

*Trench shoring saves lives, but it can also...*

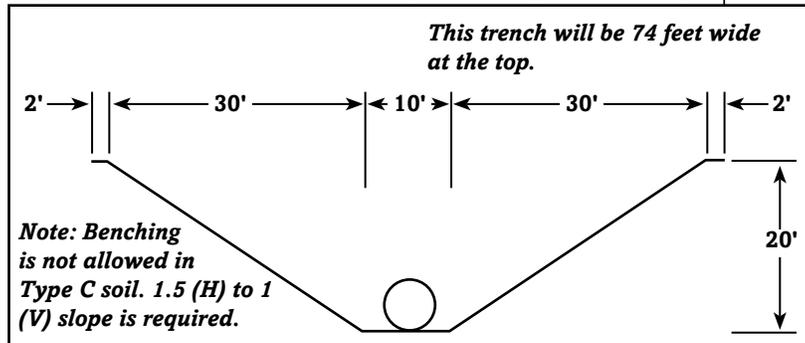
## Increase Production & Reduce Your Costs

**Editors Note:** This article, written by TrenchSafety, will appear in a future issue of UNDERGROUND FOCUS magazine.

Proper use of trench shoring and shielding equipment results in three important benefits. The equipment helps to:

- Increase job-site safety
- Meet OSHA's regulations
- Increase production and reduce costs

The first two points—job-site safety and OSHA's regs—receive a lot of attention, particularly from safety



**Figure 1**

and insurance personnel. However, the third point—the benefits of increasing your production and reducing your costs—is frequently overlooked.

### TWO PROJECTS ILLUSTRATE THE POINT

Equipment used in trench shoring and shielding significantly reduces the amount of material (soil) that has to be excavated and later put back in place. Two recent projects in the Mid-South illustrate the point.

The first project involved a 20-foot deep interceptor sewer in soil classified as Type C using the OSHA Standard. The contractor needed 10 feet of space at the bottom of the trench. While preparing his bid, the contractor analyzed the job two different ways.

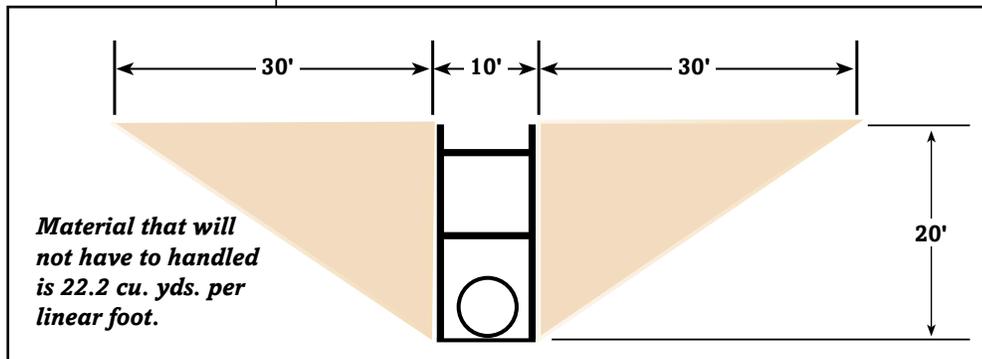
First, he looked at sloping the entire excavation, as shown in Fig. 1. Sloping, at an angle of 1.5 (H) to 1 (V), and setting the spoil back at least two feet on each side (as required by OSHA), would result in an excavation 74 feet wide at the surface. In addition, the contractor would have to excavate and then put back 22.2 cubic yards of material, per linear foot of pipe. Because the project was several miles long, the cost of handling that material alone would be \$586,080 per mile (assuming a cost of \$5 per cubic yard).

Then the contractor analyzed the job using trench shields (see Fig. 2). The trench shields could be stacked to provide 20 feet of vertical protection and, thereby, eliminate the need for sloping. The contractor would incur only the cost of excavating the trench and the rental or purchase of the shields, thereby reducing his costs significantly.

This contractor was the successful bidder on the project. He purchased two 10-foot-high x 20-foot-long trench shields that were rated to a depth of 20 feet for a Type C soil, as

required by OSHA.

The second Mid-South project involved a sewer that was 1,000 feet long and 25 feet deep, in Type B soil, at an airport. The project also required very



**Figure 2**

high compaction of the backfill material. As a result, TrenchSafety proposed the use of a linear slide rail system, which provided 20 feet of vertical protection,

# Managing The Hispanic Workforce

An article in a safety newsletter about Hispanic construction workers? You're probably thinking that TrenchSafety has lost its mind. But the reality is that large numbers of Hispanic people work in utility construction in the Mid-South. In fact, some construction crews are 100 percent Hispanic.

Oftentimes, because of cultural and language differences, clear communications,—a crucial component of worker safety—can be a challenge.

Whether you are trying to explain how to safely install a hydraulic shore, or where to properly place a spoil pile, or how to lay concrete pipe, communicating effectively with any worker who is not conversant in English can be a challenge. It is important to note that you should not make general assumptions about the abilities or level of understanding within any particular group of workers. The important thing is to make sure that worker instructions are clearly understood by all recipients.

B. J. Anderson, a construction safety consultant from Atlanta, has studied worker safety in settings where there are varied cultures and languages among workers. She has made some very interesting—and enlightening—observations about working with Hispanic workers.

First, she explained that the term “Hispanic” generally describes people from or descending from Spanish-speaking countries. The largest number of Hispanic workers in the U.S. comes from Mexico.

*“REDUCED COSTS” FROM PAGE 1*

and offered some advantages when compacting the soil.

Even with some sloping, as shown in Fig. 3, there can be a significant reduction in handling material by using of a shoring system. The shaded area represents 22,200 yards of material that would not have to be excavated, hauled away, processed, hauled back, and compacted. At a cost of \$10 per cubic yard, that resulted in a savings of \$222,000, before the cost of the rental of the shoring system.

## ADDITIONAL COST REDUCTIONS

Trench shoring and shielding equipment reduces other costs including those associated with:

- Re-routing traffic
- Removing surface encumbrances
- Locating and moving utilities
- The number of pieces of equipment required to complete the job

SEE “REDUCED COSTS” ON PAGE 4

Other sources include Puerto Rico, and Central and South America.

The situation gets complicated by the fact that many Hispanic construction workers in the U.S. speak little or no English, have limited formal education, have little or no experience in construction, are young and relatively new to the workforce, and have a short-term commitment. (See “Cultural Differences” chart on next page.)

With respect to safety, according to OSHA, Hispanic workers are more likely to

be injured or killed on a job site, compared to other workers. A good example comes from a South Carolina job site cave-in earlier this year that killed two people. Not only were the workers Hispanic, they could not speak English, and were just 15 and 16 years old.

OSHA reports that the Hispanic fatality rate is growing much faster than the Hispanic construction workforce.

Some of the “Best Practices” for giving instructions to Hispanic workers include:

- Train in their language, if possible
- Assume nothing
- Be specific
- Demonstrate the task
- Ask workers to demonstrate new skills
- Observe
- Model behavior

For more information about working with Hispanic workers, contact B. J. Anderson at Construction Safety Consultants, toll-free (800) 858-9535, or by e-mail at [cscsafety@mindspring.com](mailto:cscsafety@mindspring.com)

### “COMPETENT PERSON” TRAINING IN SPANISH?

TrenchSafety offers “Competent Person” training in Spanish. E-mail us at [info@trenchsafety.com](mailto:info@trenchsafety.com) for details.

## Excavation Safety News

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*This newsletter provides a brief overview of safety regulations and systems. It is not intended to provide specific legal or engineering advice. Please refer to OSHA CFR29, Part 1926, Subpart P, “Excavation and Trenches,” and to other governmental regulations, and to manufacturers’ instructions for specific information.*

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# Trench Safety Solutions

In the pages of Excavation Safety News, we regularly report on projects where we have solved challenging shoring and shielding problems.

The photo at right is a case in point. While it is common to see trench boxes in the 16-20-foot length range, this one is a monster. Supplied to a contractor in Little Rock for a waste-water holding tank project, the box is unusual for three reasons:

- It is 8 feet high and 30 feet long
- The spreaders are 24 feet wide
- The box and spreaders weigh 20,400 lbs.



## CULTURAL DIFFERENCES CAN BE SIGNIFICANT

*Many of the challenges of communicating and managing Hispanic construction workers involve cultural differences that can be significant.*

<b>Cultural Value</b>	<b>North American Culture</b>	<b>Hispanic Culture</b>
<b>Family</b>	Family is usually second to work. "Family" is thought of as immediate family.	Family is the first priority. Large extended families. Family used for support.
<b>Education</b>	Analytical approach. Practical emphasis. Narrow, in-depth specialization. Pinpoint accuracy is important.	Memorization. Theoretical emphasis. Pinpoint accuracy is not as important.
<b>Work</b>	Work is the measure of the person.	Work is not inherently redeeming. Work is something that has to be done.
<b>Motivation</b>	Money and opportunity for advancement are key. Prefer to work in an atmosphere of action and opportunity. Increased responsibility is desired. Loyalty low.	Money. Prefer to work in a friendly atmosphere. Socialization with co-workers is important. Opportunity for advancement is secondary. Responsibility sometimes avoided. Loyalty high.
<b>Time</b>	Schedules are important. Deadlines and commitments are firm. Plan for the future.	Time is a relative concept. Deadlines are flexible. What you are doing at the moment takes precedence over any future events. The future is determined by "God's will."
<b>Communication</b>	Communication is verbal and written, direct and straightforward. Looking a person in the eye is sign of respect.	Communication is verbal, passive, less confrontational and more accommodating. Not looking you in the eye is sign of respect.
<b>Interpersonal Relationships &amp; Emotional Sensitivity</b>	Separates work from emotion. Sensitivity seen as a weakness. Puts up tough business front.	Does not separate work from emotions. Fear of loss of face and, therefore, respect. Shuns confrontation. Everyone is a diplomat. Harmony is important.
<b>Truth</b>	Truth is tempered by need. Direct, principled, literal. Direct yes/no answers given and expected. Truth an absolute.	Truth tempered by need for diplomacy. Truth is a relative concept. OK to blend truth or retain information if people's feelings are preserved.
<b>Criticism</b>	Separation of persons and tasks allows criticism and objectivity.	Fear of "loss of face" that would come from being criticized in front of a group.
<b>Leadership</b>	A leader is a coordinator and director of subordinates. Leaders can be questioned. Leaders may delegate power to subordinates and allow innovation and not loss of power.	Leader is responsible for all decisions, execution relegated to subordinates. Leaders are not questioned. Innovation is an option open only to leader. Sharing power may be seen as weakness. Leader is someone I work for, not my "amigo."
<b>Teamwork</b>	Everyone on a team has own individual role and responsibility.	Not familiar with the concept of teamwork. Want to work with people you like. Important to be liked. Usually relatives.
<b>Loyalty and Trust</b>	Use the word "friend" loosely.	A sense of trust exists between members of a group. Once you have a trust there is devout loyalty. Trust must be earned. Selective use of the term "friend."

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#### "REDUCED COSTS" FROM PAGE 2

- Operators, fuel, maintenance, wear and tear, etc. on equipment
- Transporting and storing spoil
- Backfilling and compaction
- Other restoration costs

OSHA's CFR 29, Part 1926, Subpart P, "Excavation and Trenches," offers a number of options to meet its protective system requirements. Options include sloping and benching, timber and aluminum hydraulic shoring, trench shields, and site-specific designs by a Registered Professional Engineer. Because every job is different, some options may

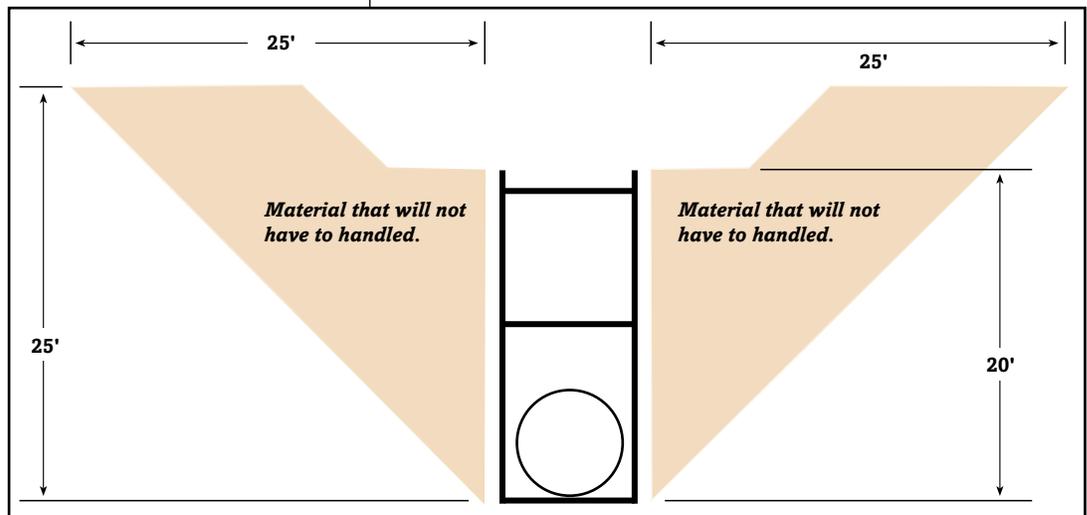


Figure 3

work better on certain projects. But on many projects, proper use of trench shoring and shielding equipment can result in significant increases in production and reductions in costs.

## TrenchSafety Training Schedule 2003-2004

• \$95 per person

- All participants will receive a certificate and wallet card indicating completion.
- Contact TrenchSafety TODAY for more information or to register:

**[www.trenchsafety.com](http://www.trenchsafety.com) | (800) 865-5801 | (901) 346-5800**

### COMPETENT PERSON CLASSES

- Tuesday, Sept. 9 – Memphis
- Tuesday, Sept. 16 – Little Rock
- Tuesday, Oct. 7 – Memphis
- Tuesday, Oct. 14 – Little Rock
- Tuesday, Nov. 4 – Jackson, Miss.
- Tuesday, Nov. 11 – Memphis
- Tuesday, Dec. 2 – Little Rock
- Tuesday, Jan. 6, 2004 – Memphis
- Tuesday, Jan. 13 – Little Rock
- Tuesday, Feb. 10 – Memphis
- Tuesday, Feb. 17 – Little Rock
- Tuesday, Feb. 24 – Fort Smith, Ark.

- Tuesday, Mar. 9 – Memphis
- Tuesday, Mar. 16 – Little Rock
- Tuesday, April 6 – Memphis
- Tuesday, April 13 – Little Rock
- Tuesday, April 20 – Jackson, Miss.
- Tuesday, May 4 – Memphis
- Tuesday, May 11 – Little Rock

### CONFINED SPACE CLASSES

- Tuesday, Dec. 9 – Memphis
- Tuesday, Jan. 27, 2004 – Little Rock
- Tuesday, Mar. 23 – Memphis
- Tuesday, April 27 – Jackson, Miss.