

## Laborers Landscape & Irrigation Fitter

### Landscape 3: Erosion Control, Grading & Drainage Syllabus

**Time:** 40 hours

**Maximum Class Size:** 12

**Prerequisites:** LLIF Skip Loader, Skid Steer 1

**Course Description:** Students will take the Cal Trans Storm Water Pollution Prevention Plan (Caltrans 6 hour SWPPP) class. Types of erosion control such as rip rap, straw bedding, jute netting, silt fencing, sand bags, plastic sheets, among others, are introduced. Rough Grading is performed using grade stakes and Skip Loader. Surface drains, percentage of fall for pipe, bedding, inlet boxes and pipe sizing is taught. Finish grading, swales, the direction of flow per codes, correct elevations per codes and engineered flow lines in blueprints are presented. Students are given ample hands-on practice in using the laser, hand-grading a small area, and grading a large area using a Skid Steer and a Skip Loader.

#### **Goals/Objectives/Student Learning Outcomes:**

- Pass the Cal-Trans SWPPP test.
- Implement a Storm Water Pollution Prevention Plan.
- Install various types of erosion control materials.
- Interpret Blue Prints for Grading & Drainage.
- Operate a Laser to correct elevations.
- Operate a Field Level or Transit.
- Read grade stakes.
- Set Hubs and Whiskers using grade stakes and Peep-site with Engineer's ruler.
- Install drainage pipe and inlet box with correct percentage of fall.
- Demonstrate cutting grade to within one tenth using grade stakes and skip loader with Gannon scraper.
- Describe the importance of Standard codes and Local codes in reference to the direction of flow and earth moving permits.

#### **Standards**

- OSHA 29 CFR Part 1926.54-Lasers/Non-ionizing Radiation
- OSHA 29 CFR Part 1926.300-Subpart I: Hand and Power Tools
- OSHA 29 CFR Part 1926.600 (a)(3)(i)-Subpart O: Mechanized Equipment
- OSHA 29 CFR Part 1926.602-Material Handling Equipment
- OSHA 29 CFR Part 1926.1117-Vinyl Chloride, P.V.C. Glue & Primer

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#### 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

- Cal Trans SWPPP Training Material
- Blue Prints (Grading)
- Blue Prints (Drainage)
- Handouts: *Digest of Federal Resource Laws of Interest to the US Fish and Wildlife Service, Instrument, Grading & Drainage packet*
- LIUNA: *Math for Line and Grade PG*
- LIUNA: *Electronic Grade and Slope Control PG*
- LIUNA: *Construction Math for Pipelayers PG*
- LIUNA: *Basic Construction Math PG*

#### Tools/Equipment/Other Materials

- Silt Fencing
- Straw Waddles
- Straw Bales
- Filter Bags
- Sand Bags
- Plastic Sheeting
- Rip Rap
- Jute Netting
- Filter Fabric
- Drain Pipe
- Inlet Boxes
- Hubs & Whiskers
- Grade Stakes
- Grade Ribbons
- Laser with Percentage Feature to 10%
- Field Level or Threadlite
- Flat Shovels

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**Tools/Equipment/Other Materials continued:**

- Landscape Rakes
- Hand Saws (ABS types)
- Round Point Shovels
- Wheelbarrows
- Peep-sights
- Engineers Rulers
- Skip Loader with Gannon
- Skid Steer with Front Bucket
- Trencher (walk behind)

**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.

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**Assessment and Grading**

Participants will be assessed on the following:

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