



# **TRENCHING AND EXCAVATION SAFETY PLAN**

April 2021

## TRENCHING AND EXCAVATION SAFETY PLAN

### Trenching and Shoring Program

**Summary:** This program sets forth procedures related to trenching and shoring activities at the MetroED. Procedures on expectations for work in excavations are included in this program.

1. [Program Description](#)
2. [Scope](#)
3. [Definitions](#)
4. [Responsibilities](#)
5. [Specific Program Components](#)
6. [Reporting Requirements](#)
7. [Information and External References](#)
8. [Training Requirements and Competency Assessment](#)

#### 1. Program Description

This program sets forth procedures related to trenching and shoring activities at the MetroED. Procedures on expectations for work in excavations are included in this program. This program also specifies responsibilities for different parties, training requirements for entrants and competent persons, code of safe practices, and types of personal protective equipment to use while performing trenching and shoring activities.

#### 2. Scope

The scope of this program applies to all facilities and grounds at MetroED and to all District employees, while performing regularly scheduled or emergency trenching and shoring activities. All departments at the District are required to assess their vendor and/or contractor programs for trenching and shoring issues. Contractors hired by MetroED must have their own California OSHA (Cal/OSHA) compliant Trenching and Shoring Program and follow all specifications in the Campus Design Criteria.

The purpose of this Trenching and Excavations plan is:

- (a) To supplement the District standard safety policies by providing safety standards specifically designed to cover Excavation Safety on the job, and;
- (b) To ensure that each employee is trained and made aware of the safety provisions which are to be implemented prior to the start of work.

This plan is designed to enable employers and employees to recognize the hazards on the job and to establish the procedures that are to be followed in order to prevent injury. Each employee will be trained in these procedures and will strictly adhere to them.

#### 3. Definitions

**"Actual slope"** means the slope to which an excavation face is excavated.

**"Competent Person, trenching Competent Person"** means a person who is capable of identifying existing and predictable trenching hazards in the work environment, which are hazardous or dangerous, AND has the authority to stop work or take corrective actions to eliminate these conditions.

**"Competent Person on site"** means that a Competent Person must perform an inspection of the trench at the beginning of each shift, after a rainstorm, or whenever conditions change at the job site.

**"Distress"** means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spilling of material from the face of an excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

**"Maximum allowable slope"** means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

**"Short term exposure"** means a period less than or equal to 24 hours that an excavation is open.

**"Unconfined compressive strength"** means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

**"Wet soil"** means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

#### 4. Responsibilities

##### 4.1 Facilities Management

Managers are responsible for implementing the District Trenching and Shoring Program.

Managers will implement the program through:

- Ensuring that work location health and safety practices related to trenching and shoring are communicated and understood through documented training;
- Establishing work unit specific procedures for equipment maintenance to comply with elements of this program;
- Enforcing health and safety procedures consistently through work unit specific training and following the safe practices;
- Including compliance with safety procedures as part of the annual performance evaluation;
- Encouraging employees to report safety concerns without fear of reprisal; and
- Reporting accidents and injuries promptly to the supervisor and Human Resources.

Supervisor	Department	Contact Number
Ricky Carrillo	Facilities	Work phone: 408-723-4272

Managers are also responsible for the following activities related to trenching and shoring activities:

- Ensuring that the designated "Competent Person" has reviewed and approved the standard operating procedures for trenching and shoring activities being performed;
- Ensuring that each job is analyzed for potential hazards and controls and hazard analyses are performed for all job classifications that perform trenching and shoring activities;

- Ensuring that each job is reviewed by the designated “Competent Person” before the trenching and shoring work commences;
- Completing Work Unit specific Hazard Assessments and Trench Entry and Authorization Form before entering an excavation space and assuring that identified hazards are addressed;
- Developing Standard Operating Procedure (SOP) as necessary;
- Coordinating Work Unit specific training, as determined necessary for specific competencies related to job duties; and
- Maintaining written records for work unit specific training.

#### 4.3 Employees

Employees are responsible for following the requirements of the Trenching and Shoring Program by:

- Asking questions of their supervisors when concerned about an unknown or hazardous situation or substance;
- Reporting all unsafe conditions, practices or equipment to their supervisor;
- Keeping informed about conditions that may impact their health and safety; and
- Participating in training program as required.

#### 4.4 The Facilities Department Manager or designee is responsible to:

- Assist Facilities Management to initiate the Annual trenching and shoring permit application process with California OSHA (Cal/OSHA);
- Notify the local Cal/OSHA office about all trenching and shoring activities that are about to occur either via telephone or in writing;
- Assist Facilities Management in renewing the trenching and shoring annual permit with Cal/OSHA; and

#### 4.5 MetroED Safety Committee Responsibilities:

Maintain and update the Trenching and Shoring Program on an annual basis or when conditions on campus grounds and facilities change.

### **5. Specific Program Components**

#### 5.1 Implementation of Plan

It is the responsibility of Facilities Management and designated “competent person” to implement this Excavation Plan. The designated Competent Person is responsible for continual observational safety checks of the work operations, and to enforce the safety policies and procedures. The designated Competent Person is also responsible to correct any identified unsafe acts or conditions immediately upon their discovery. It is the responsibility of the employee to understand and adhere to the procedures of this plan, and to follow the instructions of the designated Competent Person. It is also the responsibility of the designated Competent Person to bring to management's attention any identified unsafe/hazardous conditions or acts that may cause injury to either themselves or to any other employee. The designated Competent Persons, Facilities Management, and the Safety Committee must approve any changes to this Excavations Plan.

#### 5.2 Specific Operating Procedures

Specific Operating Procedures (SOP) will be developed by the District for all trenching and shoring activities and for activities involving or generating toxic or hazardous materials. SOPs may also be developed for high-hazard activities such as blasting, high-scaling, etc., or for additional personal protective and lifesaving equipment not identified by this program.

#### 5.2.1 Hazard Assessment

The District has designated a group of Competent Persons to assess the inherent hazards associated with work areas, occupations, and tasks in excavations. The designated Competent Persons are responsible for eliminating or minimizing the hazards by means of engineering and administrative controls and by the use of personal protective equipment. Hazards include, but are not limited to airborne materials, impact noise, injurious light, heat and cold. Sources of these hazards include, but are not limited to chemical use, moving parts and equipment, rolling and pinching parts and equipment, elevated parts and equipment, sharp objects, electricity, and light sources such as welding operations.

The Hazard Assessment Form/Trench Entry and Authorization Form for Trenching and Shoring activities consists of a checklist that must be completed before the commencement of each trenching and shoring project. Categories on the Hazard Assessment form include:

- Notification;
- Competent Person;
- Protective Systems;
- Inspections;
- Hazards – Underground, Overhead, Surface;
- Access to Trenches and Excavations;
- Confined Spaces and Hazardous Atmospheres;
- Hazardous Electrical Conditions requiring Lockout/Tagout procedures;
- Other Potential Physical Hazards;
- Personal Protective Equipment; and
- General Housekeeping.

#### 5.2.2 Engineering and Administrative Controls

The District must use all feasible engineering and administrative controls to mitigate or minimize hazards. Where hazards still exist after application of these controls, personal protection equipment must be utilized.

#### 5.2.3 Provision of Protective Equipment

The District must provide all necessary personal protective equipment (PPE) unless other arrangements are agreed upon. The District must also provide for cleaning, laundering, or disposal of protective equipment as well as repair, maintenance or replacement of protective equipment as needed to maintain effectiveness of protection.

#### 5.2.4 Signs for Designated Personal-Protection-Required Areas

In areas where there are inherent hazards posed to all those who enter, that area must have signs warning entrants of the need for personal protection. Signs must be visible at all times when work is in progress and must be promptly removed or covered when the hazard no longer exists.

Signs must be in conformance with the latest edition of ANSI Z35.1 "Specifications for Accident Prevention Signs" and with OSHA 1910.145, "Specifications for Accident Prevention Signs and Tags"

"Danger" signs must be used only where there is imminent danger to the lives of employees or others.

"Caution" Signs must be used to warn against potential hazard and to caution against unsafe practices.

### 5.3 Requirements for Protective Systems

#### 5.3.1 Protection of employees in excavations

Each employee in an excavation must be protected from cave-ins by an adequate protective system designed in accordance with design criteria listed below for (1) sloping and benching systems or (2) support systems, shield systems and other protective systems except when:

(a) Excavations are made entirely in stable rock; or

(b) Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

Protective systems must have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

### 5.4 Commencement of Excavation Work

The District must follow Specific Excavation Requirements for the varying conditions that exist for different types of excavation work on campus grounds. All employees working in Excavations must follow the direction of the designated Competent Person in determining Soil Classification before work commences, and refer to the Soil Classification Definitions, if necessary. Additionally, a Trench Inspection and Entry Authorization Form must be completed by a The District designated Competent Person before excavation work commences.

### 5.5 Accident/Injury Procedures

When an injury or illness occurs that is serious and requires immediate medical treatment, call 911. Completely describe the injury so that a determination can be made on the proper response. Serious occupational injuries, illnesses or exposures to hazardous substances must be investigated.

Report the injury or illness to the supervisor and Human Resources as soon as possible.

#### 5.5.1 Reporting procedure:

If the injury is not serious or life-threatening but medical treatment is required, refer to the Injury and Illness Prevention Plan (IIPP), Workers Compensation procedures, and ensure that the employee is transported to the locations listed on the aforementioned form.

The Workers Compensation incident form must be completed on all injuries and work related illnesses. These forms must be completed within 24 hours of the injury.

The supervisor will conduct an accident investigation as soon as possible and provide appropriate action to prevent reoccurrence of the accident. Should the accident involve the failure of any excavations-related device or equipment, the supervisor will immediately remove the damaged equipment from service and retain the equipment in the supervisor's possession until further evaluation of the equipment.

The incident will be reported to the MetroED Safety Committee for further investigation and recommendations.

## 6. Reporting Requirements

### 6.1 Permit Requirements

Cal/OSHA requires the following information to be submitted to apply for an annual trenching permit:

- Code of Safe Work Practices related to Trenching and Shoring activities;
- The District's Injury and Illness Prevention Plan;
- Interview with Competent Person and documented qualifications for Competency;
- Site specific Confined Space Entry Management Program for the District; and
- Site specific Trenching and Shoring program for the District.

The District must notify the nearest Cal/OSHA office when any trenching and shoring activities will occur. Facilities management is responsible for submitting the annual application for all trenching and shoring activities to Cal/OSHA.

## 6.2 Cal/OSHA Reporting Process

The District is responsible for notifying Cal/OSHA about all trenching and shoring activities that are about to occur either via telephone or in writing. Once M&O is notified about trenching activities, he/she will complete the Cal/OSHA Activity Notification Form for Trenching and Shoring Activities and fax or mail it to the Cal/OSHA office.

## 7. Information and external references

[California Code of Regulations, Title 8 \(8CCR\), Section 1541, General Requirements for Excavations.](#)

[California Code of Regulations, Title 8 \(8CCR\), Section 1541.1, Requirements for Protective Systems.](#)

### Appendices

- A - Code of Safe Work [Practices](#) for Trenching and Shoring Activities
- [B - SOP template for Trenching and Shoring Activities](#)
- [C - Hazard Assessment and Trench Entry and Authorization Form](#)
- [D - Training Components](#)
- [E - Designated Competent Persons at The District](#)
- [F - Personal Protection Requirements by Task](#)
- [G - Selection of Protective Systems](#)
- [H - Specific Excavation Requirements](#)
- [I - Soil Classification Definitions](#)
- [J - Cal/OSHA Reporting Process](#)
- [K - Cal/OSHA Activity Notification Form for Trenching and Shoring Activities](#)
- [L - Competency Assessment Tool for Competent Persons at The District](#)

## 8. Training Requirements and Competency Assessment

### 8.1 Training Requirements and Components

The District meets all training requirements and components and conducts general awareness level trenching and shoring training every three years. Specific training for Competent Person training is provided on an annual basis.

Training component will coordinate all trenching and shoring training and provide a training program that will teach employees, who might be exposed to Trenching and Shoring hazards, how to recognize such hazards and how to minimize them.

Employees will be trained in the following areas:

- (a) the nature of Trenching and Shoring hazards in the work area; (b) the correct procedures for erecting, maintaining, disassembling, and inspecting Trenching and Shoring protection systems;
- (c) the use and operation of Trenching and Shoring equipment
- (d) the role of each employee in the Trenching and Shoring safety monitoring system when the system is in use; (e) the limitations of safety equipment during the performance of work; (f) the correct procedures for equipment and materials handling and storage; and
- (h) the details in this plan.

Additional Trenching and Shoring training details:

- (a) The company or contractor hired by MetroED will conduct all Trenching and Shoring training.
- (b) All Facilities Maintenance employees will be trained in General Awareness Level Trenching and Shoring training every year.
- (c) Any employee who has not received appropriate training in the MetroED Trenching and Shoring Program will not be allowed to work with Excavations until the employee has been trained and understands the program.

The Trenching and Shoring Program is based on published standards and these standards are considered to be a minimum program. The MetroED Excavation Plan has been designed to exceed the minimum requirements.

Training: Facilities employees will be trained on the requirements of the Trenching and Excavation Plan as general awareness. The District does not trench or excavate. The general awareness training is to provide information to keep employees safe while third party contractors are performing the task.



