

Sewer Lateral and Mainline Rehabilitation Through Lining

Mark Norgaard

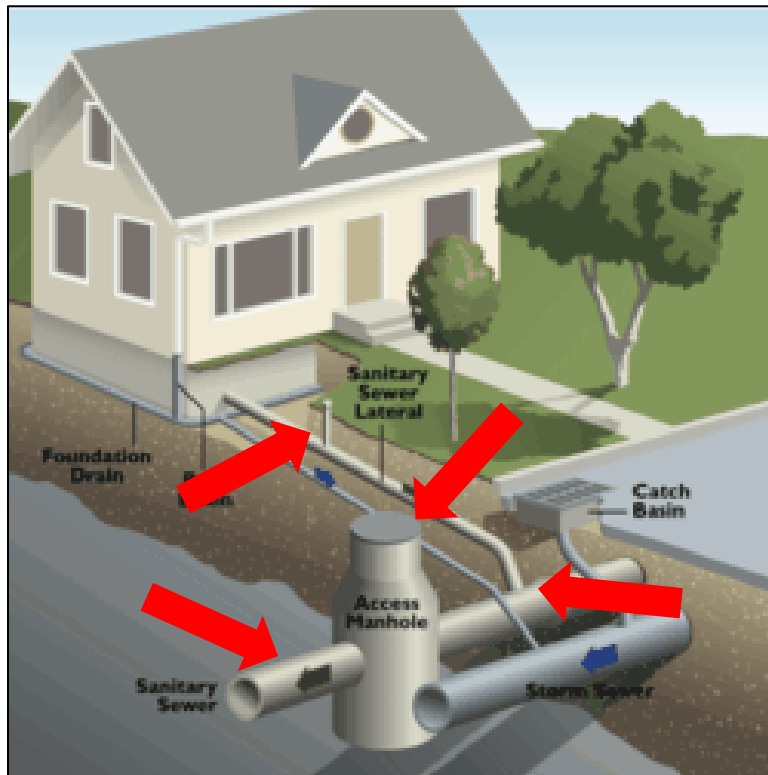
Technical Sales Representative

LMK Technologies

Discussion Points

- Why Is Your Sewer Pipe Being Lined
- How Will It Be Lined
- What It Means To You

Your Lateral Sewer Line is Part of the Wastewater Collection System



- Sewer Mainline
- Manhole
- Lateral
- Connection



All Leaking parts of the system Must be Rehabilitated and Sealed

- The public system which includes the mainline and manholes has been or is in process of being rehabilitated
- The lateral pipe that connects the home to the public system also need to be rehabilitated and then sealed at the connection

Rehabilitation – What Does it Mean?

- Can Dig and Replace the Pipe

Or

- Line with a Trenchless Cured-in-Place Pipe (CIPP) process
 - Quick and cost effective
 - Landscapes are preserved
 - Trees do not need to remove
 - Doesn't affect traffic
 - Accepted technology for over 30 years

Creates a
New Pipe Within A Pipe



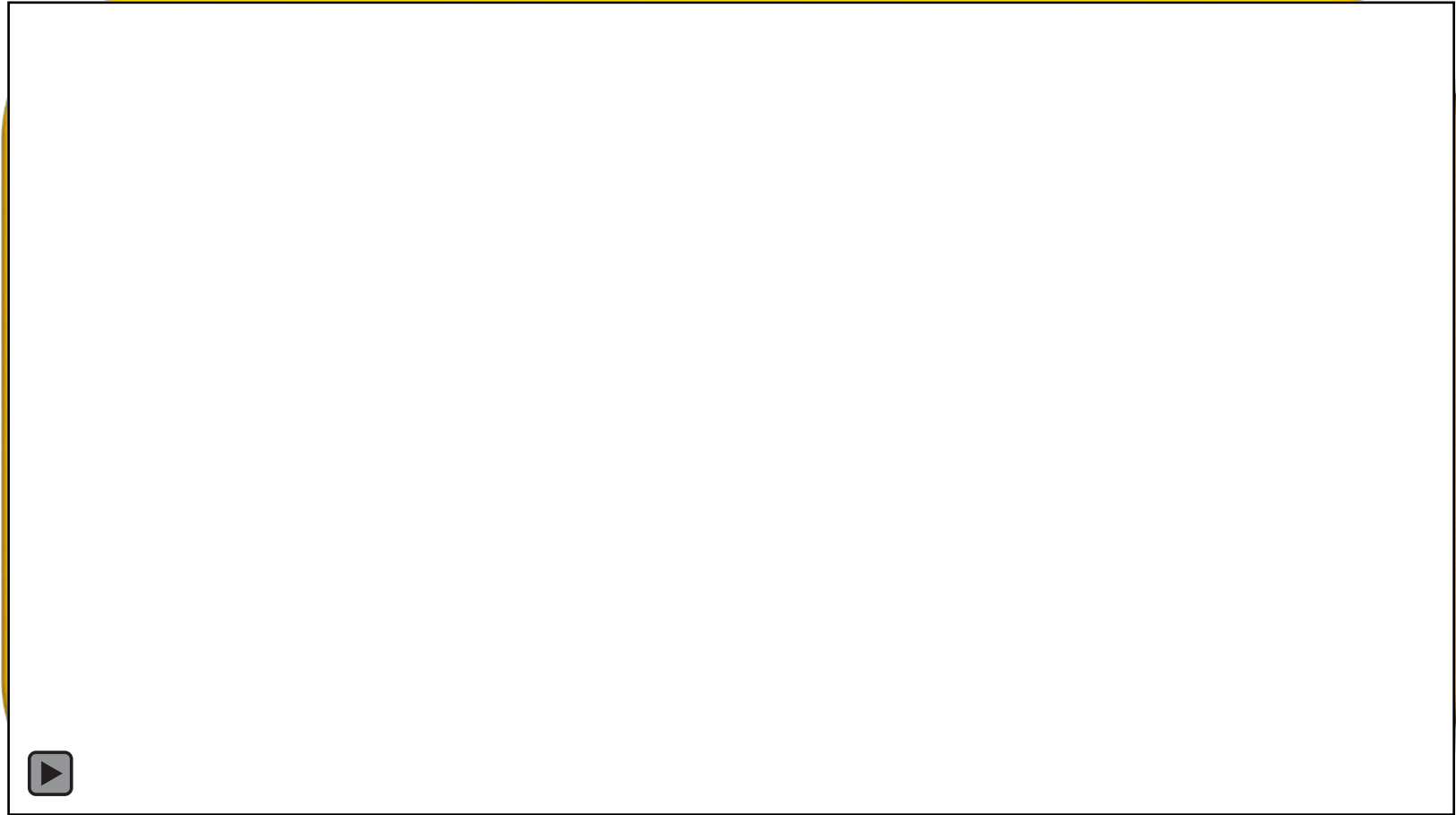
Digging and Replacing Involves:



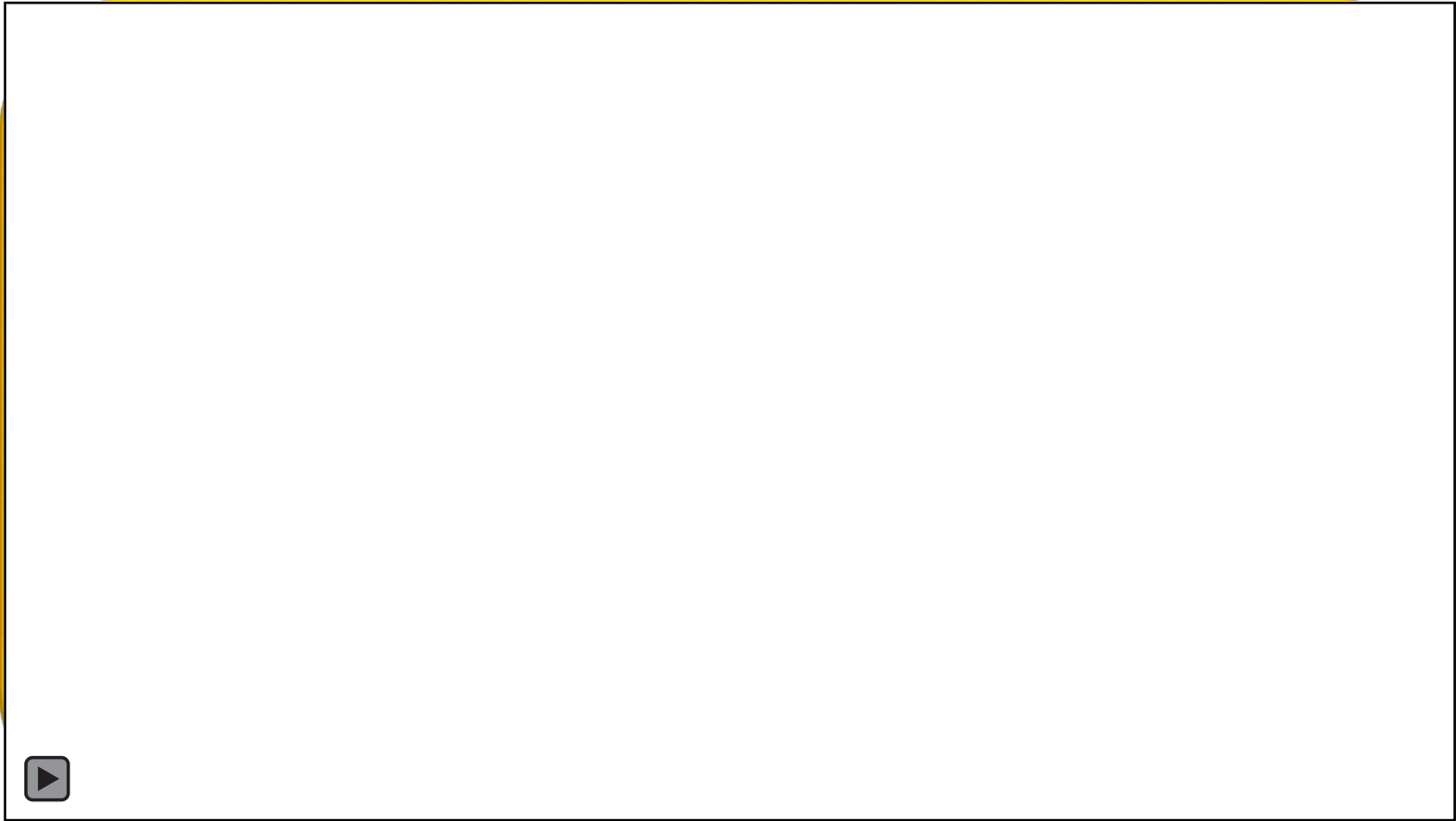
Trenchless Lining Involves:



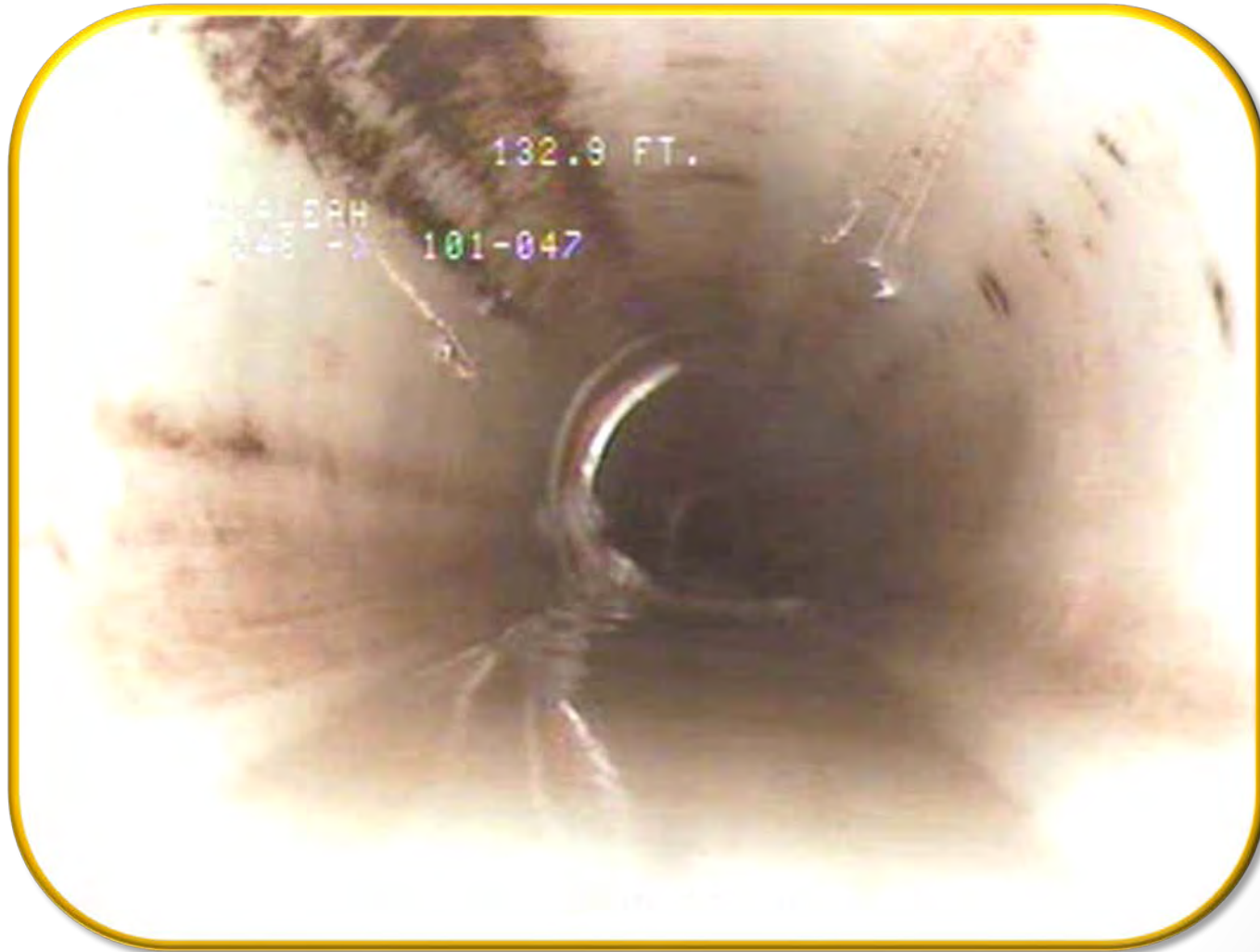
Failing Mainline Pipes



Mainline Lining Only



Mainline Lining Only Video



Completely Sealed System



Discussion Points

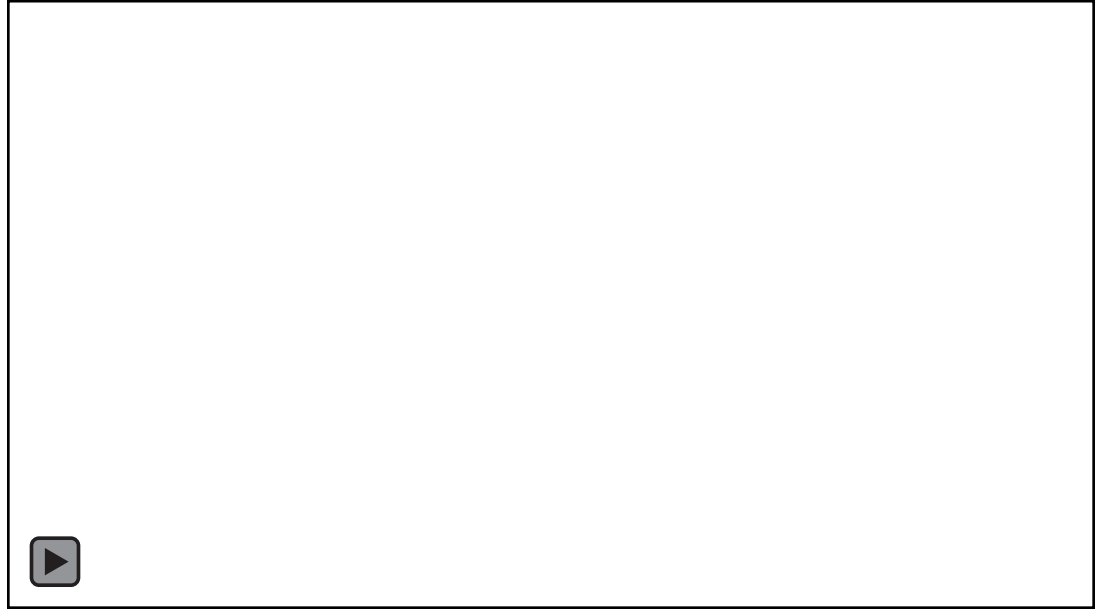
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Lining Process

- Basic components of T-Liner[®] Lining System
 - Tube and Sheet
 - Felt mat liner
 - Bladder which is removed after curing
 - Hydrophilic Gasket Sealing (Insignia[™] Products)
 - Thermoset polyester resin
- Installed via an Inversion Process
- Cured with steam in approximately 30-60 minutes

Tube and Sheet

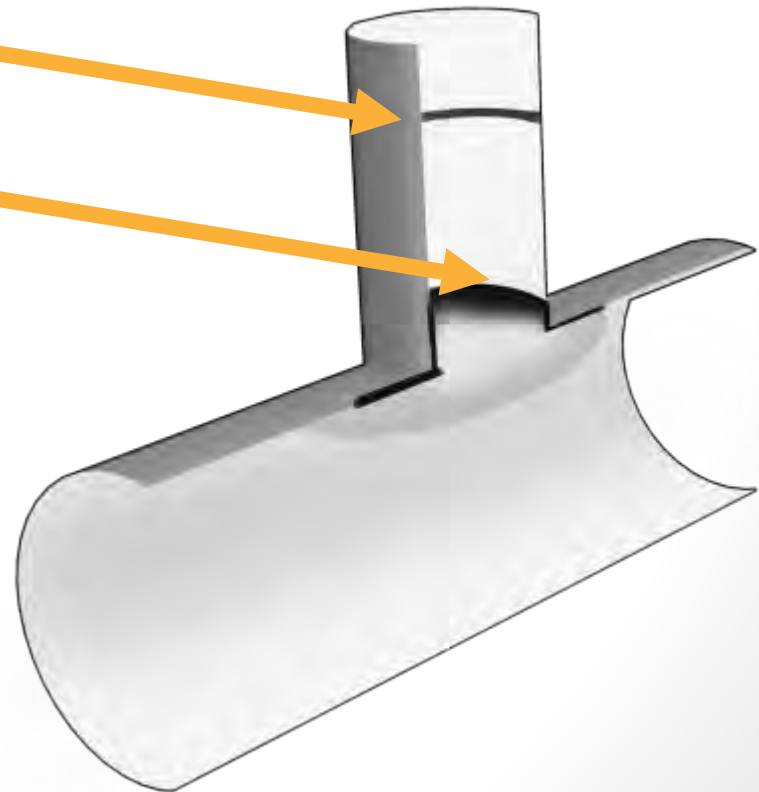


Gasket Sealing Technology

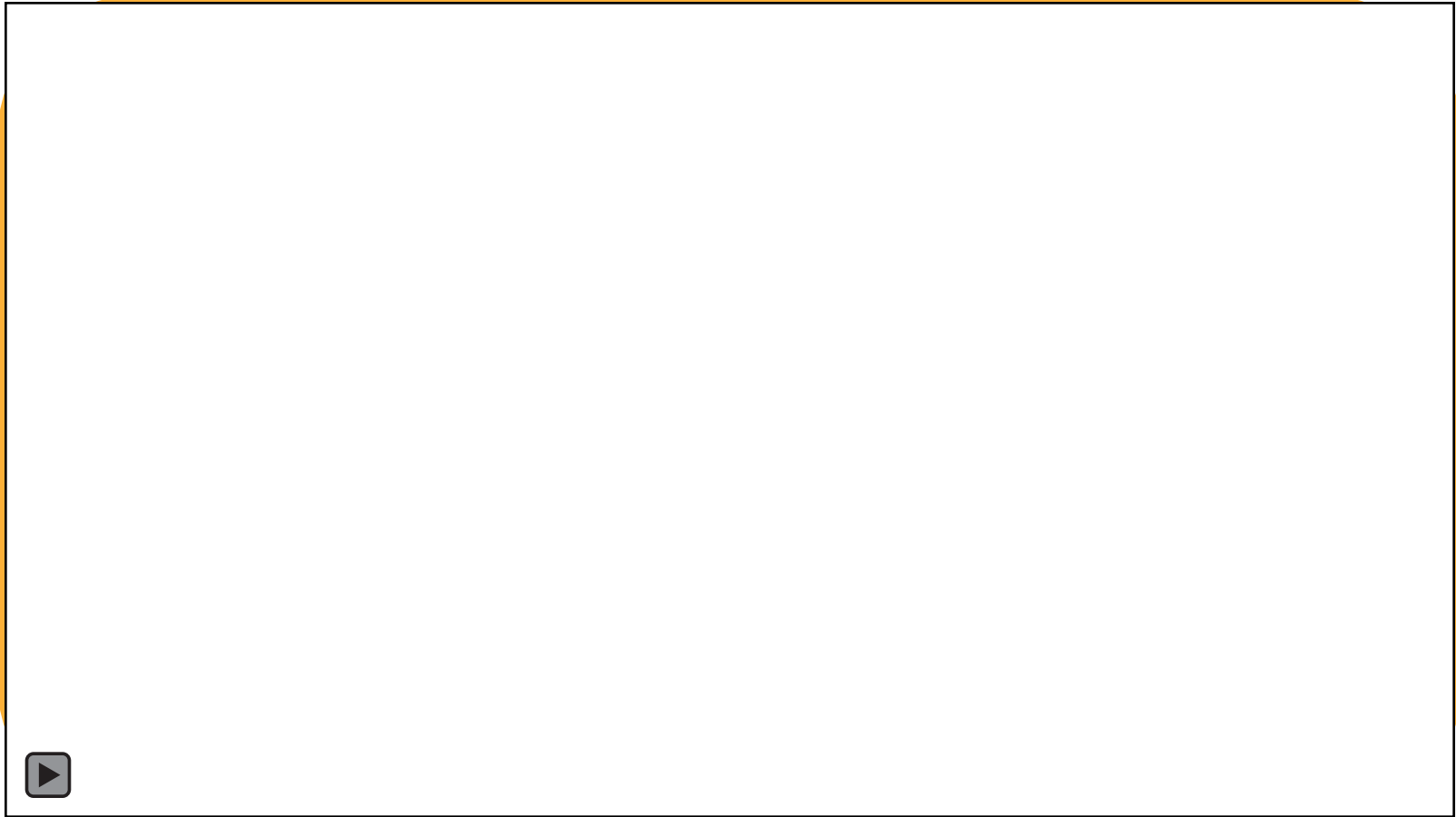
- O-Ring
- Hydro Hat



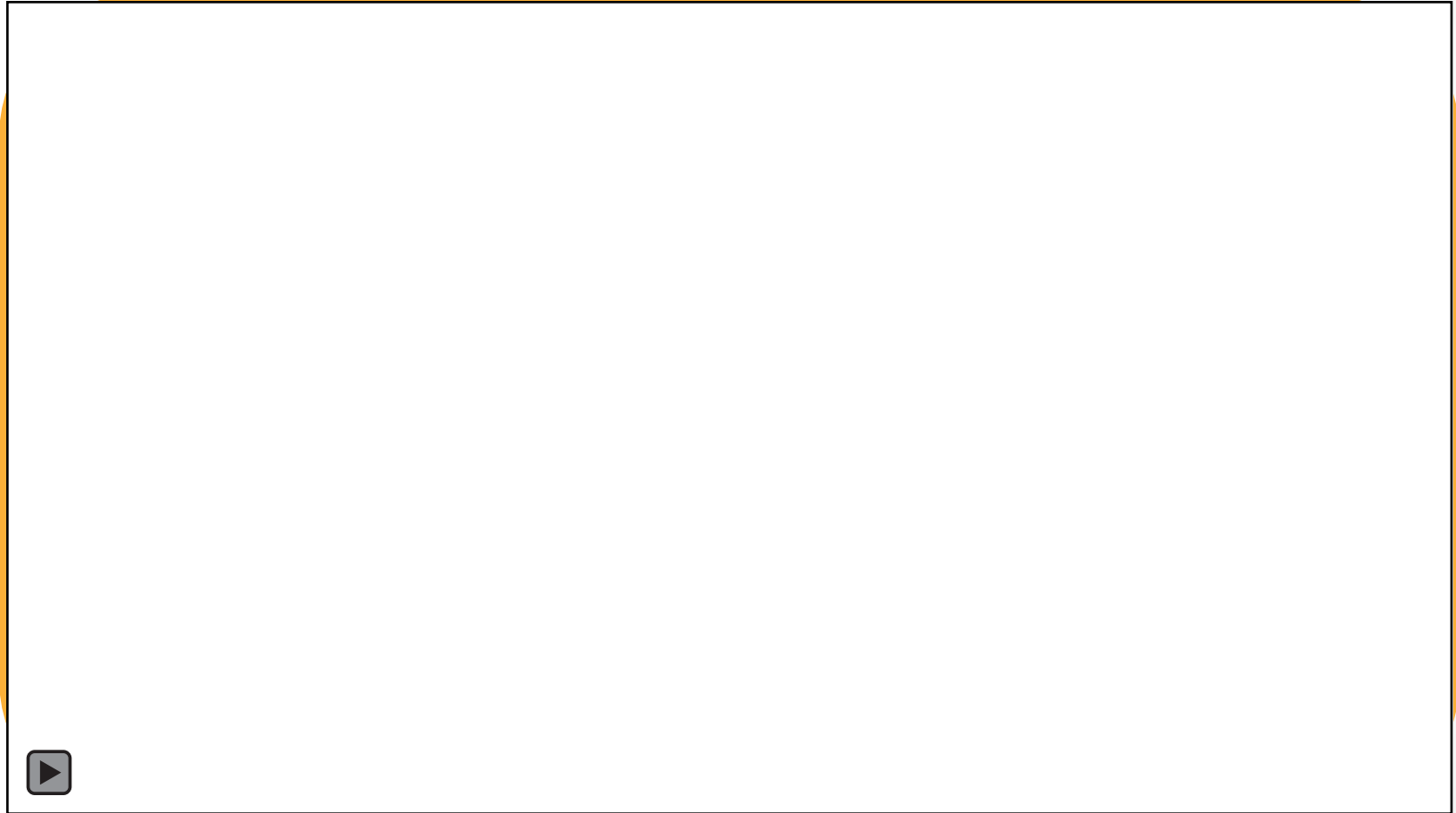
Neoprene rubber swells with water contact creating a water-tight seal. Even after 10,000 hours of cycling wet to dry to wet, the water tight seal is maintained.



Adding the Resin



Loading the Launcher



Positioning the camera



Installing the Liner At the Connection



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Step 1 - Clean Out Installation

- Cleanout will be installed in your yard in a suitable location
 - 20 inch diameter hole excavated to depth of service line
 - PVC saddle and riser pipe are attached to service line
 - The excavation hole backfilled and top 2 feet filled with top soil
 - Sod replaced and cleanout cap installed
 - 60 – 90 minutes



Step 2 - Equipment Set Up

- Per project plan schedule crew arrives to set up equipment and begin installation
 - Truck with steam generator, air compressor and other equipment
 - Cart with 5-Line machine which moves and positions lining equipment
 - 8 ft x 30 ft work trailer used to store and prep materials
 - One to two pick up trucks
 - Four man crew

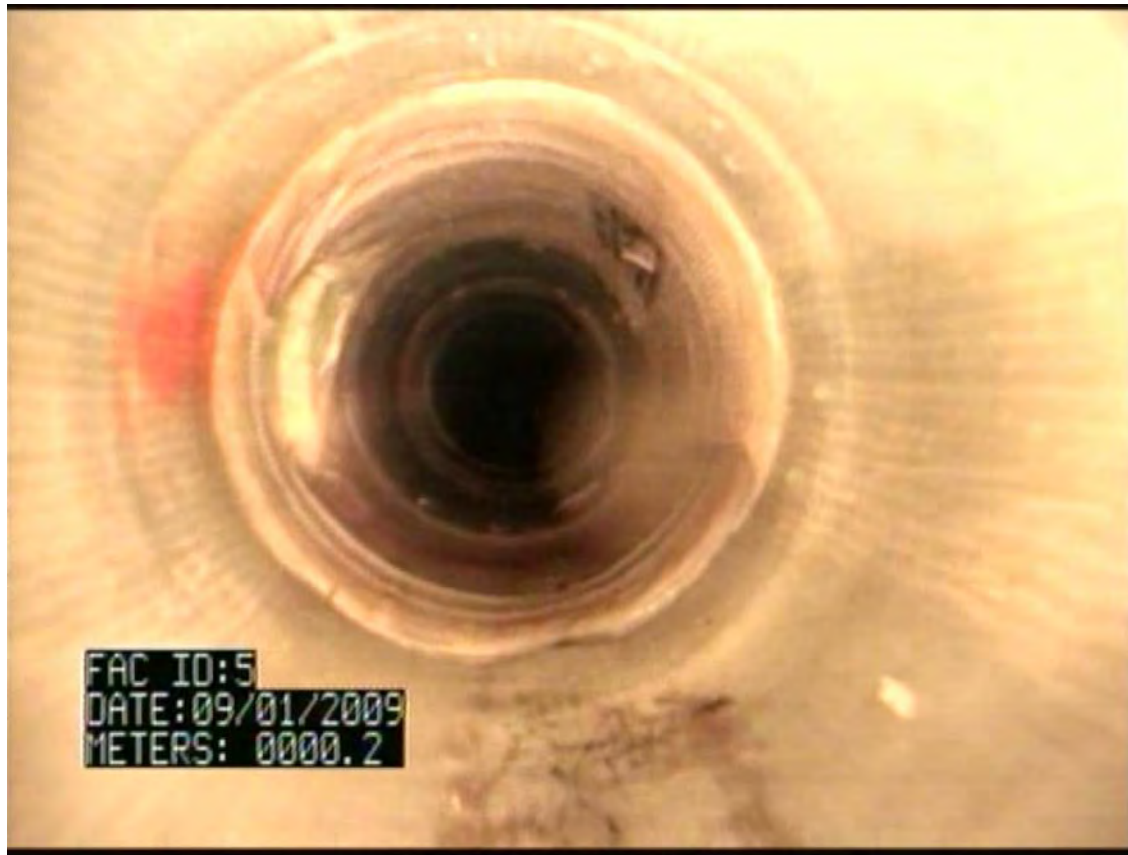


Step 3 - Installation of Liner

- **At your house**
 - Two hours per sewer lateral line
 - Steam will be released thru clean-out
 - Temporary plug is placed in the service line through the clean out
 - Incidental water is not a problem
 - Do Not Wash Clothes, Take a Bath, Run Dishwasher, etc. to avoid sewer backup
- **On your block**
 - Crew will be on street until all houses on the block are completed
 - Generally 5 houses can be completed in a day
 - Street closed? Probably not, traffic cones, signage and lighting may be used to alert and direct traffic
- **When will you know work is completed?**
 - Contractor and city will develop a plan for written and verbal communication with property owners
 - A site manager will handle day to day contact with property owners



Collection System After Mainline and Main to Lateral Renewal



Client: City of Fort Saskatchewan
Mainline CIPP Installer: IVIS, Inc.
Lateral CIPP Installer: IVIS, Inc.

#1: 8" X 4" X 101' 8"

#2: 8" X 4" X 90'

Finished Installation



Questions?

