UCT THE UNDERGROUND UTILITIES EVENT
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Production, Safety, Subpart P & the Role of the Competent Person

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Understanding the OSHA Standard

- In 1989 the Dept. of Labor issued the Federal Standard for the construction industry.
- Within that Standard is 1926.650,1926.651 and 1926.652 and appendices A through F.
- These chapters referred to as Sub-Part P apply directly to trenching/excavations practices.

OSHA Regulations
29 CFR 1926-Subpart P
Excavation & Trenching

Competent Person

OSHA defines a **Competent Person** as "One who is capable of identifying existing or predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and *who has the authorization to take prompt corrective measures to eliminate them.*"

OSHA 1926 SUBPART P – EXCAVATIONS:

Role of the Competent Person

- Responsible for overall safety of excavation
- Knowledgeable in process of soil classification
- Responsible for selection and use of proper protective systems
- Represents employer in OSHA visits
- Has authority to implement protective measures
- Identified in writing by employer
- Key piece of any good safety program
- Required on every site with excavation
- Has tools and publications necessary to conduct job
- Can be any trade or position with company

The Keyword is "authorization." The competent person must be able to shut the job down and take corrective actions to eliminate the hazard.

Role of the Competent Person

- **STAY PRODUCTIVE!**
- **STAY WITHIN BUDGET!**
- **MAKE MONEY!**

Protective Systems

- **SLOPING** - Excavating the sides of the trench at an appropriate angle
- **SHORING** - Supporting the sides of the excavation
- **SHIELDING** - Placing a shield between the side of the excavation and the worker

OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by:

Sloping, **Shoring**, or **Shielding**

Protective System = Production

Sloping

Shielding

Shoring

By utilizing the flexibility of each, the Competent Person can maximize Production while not sacrificing Protection

Sloping a Trench

Sloping involves removing overburden on an angle of repose that keeps banks stable.

Advantages of Sloping

- No additional equipment required
- Works in most situations
- Requires no up-front planning

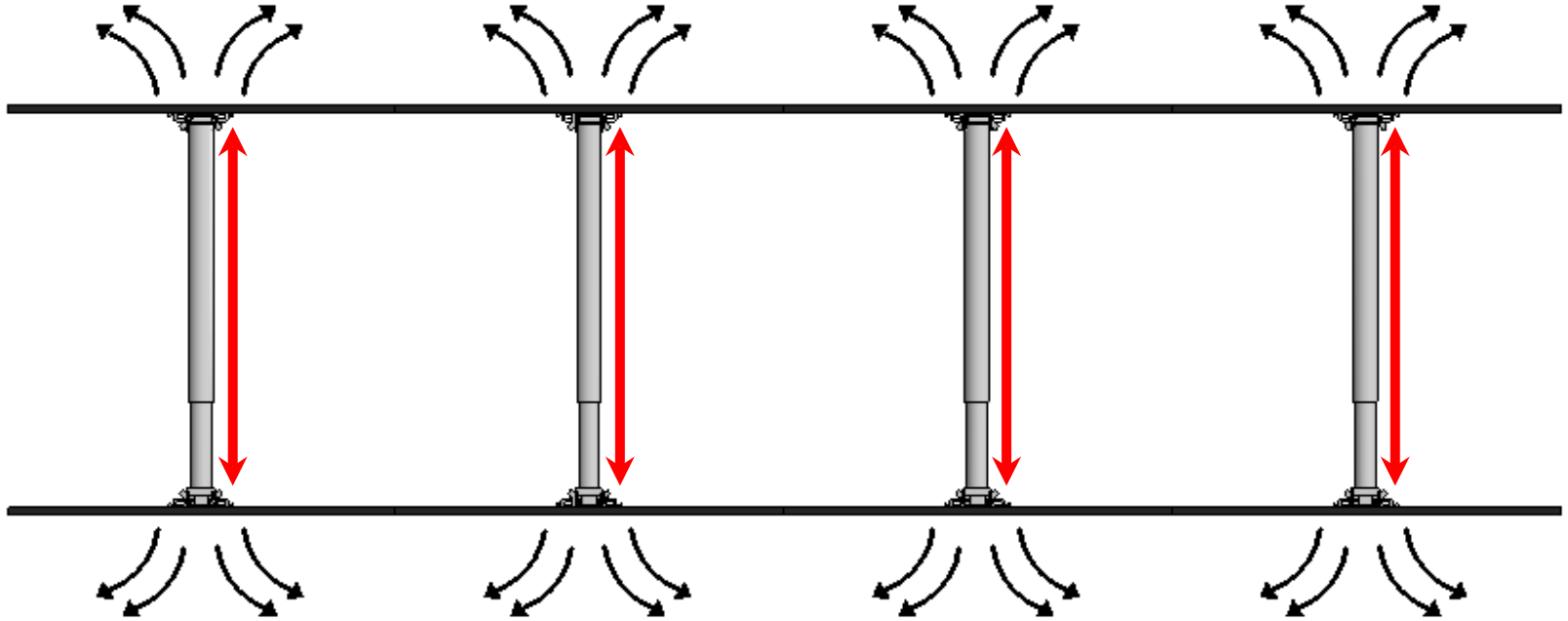
Disadvantages of Sloping

- Requires on-site person to classify soil for proper design and construction.
- Requires adequate area to construct.
- Creates large areas that require restoration.
- Costly due to spoils excavation and backfill costs.

Shoring a Trench

The function of trench SHORING is to resist or replace the force of the soil on the excavation face.

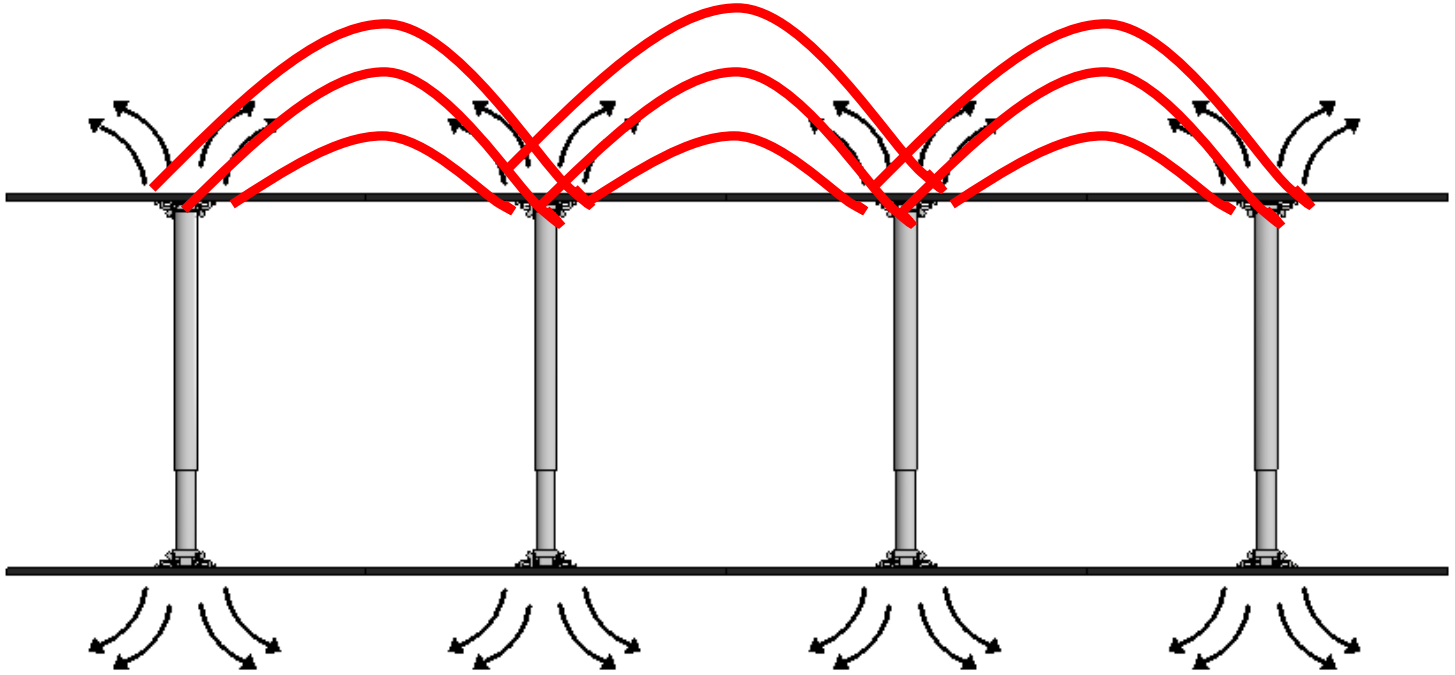
Shores – Pressure Arch Principle



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

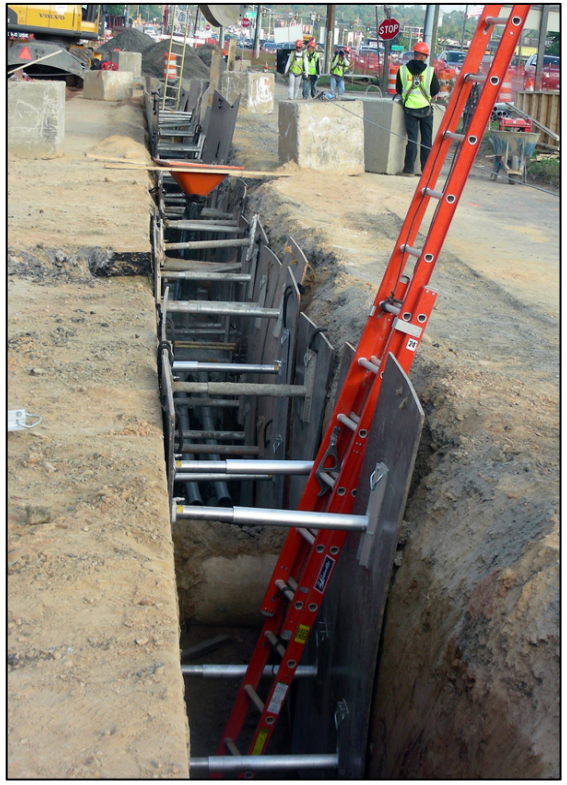
Shores – Pressure Arch Principle

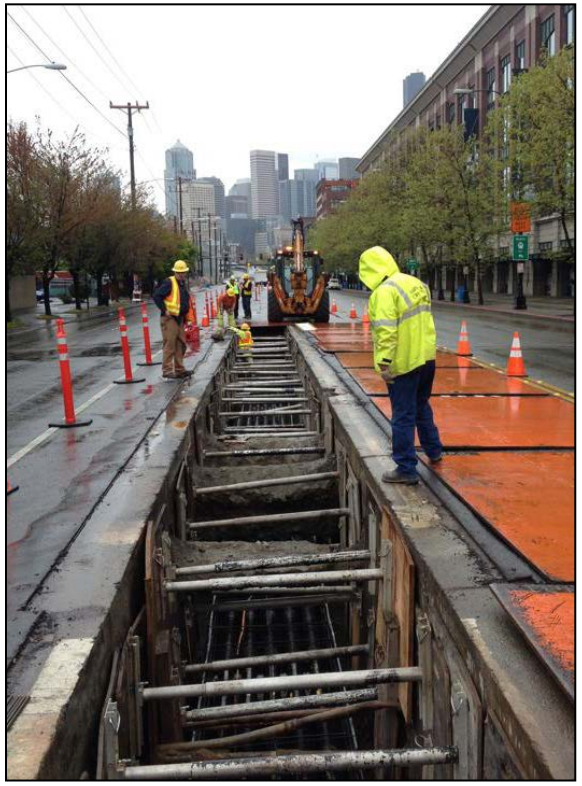
- If adjacent shores are located close enough for arcs to intersect – pressure arches are formed. These arches shore the banks without additional support or sheeting



Uses for Hydraulic Shores

Pipe/Conduit Installation





Uses for Hydraulic Shores

Existing Utilities

Uses for Hydraulic Shores

Odd Shaped or Special Excavations

Uses for Hydraulic Shores

Support structure near curb or sidewalk
Less expensive than replacing structure

Shielding a Trench

Shielding is different from shoring in that it does not prevent cave-ins.

Trench shields or “Trench Boxes” are designed to be strong enough to protect workers from a cave-in.

Advantages of Shielding

- Narrows trench safely
- Cost of equipment off-set by lower excavation and restoration costs
- Manufactured system with proven safety record
- Provides on-site safety personnel with quick reference tabulated data

Stacking Shields

For pipe laying – shields can be stacked to provide maximum vertical wall with minimal cost

Disadvantages of Shielding

- Can be difficult to deal with crossing utilities.
- Assembles into one complete item. This requires a large machine to handle if shield is long or ground is unstable.
- Fixed width and length requiring several sizes for different applications.
- Disadvantages are usually minimal on large pipe projects and outweighed by numerous advantages

Shielding + Sloping

Stacked Trench Shield

PROBLEM: Crossing Duct Bank

SOLUTION: Aluminum Trench Box (+Sloping)

NEXT: Pour-In-Place Junction Box over Culvert

Slide Rail w- Sheeting Frame System

FINAL: Sloping

QUESTIONS?

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EFFICIENCY PRODUCTION
America's Trench Box Builder™