

Pipe Laying Syllabus

Time: 40 hours

Maximum Class Size: 12

Prerequisites: None

Course Description: This course is designed to empower the participant with the skills and knowledge to safely and productively work in excavations, to set grade, to lay pipe, and to facilitate the scopes of work typically performed by pipe contractors. The repetition of these learned skills will enable the participant to perceive and avoid potentially dangerous conditions.

Goals/Objectives/Student Learning Outcomes:

- Apply the precautions and pre-entry requirements for working in excavations and confined spaces.
- Identify tools, heavy equipment, materials, and scopes of work.
- Classify soil types.
- Convert U.S. standard measurements to decimal.
- Calculate the percentage for slope and grade.
- Use typical tools for setting grade and laying pipe.
- Demonstrate the ANSI standard hand signals for cranes.
- Describe the OSHA requirements for Aluminum Hydraulic (speed) Shoring.
- State the excavation protection required at a certain depth.
- Identify the front and back of the pipe.
- Label the Spring-line, Flow-line, Invert and Centerline on a pipe.
- Describe CAL-OSHA ladder requirements.
- Name three responsibilities of the pipe crew.
- Name two reasons for “down time” on a cut off saw.
- Name the distance (in feet) excavation spoils should be placed away from excavation.

Standards

- OSHA 29 CFR 1926.650-1926.652: Subpart P Excavations
- OSHA 29 CFR 1926.28 Personal Protective Equipment
- OSHA 29 CFR 1926.21 Safety Training and Education
- OSHA 29 CFR 1926.52 Occupational Noise Exposure
- OSHA 29 CFR 1926.150 Fire Protection and Prevention

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- OSHA 29 CFR 1926.300 Tools-Hand & Power
- OSHA 29 CFR 1926.1200 Hazard Communication
- OSHA 29 CFR 1926.55 Gas, Vapor, Fumes, Dust and Mist
- OSHA 29 CFR 1910.146 Permit-Required Confined Space
- OSHA 29 CFR 1926.500-1926.503 Fall Protection

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials:

- *Industry Curriculum-Pipe laying* DVD-LIUNA
- *Trench and Excavations-* LIUNA
- *Gravity Flow-LIUNA*
- *Pressure Pipe Techniques-LIUNA*
- *Basic Construction Math-LIUNA*
- *Math for Pipe layers-LIUNA*
- *Soil Compaction-LIUNA* Training
- *Confined Space Awareness-LIUNA*
- *Hoisting and Rigging Basics-LIUNA*
- *Materials Handling-LIUNA*
- "On Line-On Grade"-Trench Shoring Co.
- " 14 Million Projected for Road Project"-Stephen Wall, San Bernardino Sun-Times
- "Dig Alert-Call Before You Dig" –Underground Service Alert
- *Trench Safety*-video, Don Brown Productions
- *Going with the Flow* video-Laborers AGC
- *Pipe laying Procedures*-video, LIUNA
- *Principles of Line and Grade* video-LIUNA
- *Hand Signals*-DVD-LIUNA

Tools/Equipment/Other Materials

- Flow-line indicator tool
- Laser level and grade rod

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- All hand tools for setting grade and laying pipe, such as shovels, hammers, tape measures, levels, steel stakes, and string line
- Aluminum Hydraulic Speed Shoring
- All purpose saw
- Pipe cutters
- Shackles, wire rope and synthetic slings
- Vitrified clay pipe
- Reinforced Concrete pipe (RCP)
- Short lengths of PVC, HDPE, corrugated metal, and ductile iron pipes

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 12 hard hats

Course Requirements

To receive credit for the course, participants must:

- Be present for full forty hours
- Participate in all classroom exercises
- Pass a written exam
- Pass a hands-on exam

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

- All written exams must be passed with a score of 80% or above.

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- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.