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The First Major Pilot Tube Project in Metro Detroit, MI

A Case Study

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Program Outline

- Methodology of Pilot Tube Guided Boring
- Community Background
- Project Background
- Project Location
- Design
- Bid Selection
- Trenchless Construction

Terminology

- Pilot Tube Microtunneling
  - **PTMT**
- Guided Boring Method
  - **GBM**
- Guided Auger Boring
  - **GAB**
- Pilot Tube Guided boring Method
  - **PTGBM**
- Pilot Tube Method
  - **PTM**

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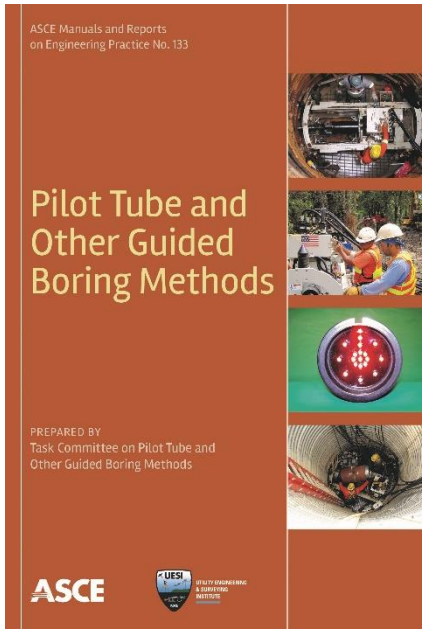


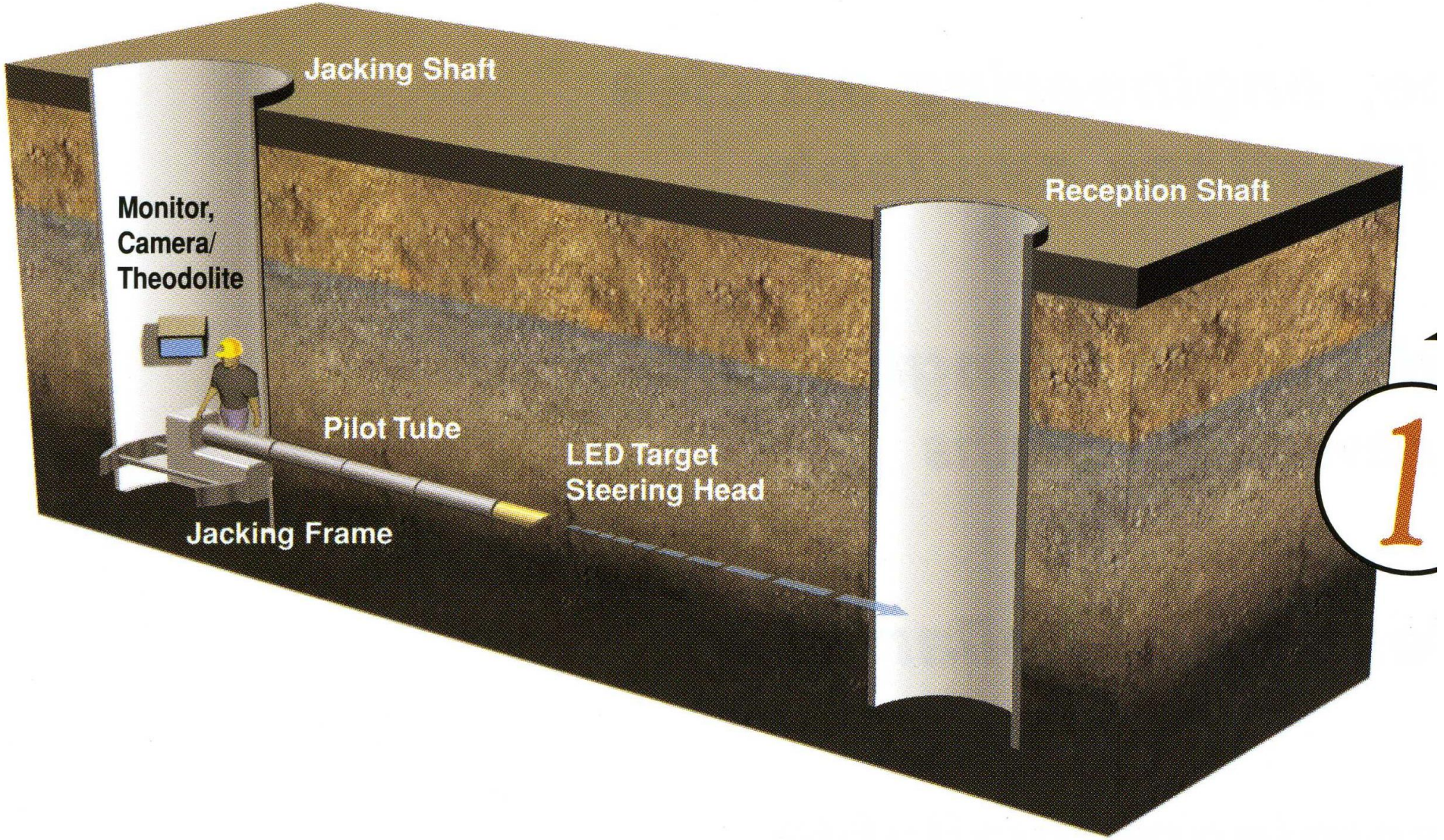
PTM/ GBM Accuracy

- The Pilot Tube Method is the most accurate “State of the Art” “Rifle Barrel Straight” form of small diameter tunneling available with a specified accuracy of:
  - **¼ inch per 500 linear feet.**

Shaft Installation

Shaft Liner

First Step in a 2 or a 3 step PTM



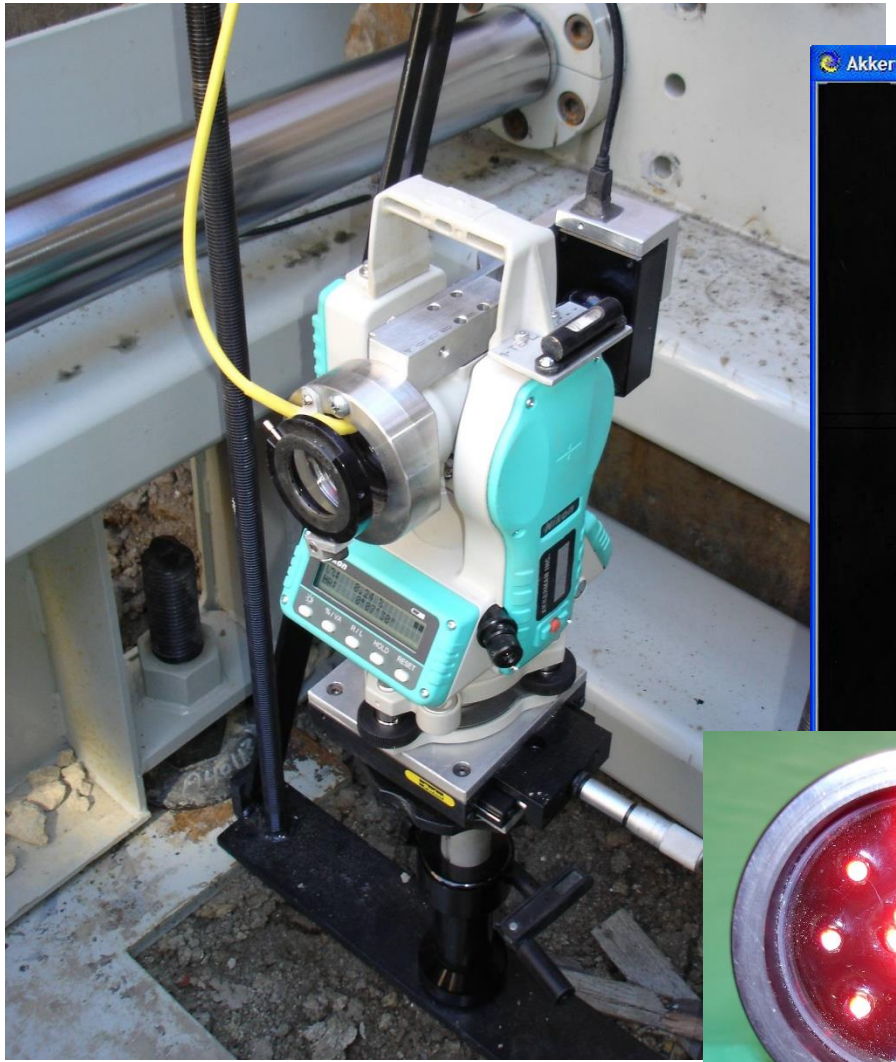
Pilot Tubes

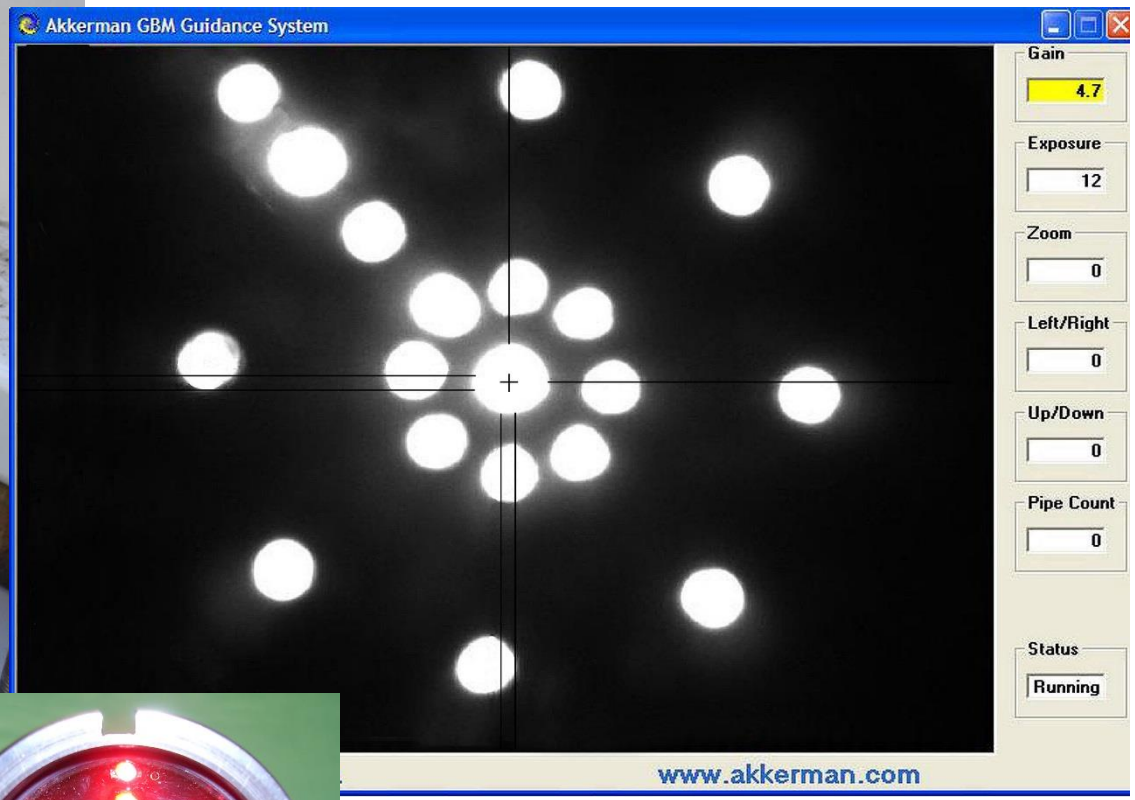
Pilot Tube Steering Tips

30°

45°

Bullet



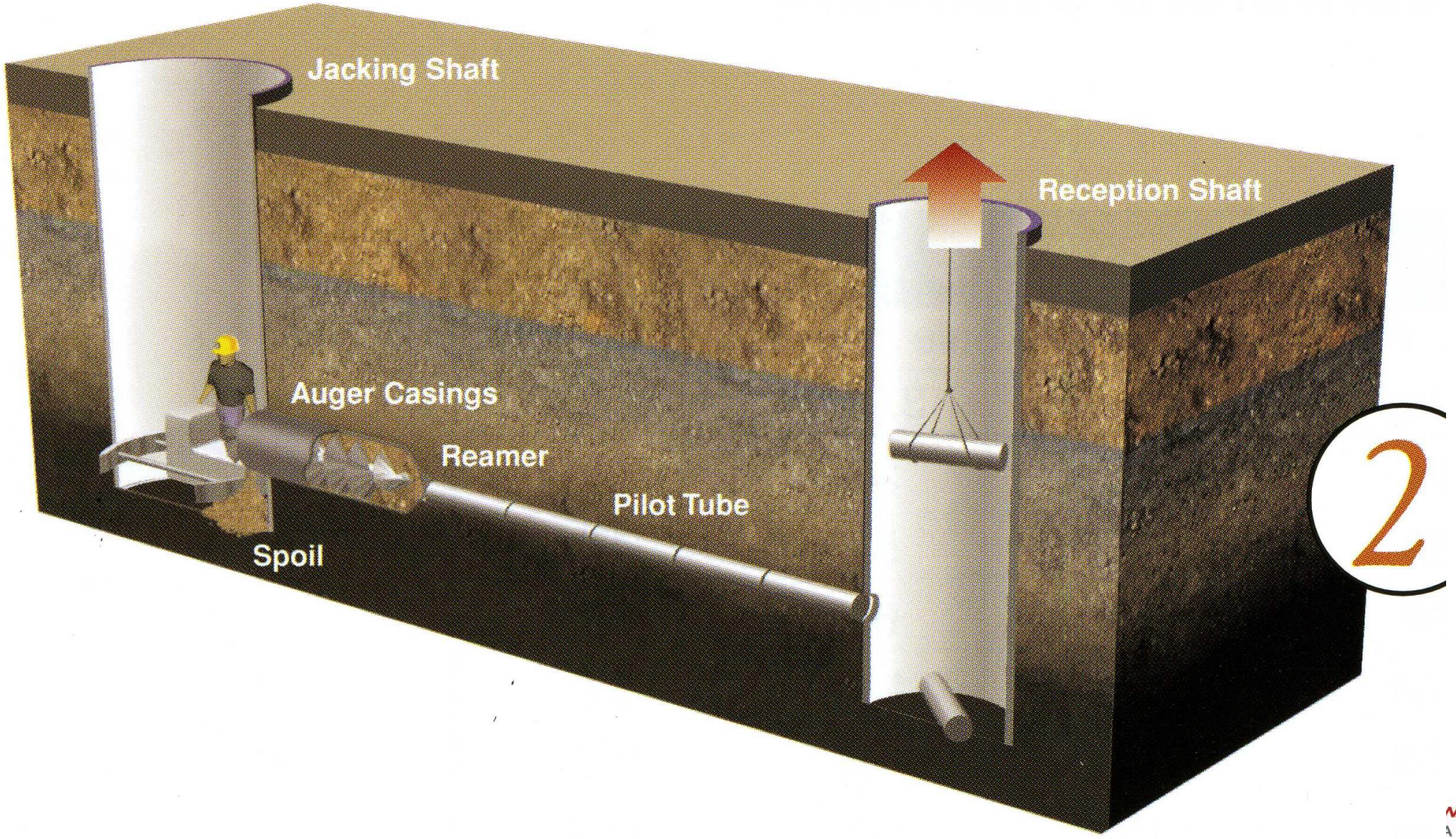


Guidance System


Nikon
V%:
H@:
-0.50 %
0°00'00"
%/VA
R/L
HOLD
RESET

GBM Guidance System capabilities

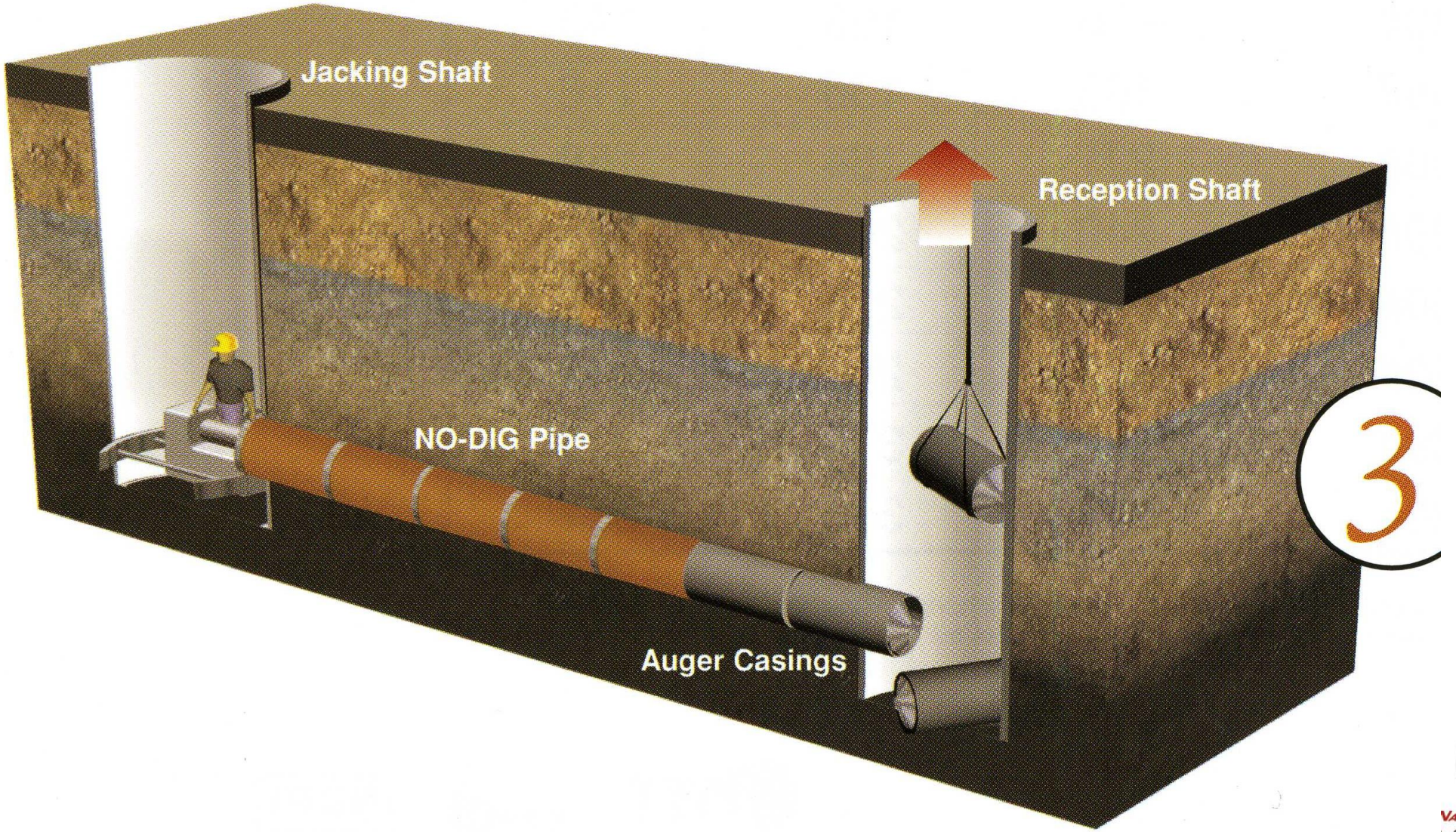
Second Step in a 3 step PTM

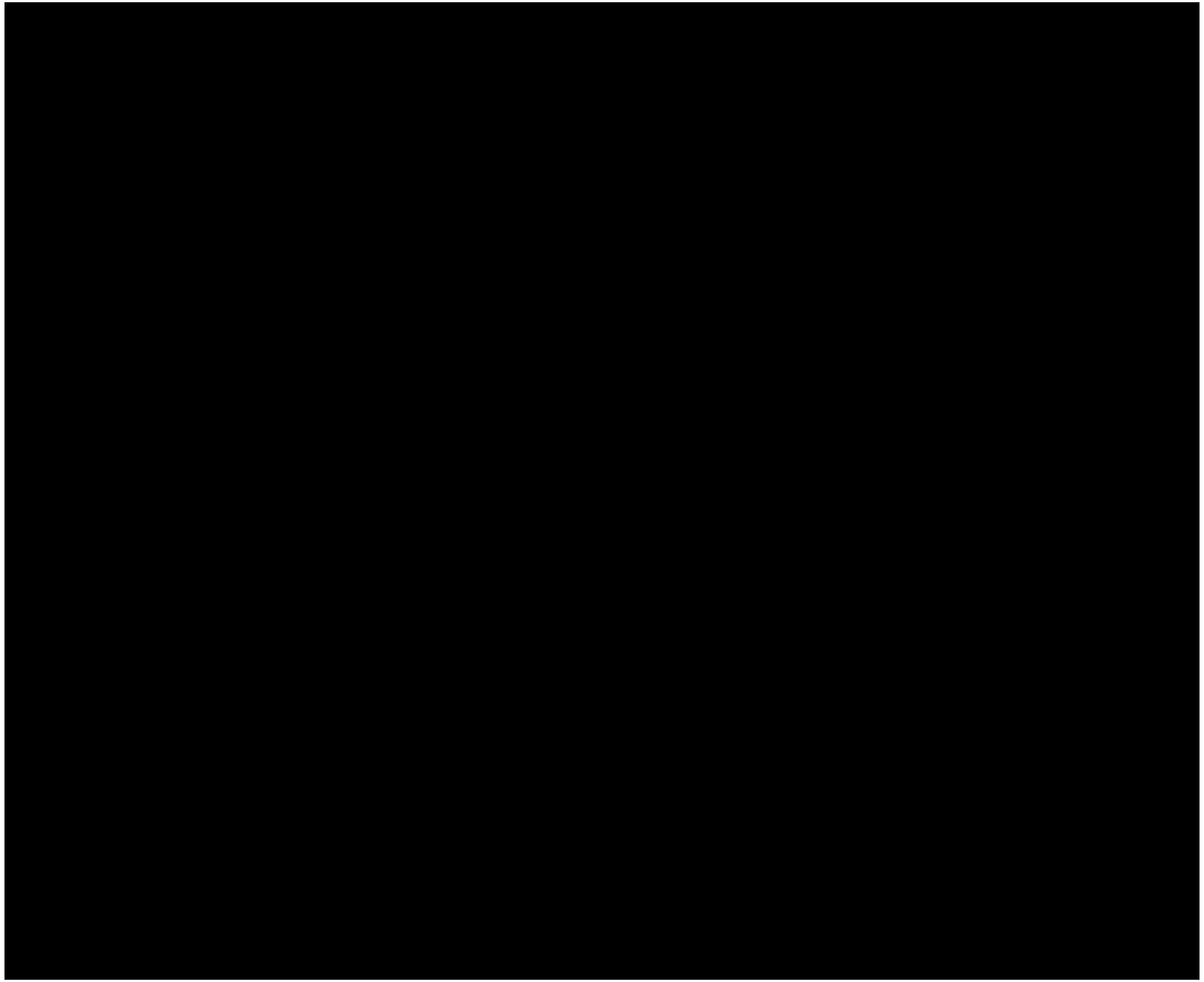


Reaming Heads

Thrust Casings

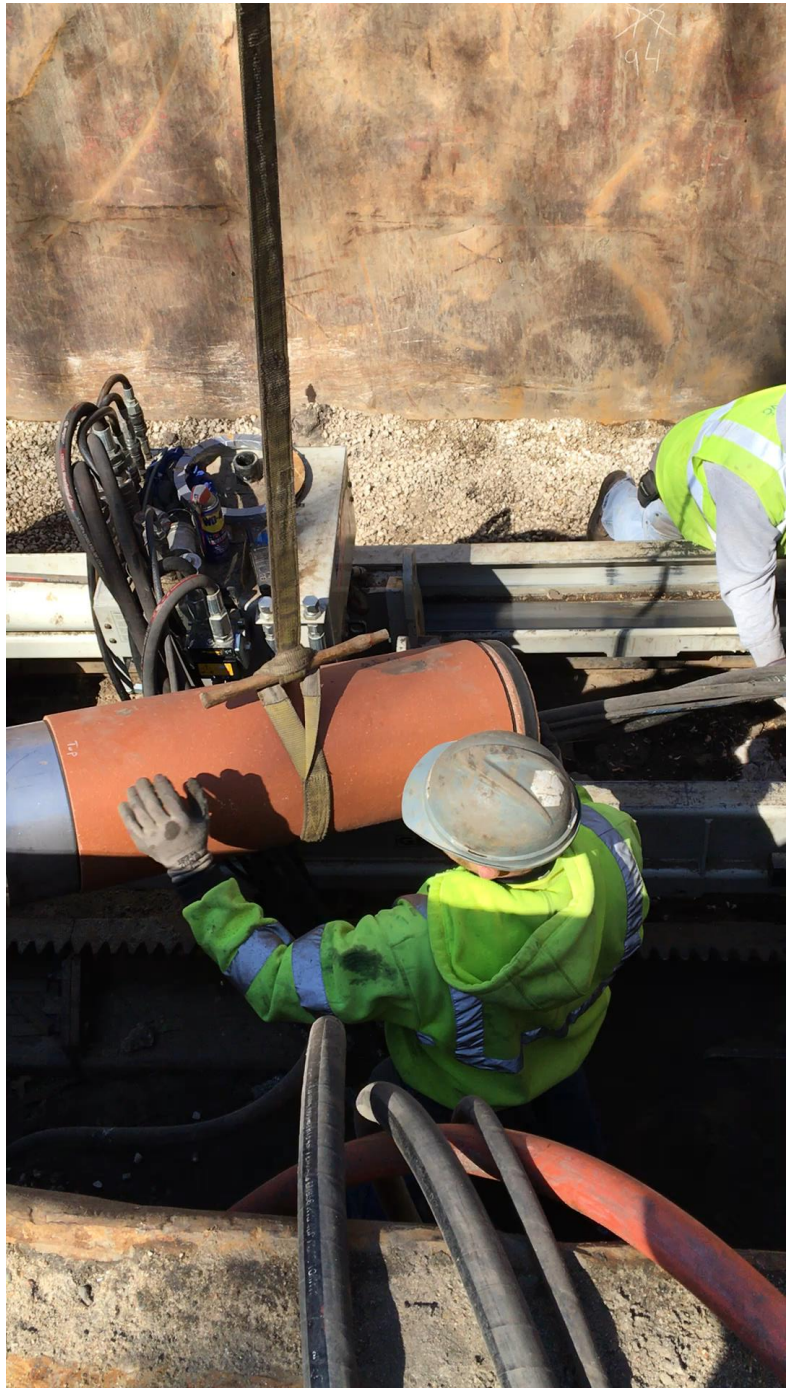
Final Step in a 3 step PTM





Methodology Summary

Powered Reaming Heads (PRH)



Advancing the Powered Reaming Head (PRH)

Powered Cutter Heads (PRH)

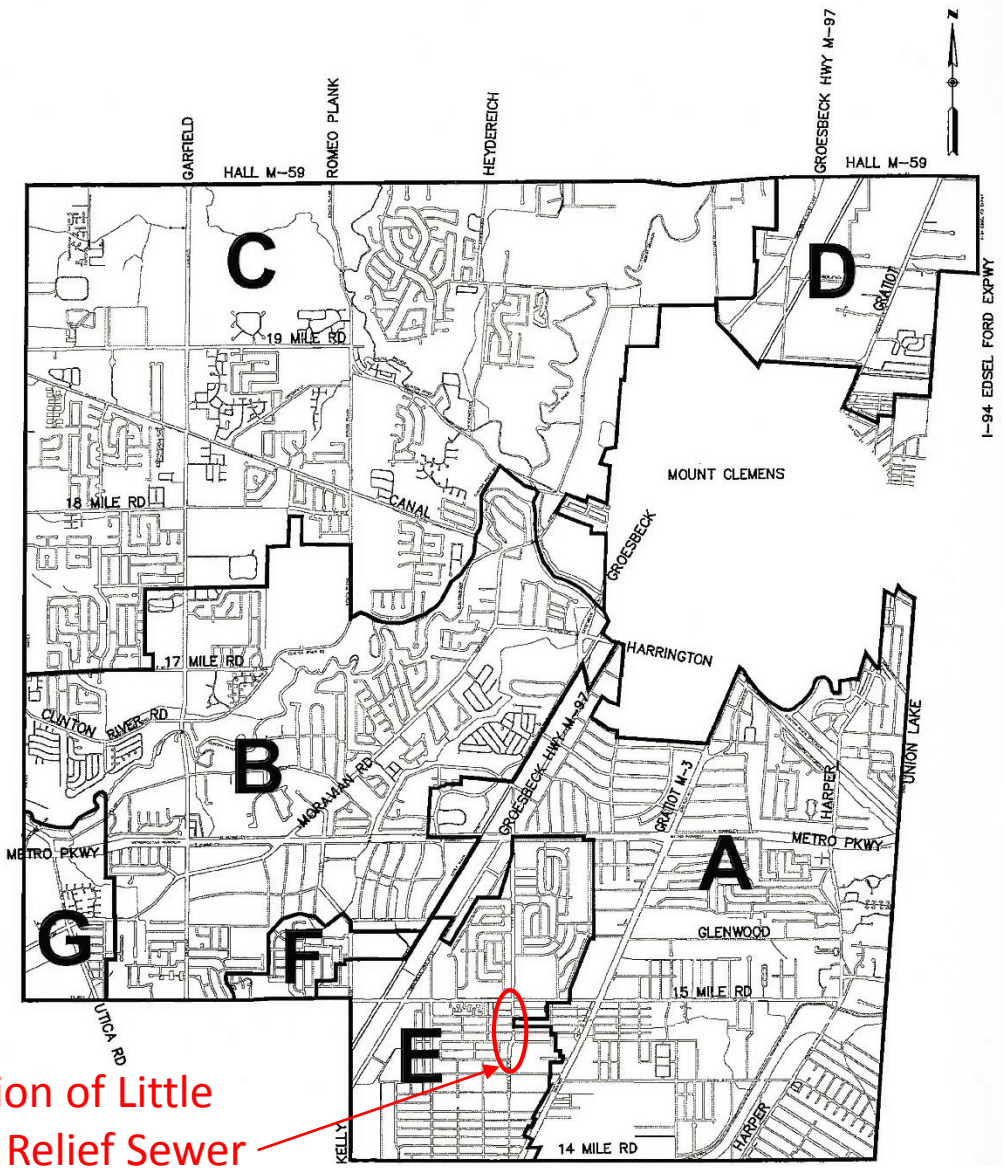
Community Background

- Clinton Township is approximately 10 miles north of Detroit in Macomb County.
- Largest Township in Michigan by population – Approx. 100,000 resident
  - Clinton Township is Primarily a “Bedroom” community
  - Commercial zoning along most major thoroughfares
  - Planned industrial base along existing railroad corridor.
  - Southeast area of Township was developed in the 1950’s and 1960’s
  - Dense single-family residential developments in that area.

Project Background

- Clinton Township has invested approximately $25,000,000 to eliminate sanitary sewer overflows since 2000
  - CIPP
  - Manhole rehabilitation
  - Footing drain disconnection
  - Relief Sewer projects

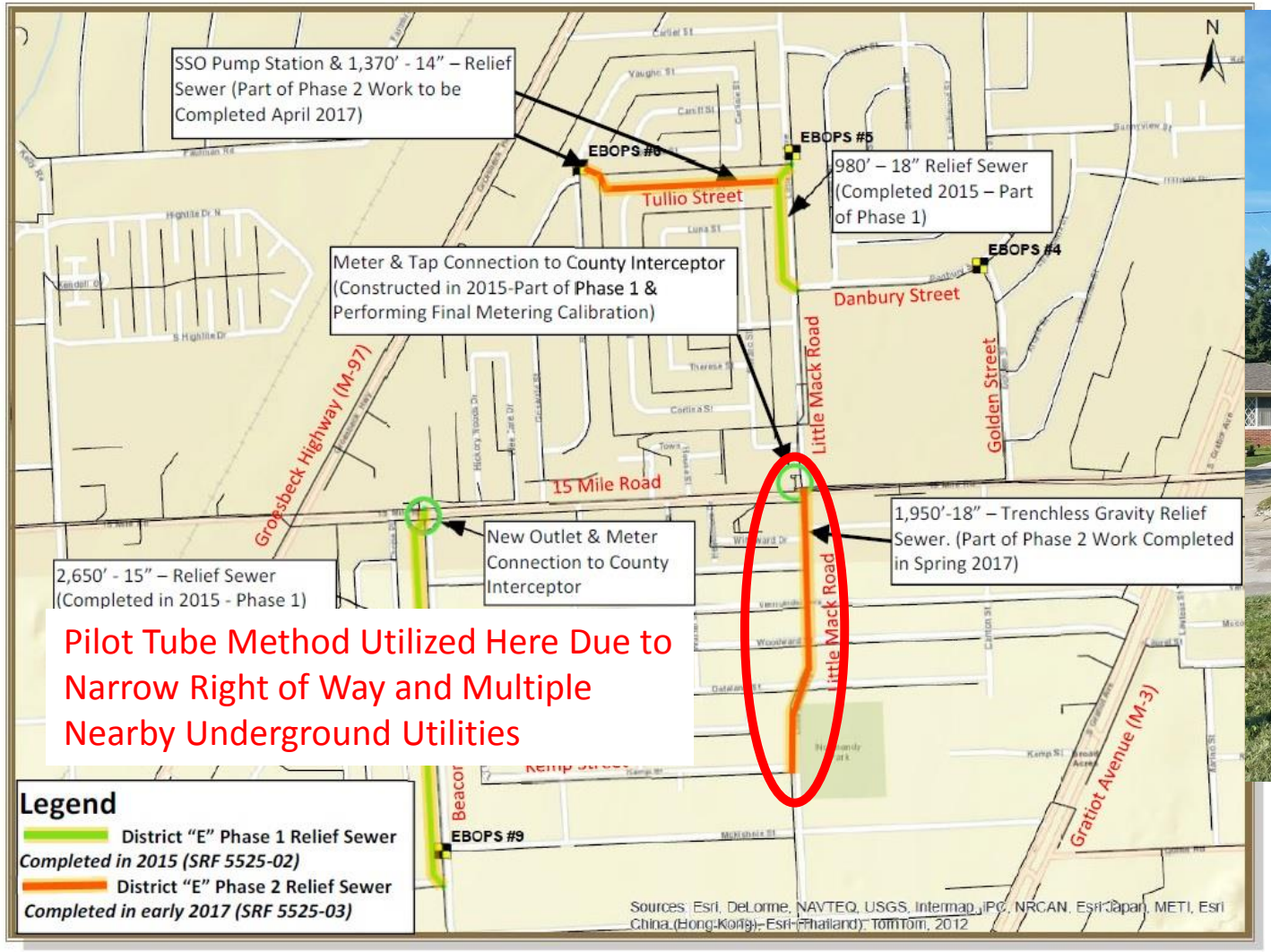
Project Location



Location of Little Mack Relief Sewer

Since 1917
NCPI
National Clay Pipe Institute
A Century Of Leadership

Project Location



Project Design

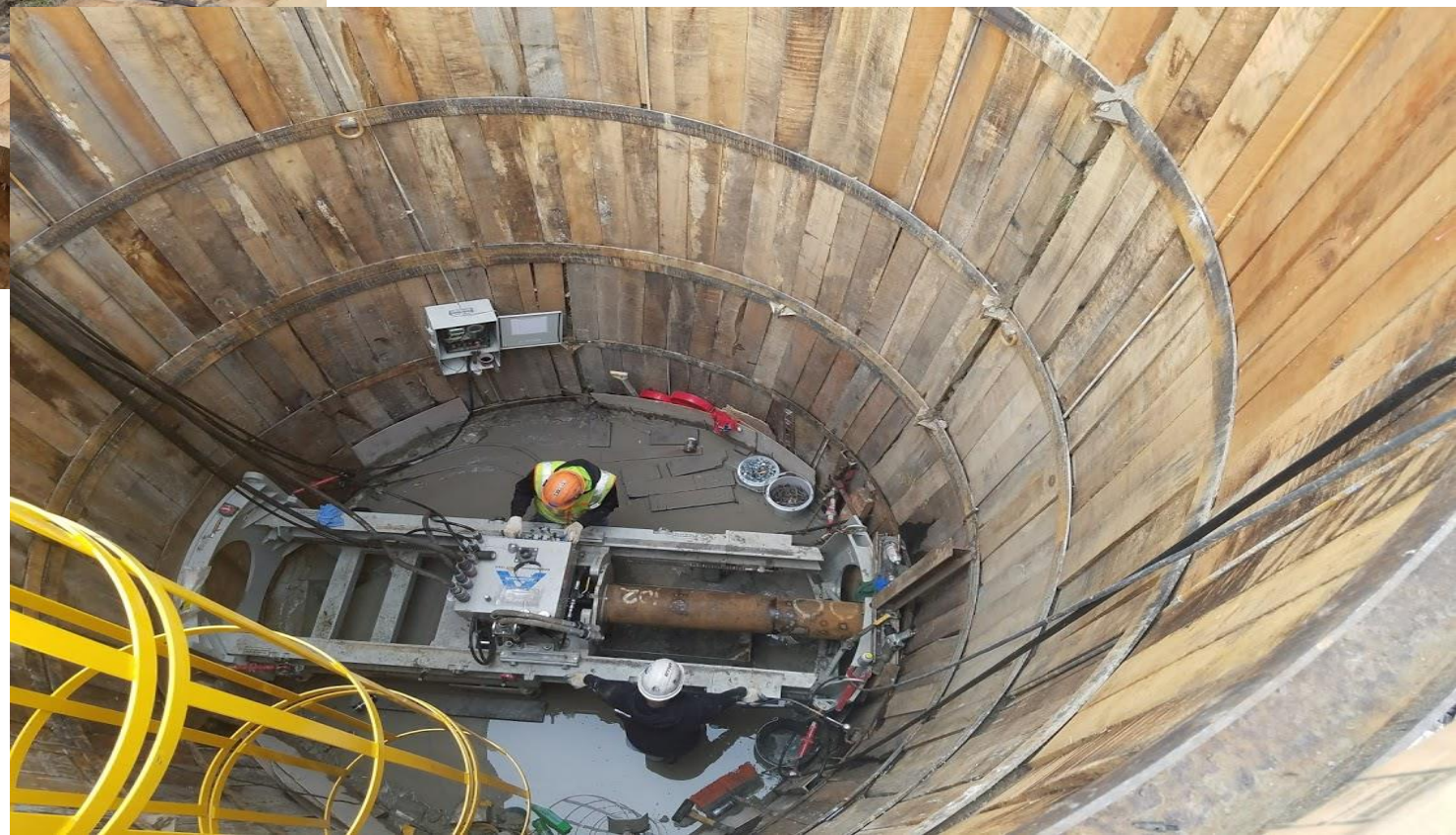
- This relief sewer was necessary to provide additional wet weather sanitary sewer collection system capacity
- Relief Sewer flow per Basis of Design was 4.9 cfs. Proposed 18” pipe slope was 0.22% at an average depth of 23 feet.
- Alignment and grade tolerances extremely critical. Numerous deep utility crossings and 50-foot public right of way made gravity installation challenging.
  - A trenchless solution was best-suited for this work.
  - Project was bid with standard microtunneling and bore & jack option.
  - PTM was introduced by DVM Utilties proved to be most viable option for the complete 2,080 linear feet of Sanitary Sewer

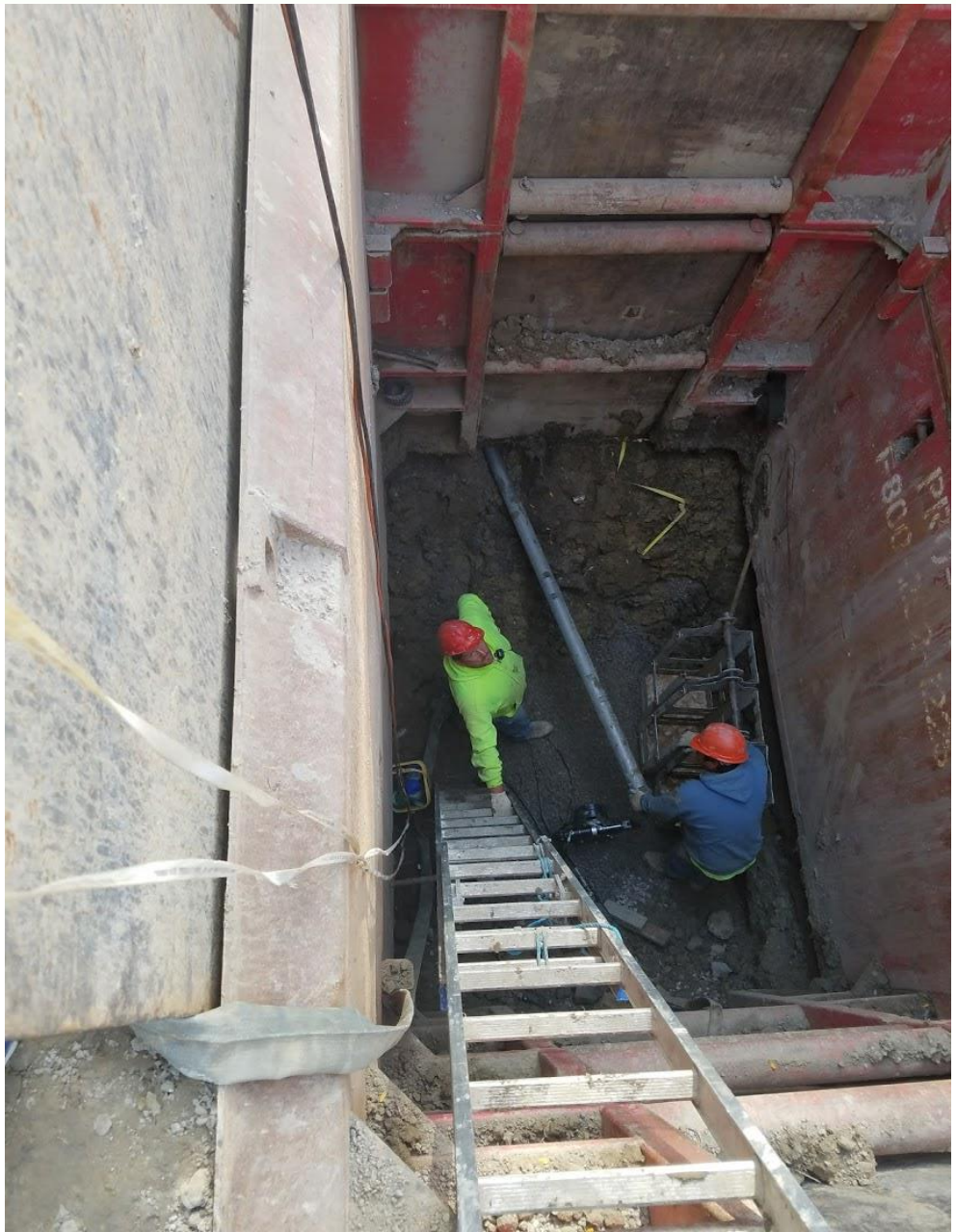
Bid Selection

- Contractor Prequalification Requirements
  - Township Policy in Place to Vet Out Qualified Contractors Prior to Bidding
- Public Bidding Process
  - Total of 3 Bidders for Project
  - DVM Utilities, Inc. provided the lowest qualified and responsive bid for project.
  - DVM Utilities elected to utilize PTM option for relief sewer installation on Little Mack. As-bid construction cost for this project phase was $1,470,500.
  - Project was completed within budget.

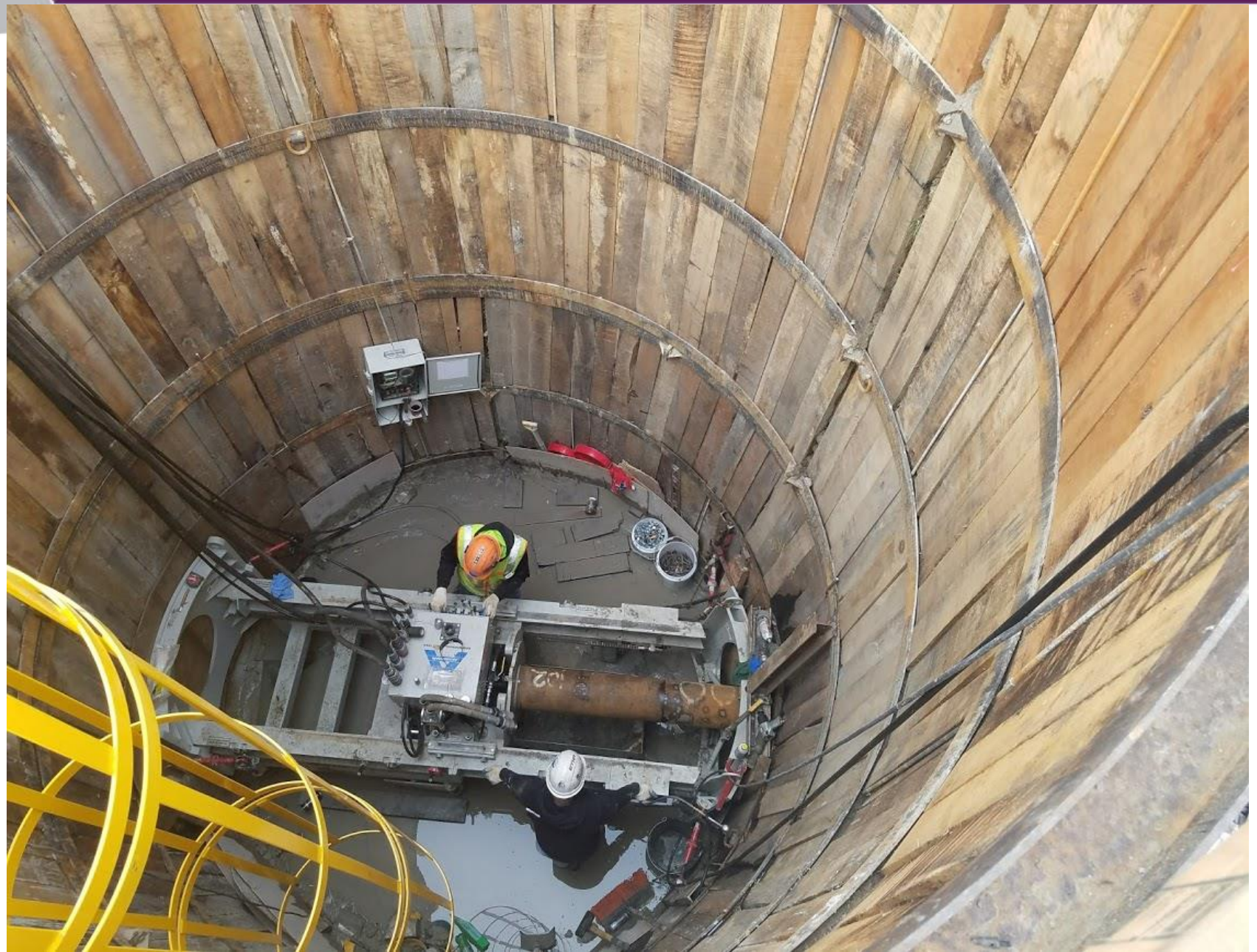
- Completed in 6 Months

Shaft Construction

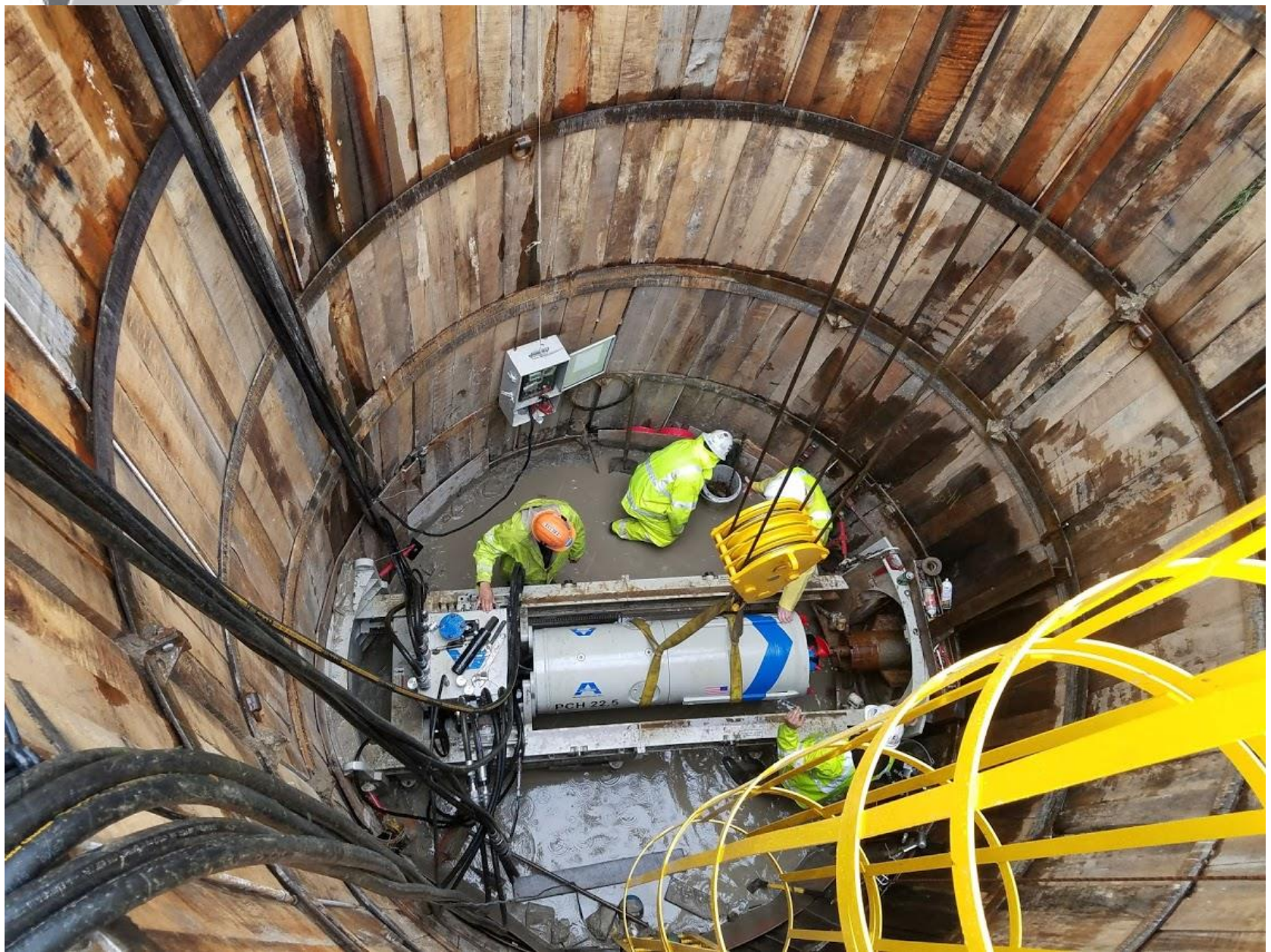




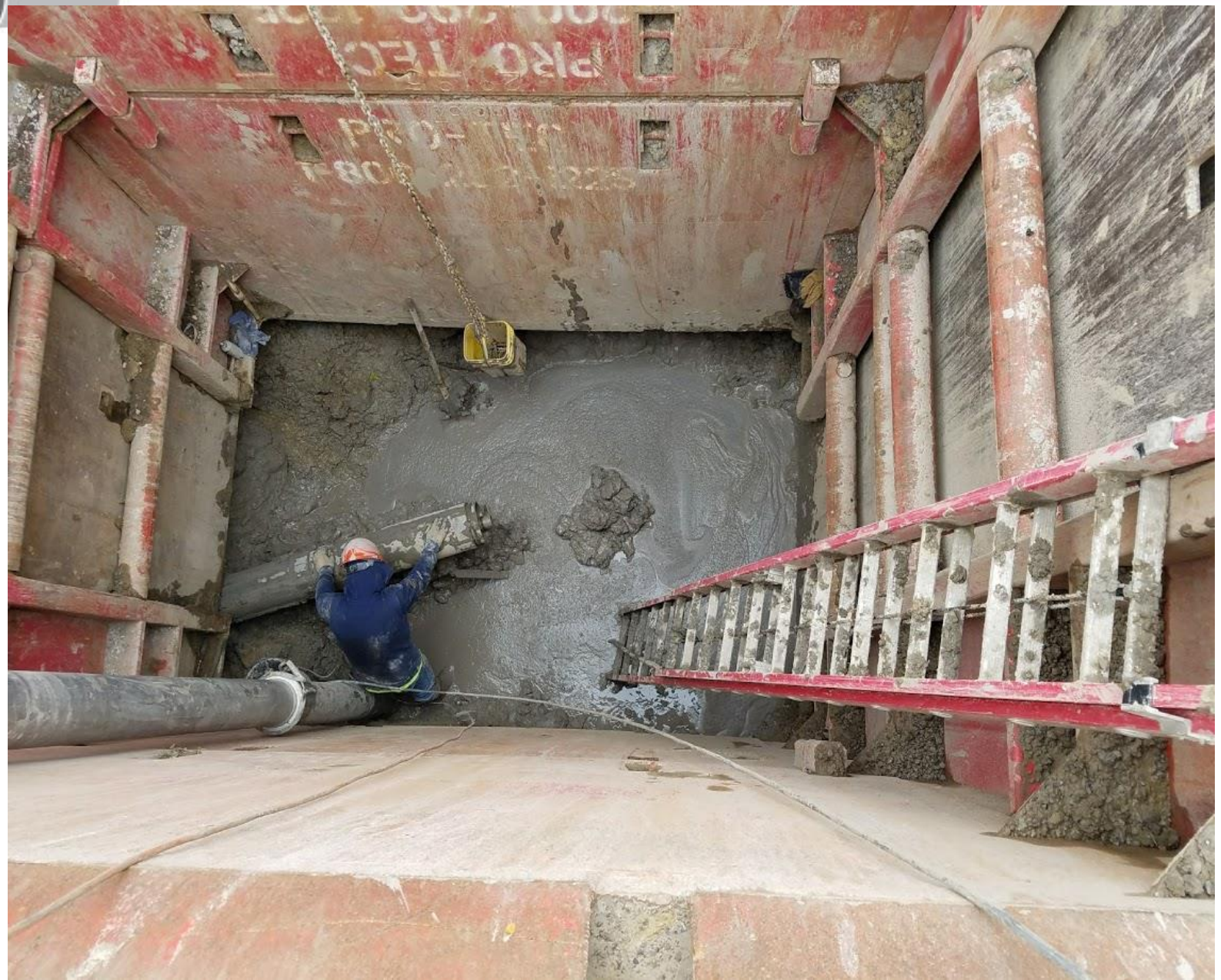
Pilot Tube at Reception Shaft



Thrust Casing Installation



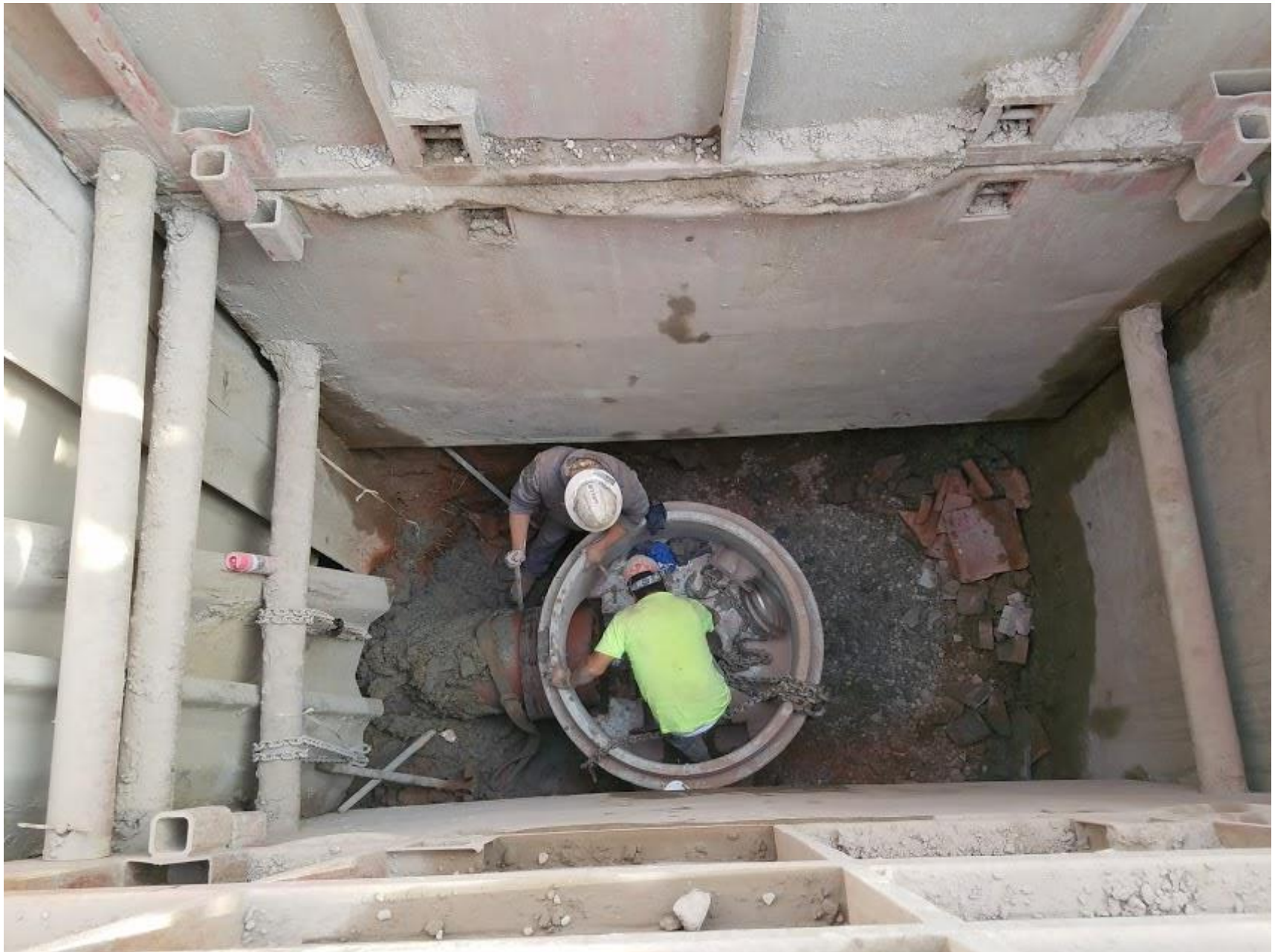
22.5 inch PCH



Reception Shaft

18-inch Jacking Pipe to advance the PCH


YETI
OIL FILL



QUESTIONS?

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