations. Utilizing time-proven design principals, we are able to save our clients time and money.

A calculated amount of resin and catalyst is used according to the liners' diameter, thickness and length. Many factors such as groundwater, depth, overburden and ovality are used in the design of the LFS Point Liner. All LFS Point Liners are designed and installed in accordance with ASTM F1216.

Once cured (approximately two hours), the final inspection is performed to document the proper opening of service laterals, and the integrity of the new seamless LFS Point Liner. The ends of the liner are tapered to ensure that effluent flow is not impaired by the LFS Point Liner.



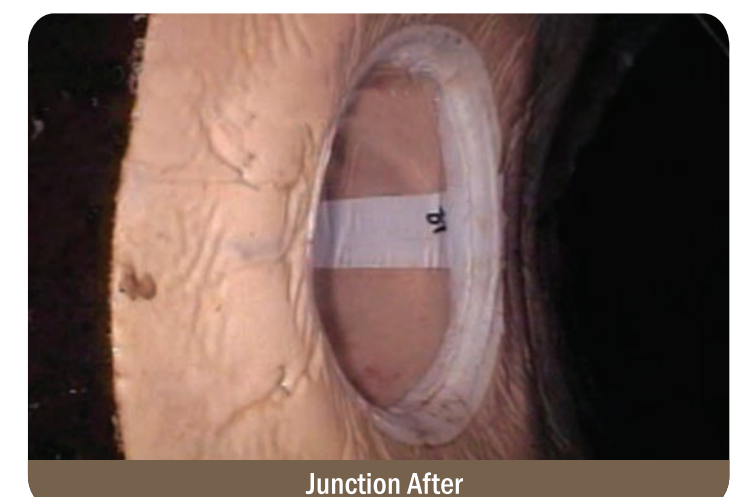
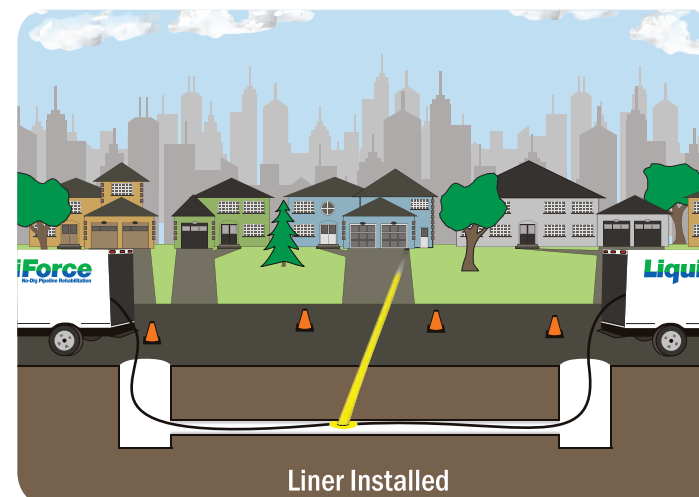
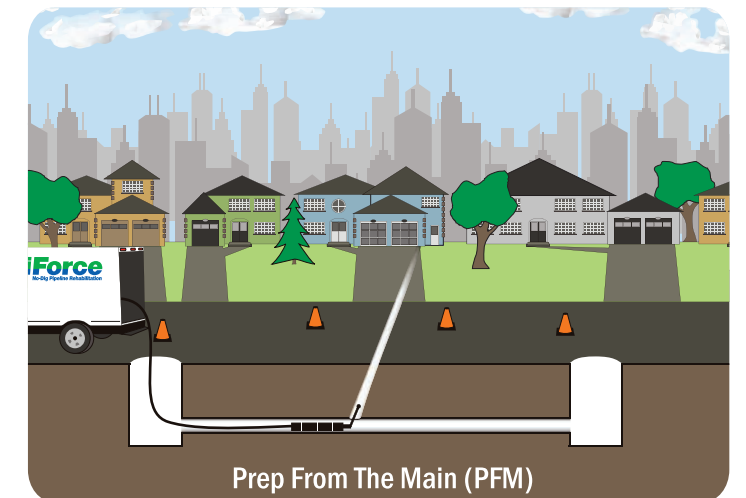
Sectional Cured In Place Pipelining

LFS Junction Liner

The junction between the mainline and lateral pipes has been identified as the weakest point in the sewer system. Our system will allow for any combination of mainlines from 8-24 inches and lateral lines from 4-8 inches. The LFS Junction Liner is completely trenchless unlike other traditional methods which require an access point on the lateral such as a cleanout. The lateral portion of the liner is inverted up the lateral from the mainline sewer to lengths in excess of 100 feet.

The LFS Junction Liner employs many quality control features, such as ASTM F1216 design, vacuum impregnation, inversion installation, and protective carrying devices. These features ensure product uniformity, strength, durability and affordability for the end user. There is no joining of two separate liners required. The LFS junction Liner is inserted through the mainline pipe and once positioned, the liner is then inverted up the existing lateral. The end result is a one-piece, structurally sound repair of the connection and lateral.

Both the mainline and lateral portions of the liner are installed simultaneously as a one piece LFS Junction Liner, resulting in a smooth interface of the lateral/main connection. The new liner ensures high quality and durability that is impervious to infiltration and root intrusion.



Mainline Lateral Cured In Place Pipelining