Pre-Engineered Shoring Systems for Cross-Trench Utility Challenges

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Efficiency Production – An Arcosa Shoring Products company

EFFICIENCY PRODUCTION
America's Trench Box Builder™

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Municipalities and utility owners are faced with a variety of challenges during everyday operations

Limited easements, congested work area, soil and water conditions are part of a daily battle fought by Excavation Crews

One problem that can bring production to a slow crawl is the presence of a crossing utility

Utility owners don't have the luxury of choosing where the break occurs… You have to deal with what you find

My water main is somewhere… right about… here… sort of…

Underground Installations - UTILITIES

- Estimated location must be determined
- Call DIG SAFE / MISS DIG / 811
- Exact location of installation must be determined by safe & acceptable means
- While excavation is open exposed utilities must be protected, supported or removed

Underground Utilities

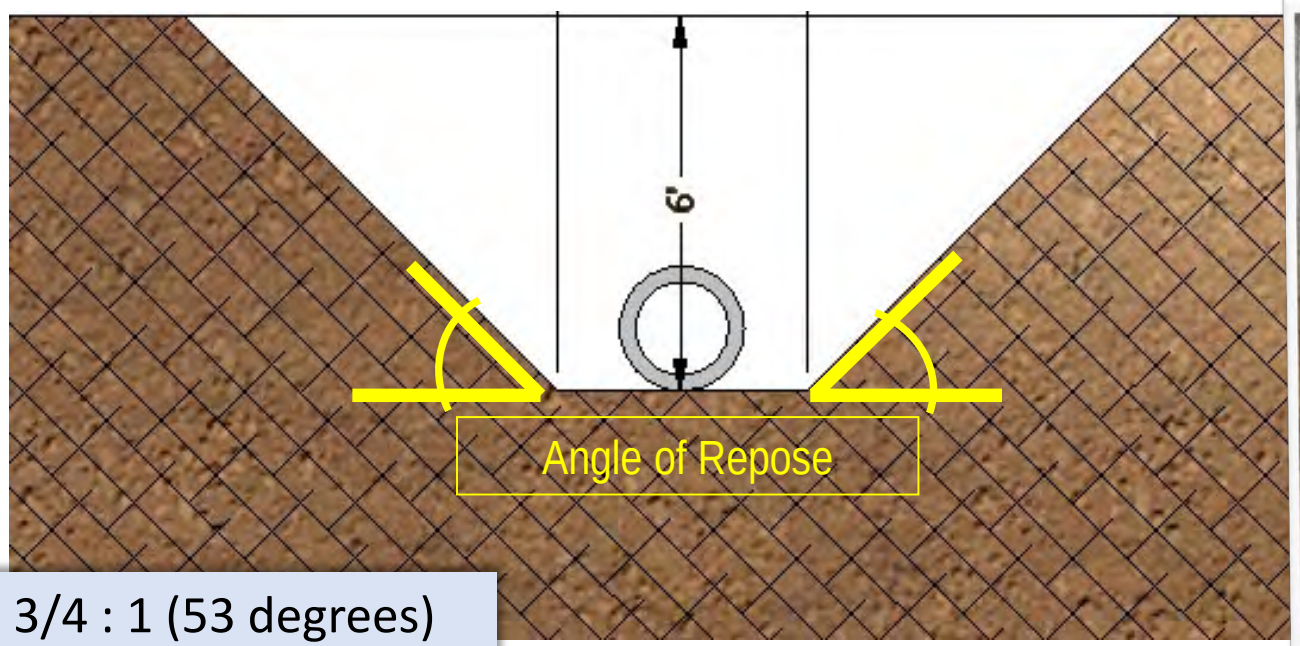
Exposed utility lines must be supported

OPTION 1: **Sloping** (Open Cut)

Use a sloping configuration that accommodates utilities safely and protects from cave-in.

OPTION 1: **Sloping** (Open Cut)

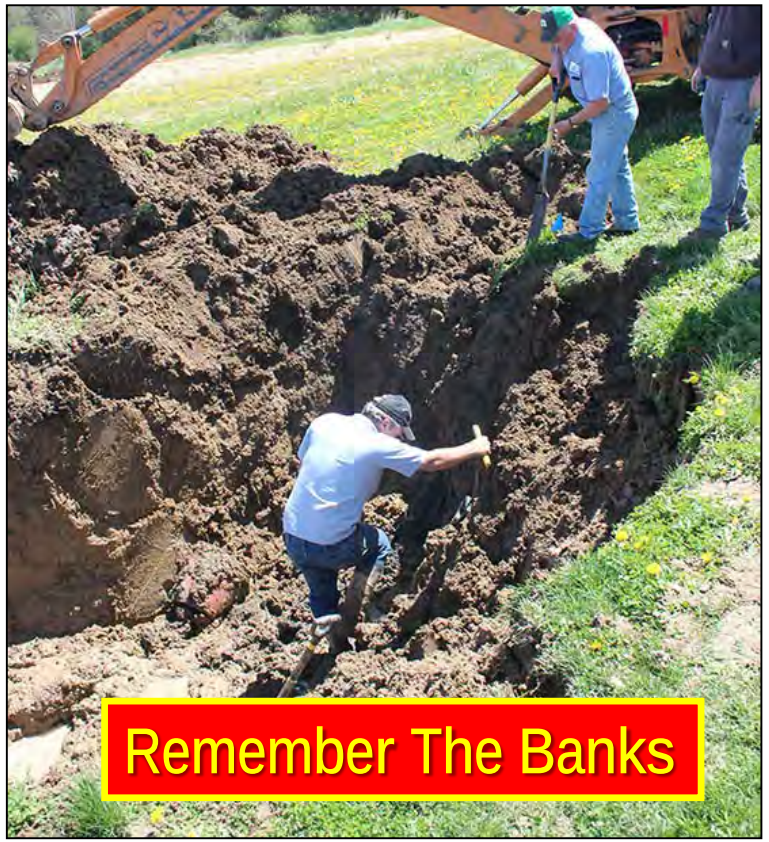
Correct *Angle of Repose* (Slope) must be implemented by the Competent Person, based on the Soil Classification.



Type A	3/4 : 1 (53 degrees)
Type B	1 : 1 (45 degrees)
Type C	1½ : 1 (34 degree

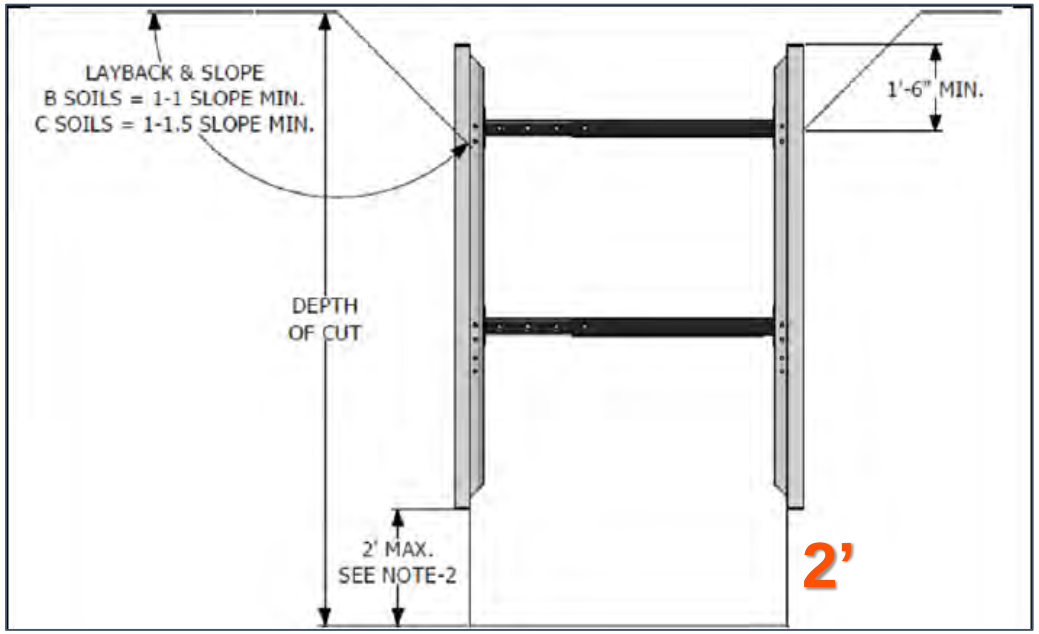
OPTION 1: **Sloping** (Open Cut)

Don’t forget all the hazards… Sometimes the Qualified Person has tunnel vision in their design & execution….



OPTION 2: Manufactured Shielding

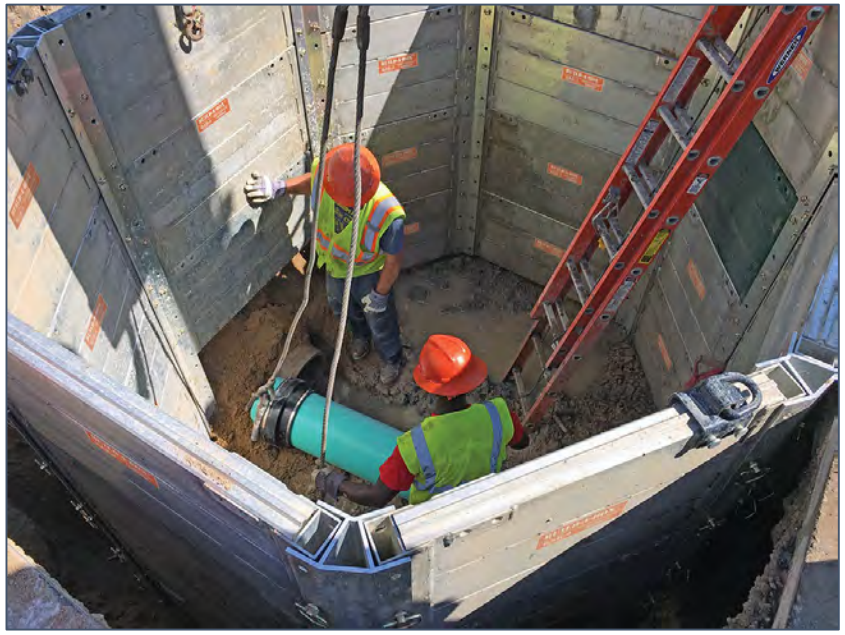
BUILD-A-BOX Modular Aluminum Shields take advantage of the ***2 Foot*** rule

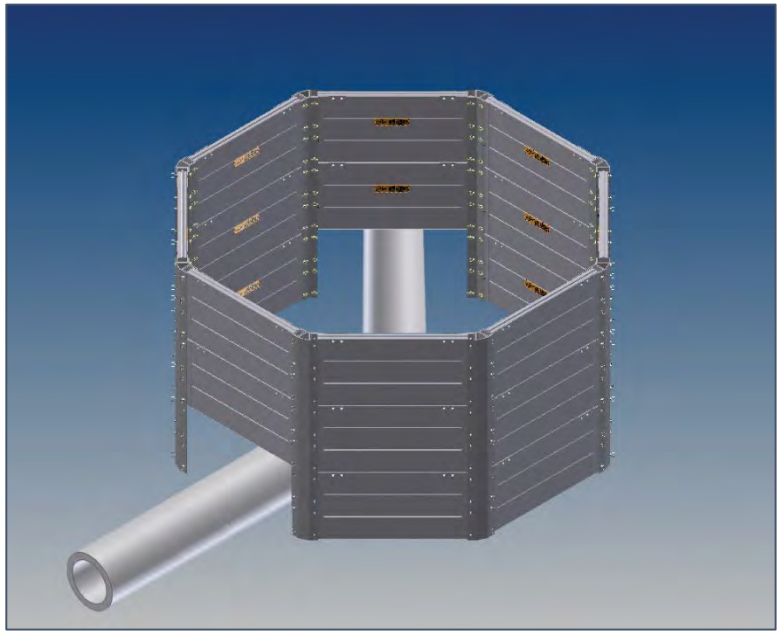


*The use of benching in conjunction with a portable trench box is permitted when the toe of the trench box is not more than **2 feet** above the trench bottom*

OPTION 2: Manufactured Shielding

Build-A-Box panels are intentionally 2’ high. Panels can be left off the bottom to allow utility access





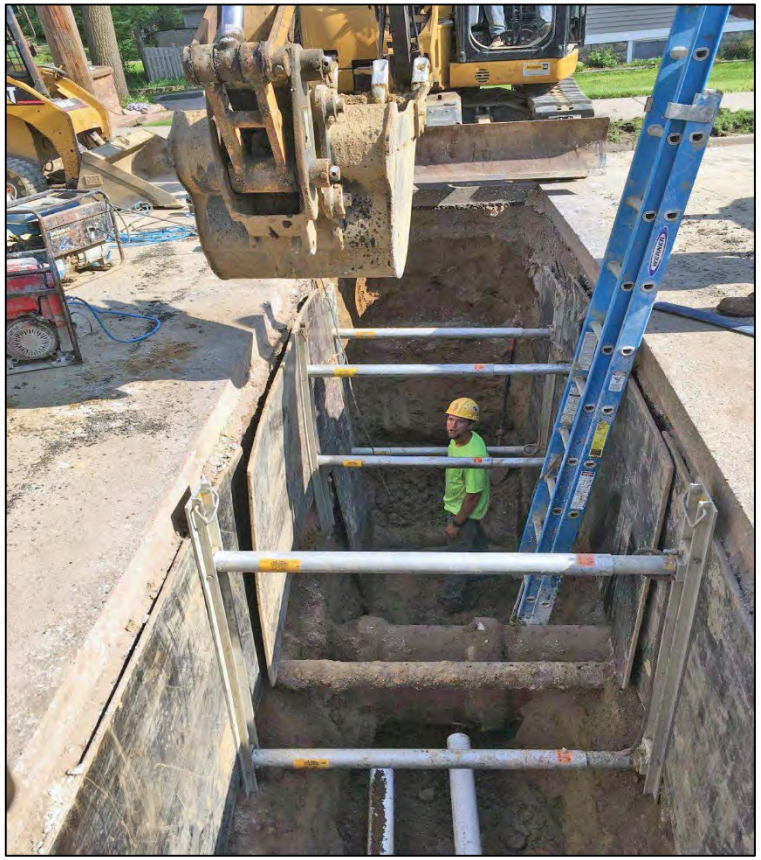
BAB Octagon Box provides 8 different entrance/exit points for crossing utilities. Perfect for lateral utilities that are not 90 degrees.

OPTION 2: Manufactured Shielding

Build-A-Box Full-Length Corner Posts can act as legs when bottom panel is left off or pinned up.

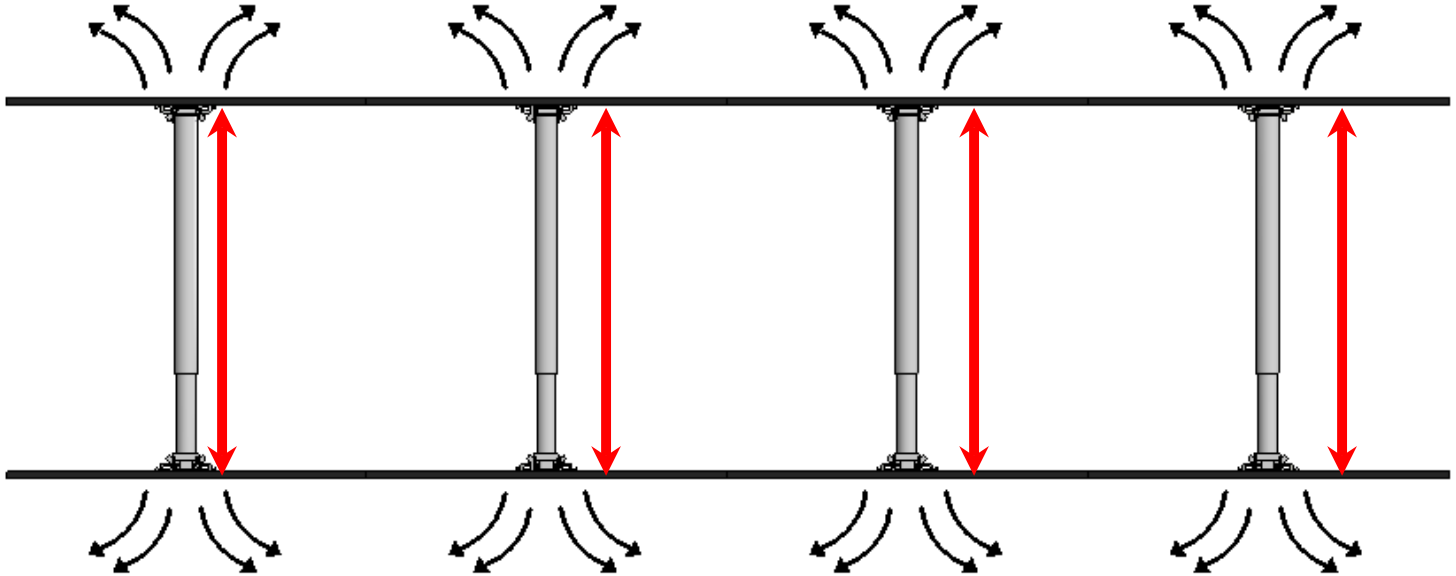
OPTION 3: Manufactured **Shoring**

The pressure arching principle of hydraulic shoring makes these ideal for Spot Shoring or odd angle utilities



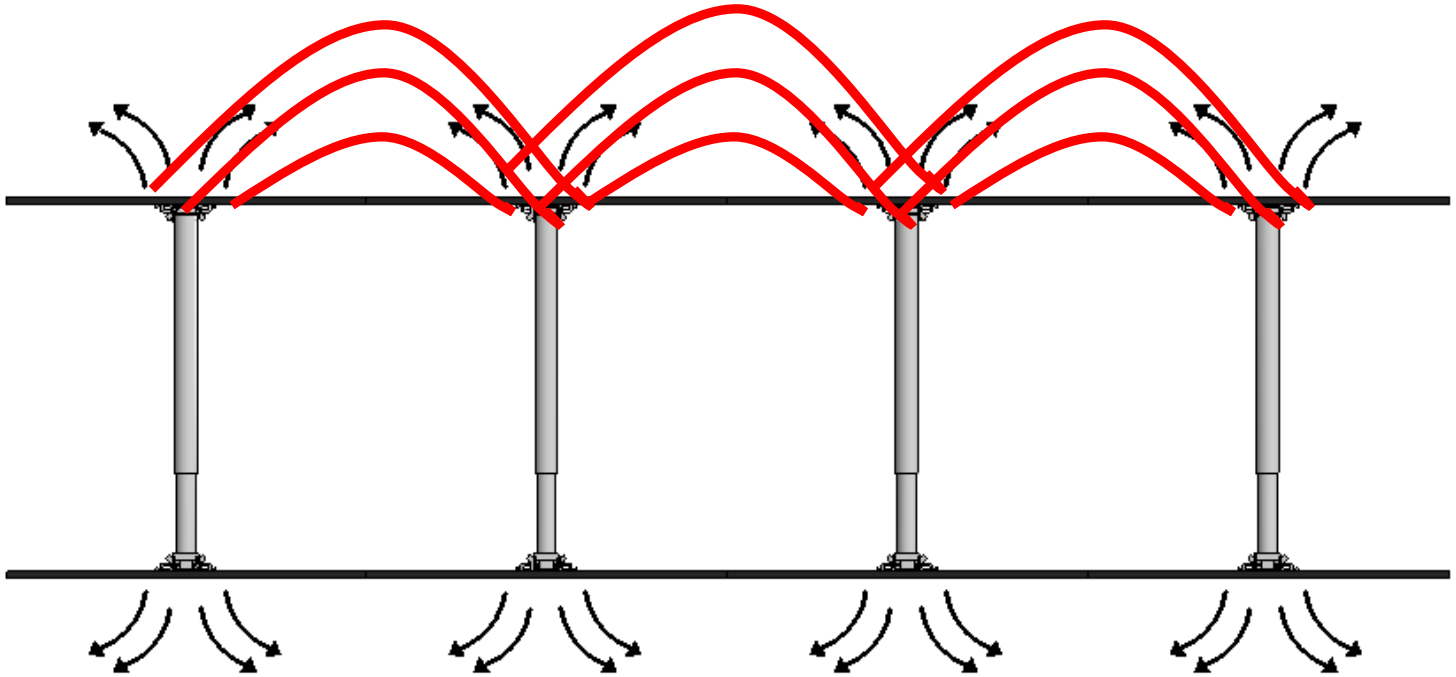
Hydraulic Shores

As hydraulic cylinders are pressurized against trench wall – pressure arcs radiate from center of cylinder in all directions



Hydraulic Shores

If adjacent shores are located close enough for arcs to intersect – pressure arches are formed. These arches shore the banks



OPTION 3: Manufactured Shoring

Are these acceptably shored trenches per Manufacturer's Tabulated Data?

OPTION 4: Sheeting Guide Frames

A Little History: The first manufactured system designed and engineered to accommodate crossing-utilities was Efficiency Production's SHORE-TRAK™

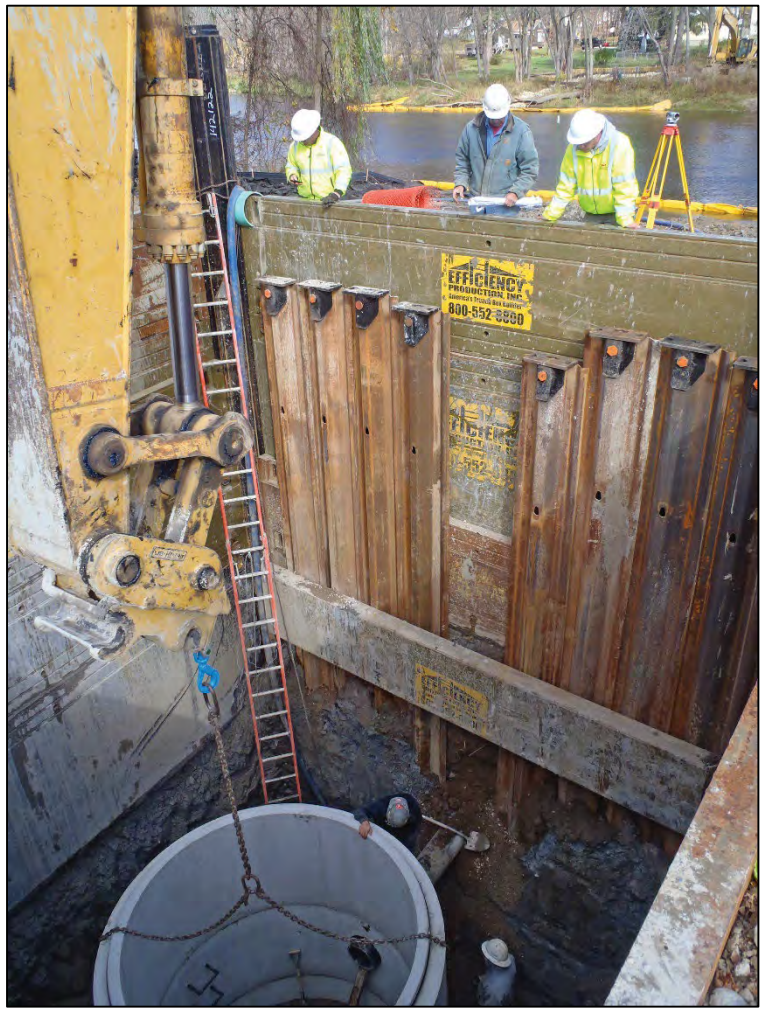
Generation 1.0: Utilize 2' wide steel panels, pinned in frame

OPTION 3: Sheeting Guide Frames

Generation 2.0: Utilize KD-6 Sheeting

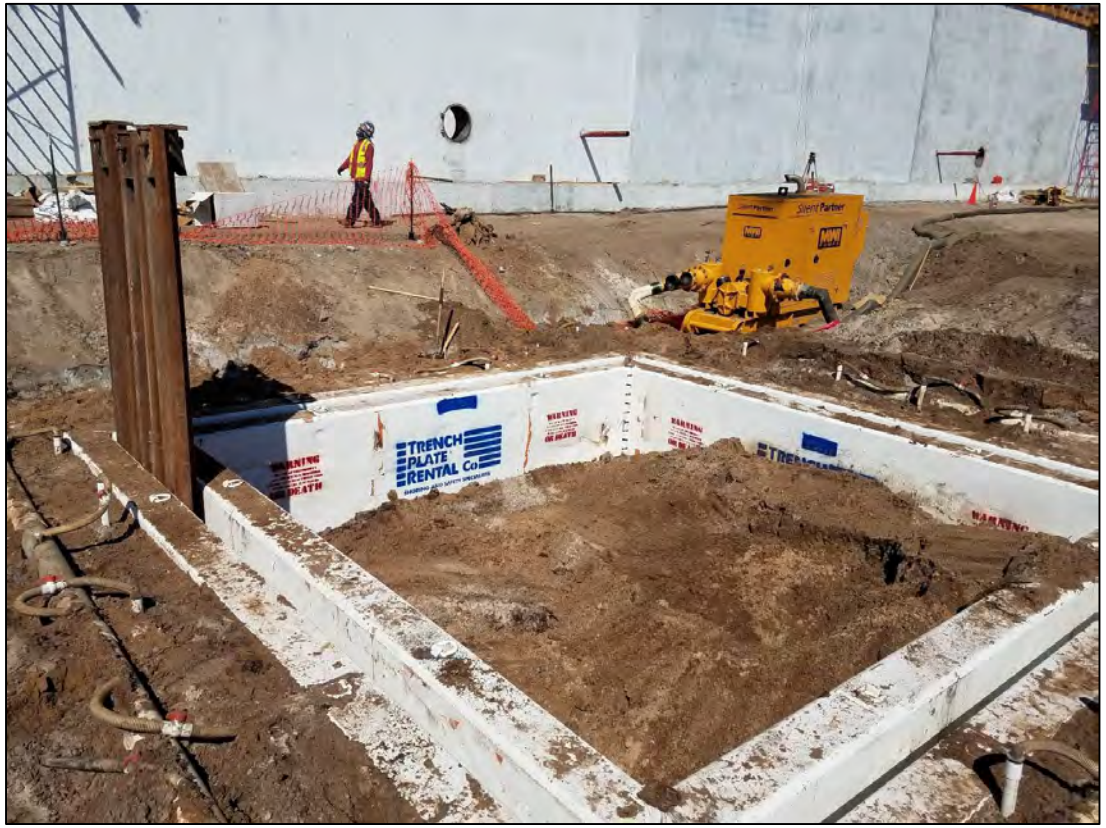
OPTION 3: Sheeting Guide Frames

Generation 2.1: Slide Rail System PANEL GUIDES



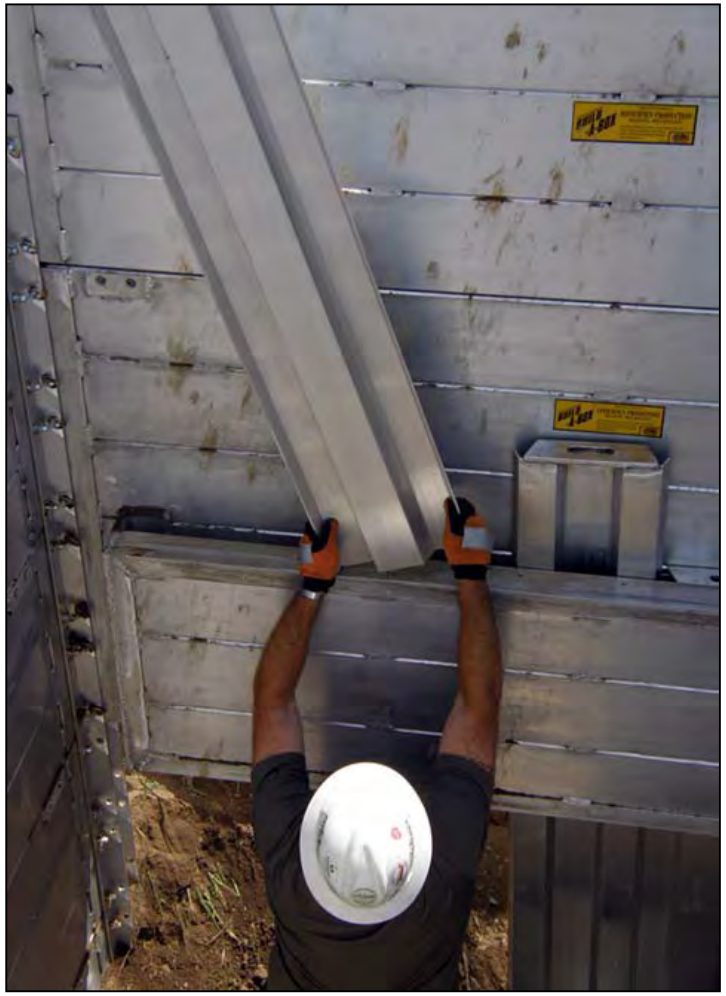
OPTION 3: Sheeting Guide Frames

Generation 2.2: POST-LESS Guide Frames



OPTION 3: Sheeting Guide Frames

Generation 2.3: Aluminum Sheeting Guide Frames



OPTION 3: Sheeting Guide Frames

Sheeting frames utilize a *reverse-cantilever principal* where sheeting is braced in an upper waler/frame combination

BOTTOM LINE

- There IS a safe, cost-effective solution to any cross-utility challenge
- Consult you local Shoring Specialist, Shoring Equipment Rental facility, or Shoring Equipment manufacturer

Thank you,

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