THE TOTAL SOURCE

educational sessions

Service Lateral Rehabilitation Using Cured-In-Place-Pipe (CIPP)

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Introduction

- Intent, to provide information on:
  - Lateral preparation
    - Lateral CCTV Inspection
    - Lateral cleaning
  - Lateral rehabilitation using CIPP
    - Lateral Lining without a Seal
    - Top Hats/Brim Type Seal
    - Full Wrap Type Seal

CCTV – Lateral Inspection

- Insert camera through cleanout or other access point
- Pre & Post rehabilitation CCTV Inspection

CCTV – Lateral Inspection

- Launch camera from the main line
- No cleanout/access point needed
- Pre & Post rehabilitation CCTV Inspection

Lateral Cleaning

- Lateral cleaning techniques have improved
- Tools to use from Cleanout/Access point

Lateral Cleaning

- Tools to use from Cleanout/Access point
- Removal of roots, debris and liner

Lateral Cleaning

- Lateral cleaning techniques have improved
- Up to 80+ ft from the main line Pipe
- No clean out needed
- Removal of roots & debris
- Can be done by twisting hose above ground

Lateral Preparation

- Important to determine rehabilitation needs and techniques
- Clean pipe to fully evaluate
- Inspect the private/public sections as needed
- Critical data for design
- Critical data for construction

CIPP Lateral Lining

- Liners are similar to those used in main line CIPP rehabilitation
- Multiple Resin Systems
  - Polyester – Vinylester – Epoxy - Silicate
- Cure Systems
  - Ambient – Steam – Water – UV
- Meet typical ASTM specs for CIPP

Specifications

- F1216, F1743, D5813, D790, D2990
- Specifications for CIPP Laterals
  - Demand experience
  - Request and check references
  - Allow multiple products to bid

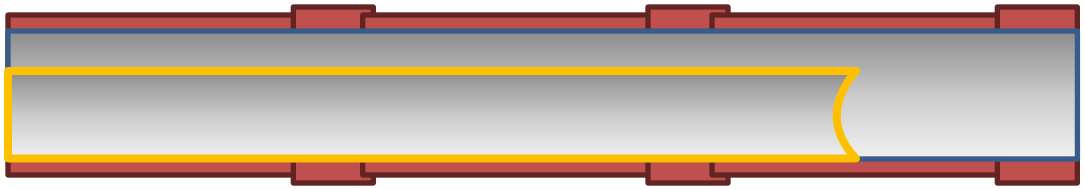
Lateral Pipe Lining

- Involves rehabilitating laterals from a lateral access point
  - At or near the sewer main
  - At or near the building foundation

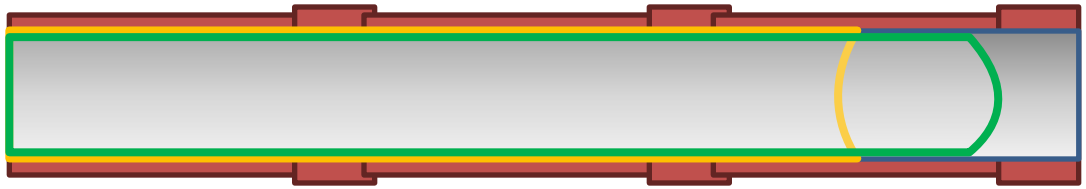
- Four Methods:
  - Clean-Out/Access Point Inversion
  - Double inversion
  - Single inversion
  - Pull-In-Place

Double Inversion Method

Liner Inversion



Bladder Inversion



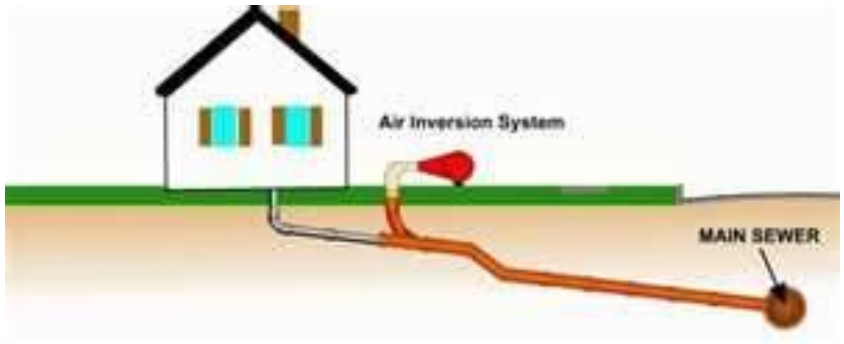
Bladder & Liner pressurized

Double Inversion Method

- Often times inverted from basement or other access
- Can be steam or water cure
- Usually the liner is deflated prior to inversion of the bladder

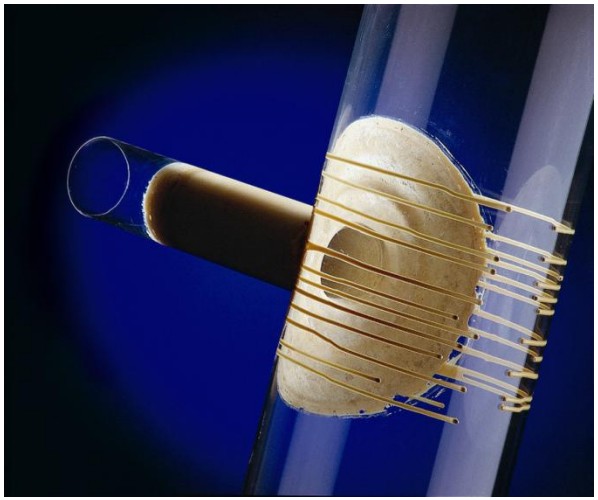
Single Inversion Method

- Liner & bladder are simultaneously inverted
- Camera can be inserted into the bladder
- Pressure is maintained and the liner cures

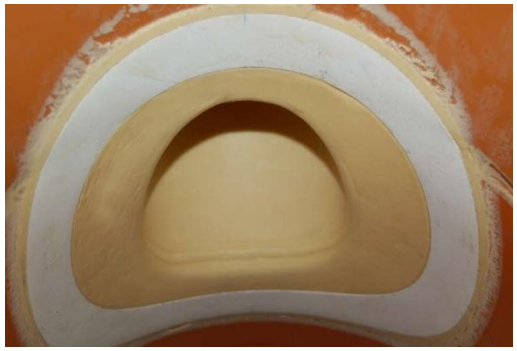


Styles of CIPP Lateral Seals

- Top Hat/Brim Style
- Full Wrap Style



“Brim” Style of CIPP Lateral



- Industry terminology – “Top Hat”
- Process installed from the mainline
- No clean out is required
- Typically installed after mainline CIPP
- A bladder is used to inflate to put in place the resin saturated liner
- Hydrophilic material is used to seal the connection at the main

“Brim” Style of CIPP Lateral

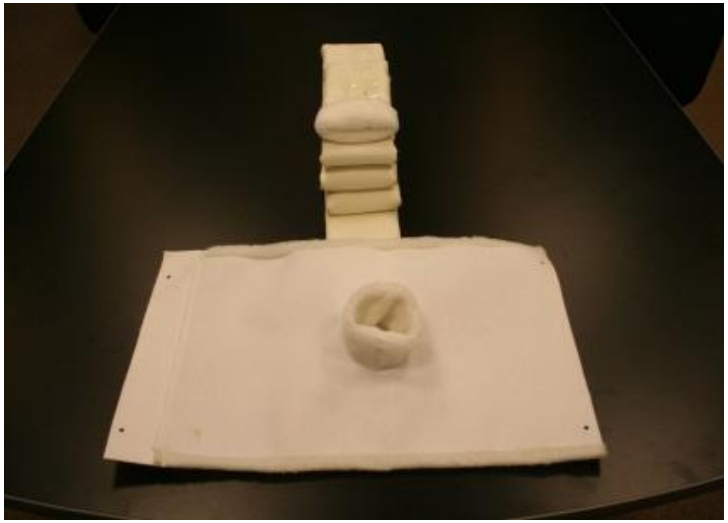
- Length of lateral liner is product specific
- Length may be dependent upon curing method
- Size of seal can vary
- Some designed to adhere to host pipe/liner
- Shorter lengths often times used in conjunction with lateral liners installed from the cleanout or other access point (2 step process that requires cleanout or access point)

“Full-Wrap” Style of CIPP Lateral

- Can be installed before or after main line rehabilitation
- Installed from mainline
- No clean out is required
- A bladder is used to inflate and position the resin saturated liner in place
- Liner forms a full circle around the inside of the main sewer pipe
- The main liner is approx. 16” in length and is 360^0 within the main line pipe

“Full-Wrap” Style of CIPP Lateral

- Typical lateral lengths are from main line up to 60 ft.
- A clean out is usually required for lengths longer than 60 ft.
- Hydrophilic material is used to seal the lateral connection at the main and the terminating end of the CIPP lateral



Hydrophilic Materials

- Used to seal lateral connection at the main
- Expands upon contact with water
- Various Configurations
  - Paste
  - Gaskets
  - O-Rings
- Air pressure testing confirms the sealing at the lateral connection to the main

Hydrophilic Materials

- Various materials have been tested after years of service and confirmed effectiveness to seal through hydration/dehydration cycles
- Some products state no need for hydrophilic materials due to adherence to pipe wall
- Acquire test data confirming product performance

CIPP Lateral Lining Design

- Understand relevance of ASTM standards
- Competitive bidding
- Require experienced Contractors installing a proven product
- Understand need for cleanouts
- Understand need for work on private property

Thank You

Questions?

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