



Pipe Re-lining CASE STUDY

Fresno Irrigation District (FID) Little Houghton Rehabilitation Project 2024

Central Valley, California

CONTRACT SERVICES:

Scheduled and Performed:

- Interview completed and detailed information gathered
- Site and pipe inspection, including drone inspection and video of pipe for pre-project documentation
- Repair evaluation and scope of work identified
- Services confirmed – required by ISI and customer
- Bid and proposal submitted
- Work agreed upon and scheduled
- Water stopped, pipe isolated and cleaned out completely
- Old patchwork removed & patched where necessary (large gaps/holes)
- Site, pipeline and equipment set up – crews and material
- Shotlining performed – including testing and QC
- Clean up and work confirmation – including post-video documentation
- Project summary form issued

Crew for Shotlining Production:

- Operated with a nine-man crew.
- Achieved a production rate of over 450 linear feet per day.

BACKGROUND: The Fresno Irrigation District (FID) operates one of the largest irrigation delivery systems in California's Central Valley, consisting of extensive underground pipelines critical to agricultural water distribution. Many sections of this infrastructure were constructed over 50 years ago using cast-in-place concrete pipe and have begun experiencing deterioration caused by age, groundwater exposure, cracking, and surface degradation. To maintain long-term reliability while managing capital expenditures, FID sought trenchless rehabilitation solutions capable of restoring structural integrity without excavation or pipeline replacement.

CHALLENGE: FID required rehabilitation of aging underground pipeline sections while maintaining operational efficiency and minimizing disruption to surrounding agricultural operations. Key project requirements included:

- Structural rehabilitation without excavation
- Rapid execution during limited operational shutdown periods
- Long-term structural strengthening of deteriorated pipe
- A contractor capable of delivering complete turnkey services



“Traditional pipe replacement methods would have required excavation, higher costs, and extended service interruptions. FID contracted with a specialist which allowed for trenchless rehabilitation of the aging pipelines at a very cost-efficient solution.”

*Ben Negley, Engineer II
Fresno Irrigation District*

KEY RESULTS

Production Increase:

- **2023 season:**
1060 linear feet completed
- **2024 season:**
1160 linear feet completed
- **2025 season:**
1880 linear feet completed

Quality Assurance:

Quality Control Steps During Application:

- Conducted regular material testing to ensure consistency and strength throughout the entire process.
- Compression tests showed high strength results, with 28-day strengths averaging over 8200+ psi.
- Pre and post inspection videos provided.

Future Recommendations:

- Implement a separate preparation & cleaning crew to support the main pipelining crew more effectively and increase daily pulls.
- Provide two sets of equipment and aim for two 400-linear-foot pulls in each direction daily to increase production to 800ft/day.
- Purchase additional equipment, including a second concrete pump, to maintain production during any repairs.
- Improved material storage for consistent quality.



Proprietary Shotlining Mix



Proprietary Shotlining Equipment

Cost Effectiveness:

- Average cost: \$258 per linear foot (compared to \$700- \$1000 per linear foot for pipe replacement)
- While right on budget, this method proved much more cost-effective than full pipeline replacement at 6-8 times more. This Shotlining method cost 25-30% of pipe replacement cost and allows for the consideration of the complete project.

FID Responsibilities:

- Obtained all site and work permissions; isolated pipe; plugged waterflow; dug and cut access holes; removed old patchwork; completed any required repairs.

Material Performance:

- Shotlining material demonstrated high strength, with 28-day cure strengths averaging 8465 psi
- Material yield was 10% over theoretical, indicating efficient use of resources.

Conclusion:

The Fresno Irrigation District project demonstrates the effectiveness of **Innovative Shotlining Inc.'s complete contract pipe rehabilitation services**, combining proprietary materials, specialized centrifugal lining equipment, and experienced installation crews. By delivering a fully turnkey solution — supplying material, equipment, labor, and installation — ISI successfully restored aging pipeline infrastructure while significantly reducing costs compared to traditional replacement methods.

Innovative Shotlining Inc.

For more information, visit
www.shotlining.com or call 209-849-8021

*“They have lined over 2,500 ft of problematic pipeline for us with 100 percent success to date “
Mike Prestridge, Fresno Irrigation District*