Safety in Excavations and Trenches

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Safety in excavations and trenches

- Causes of cave-ins
- Pre-job planning
- Doing the job safely in excavations and trenches
- Table 17 of the Appendix to the Regulations: Excavation and Trench Shoring
- Other issues
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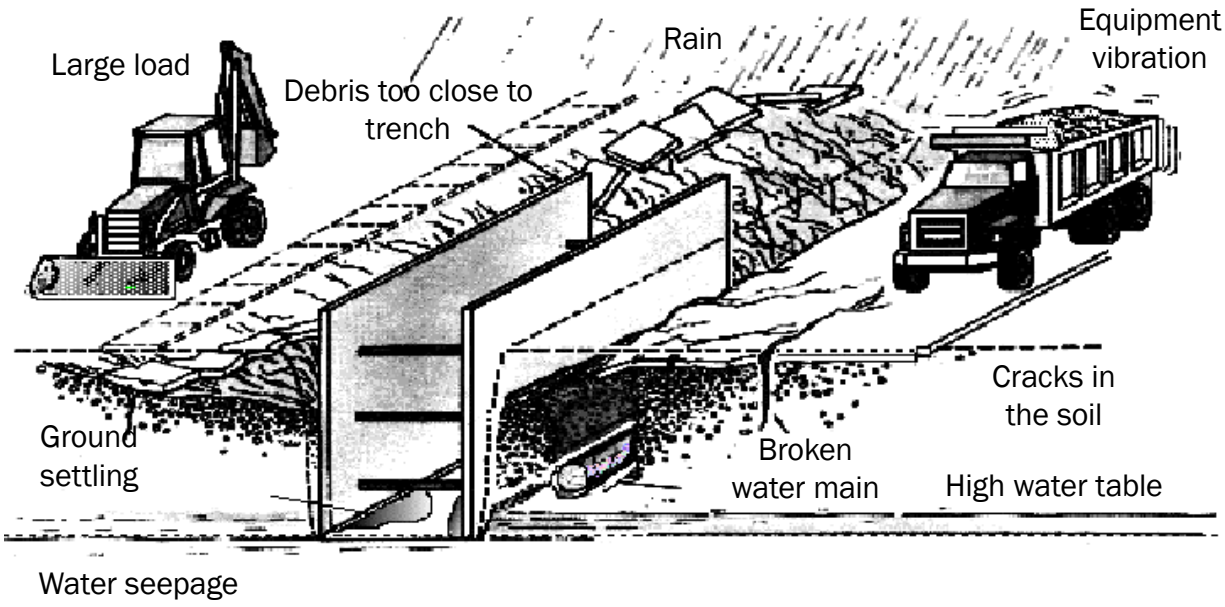
Introduction

Excavation, trenching, shaft sinking and tunneling operations can be very dangerous. Every year in Saskatchewan, workers in the industry suffer misfortune. This is why Saskatchewan occupational health and safety legislation requires employers to take extensive precautions to protect workers.

This publication will help employers, workers, occupational health committees and worker representatives prevent accidents on the job. Most of the information will cover excavations and trenches. We will begin by discussing common causes of accidents in the industry. Next, we will discuss how to plan and conduct safe operations. Finally we will deal with other common hazards in the industry.

For more information, review *The Occupational Health and Safety Regulations, 1996;* Part XVII *Excavations, Trenches, Tunnels and Excavated Shafts*. In addition, employers should consult municipal and city bylaws for the area in which they are working. The public should be warned about any applicable hazards that could reasonably be expected to be present on the job.

Causes of cave-ins



Most workers caught in cave-ins are seriously hurt. A cubic metre of hard compact soil is extremely heavy and can weigh as much as 1,900 Kg (4,200 lbs). Many victims are suffocated after being buried in a cave-in. Survivors often receive severe crushing injuries. Once a trench or excavation begins to cave-in, workers may have only seconds to escape. This is why careful planning for accident prevention and worker training is so important.

Soil mechanics and physics tell you that eventually every excavation and trench will collapse. Unfortunately, no one can predict when. The factors relating to cave-ins vary from site to site, but include:

- soil type
- moisture content
- depth of the excavation or trench and length of time left open
- vibration
- adjacent buildings and structures
- adjacent weight (surcharge)
- previous disturbances of the soil
- weather

Soil type

The type of soil helps determine how stable the walls of the excavation or trench will be. Saskatchewan occupational health and safety regulations divide soil into four types, from type 1 (very dense and hard) to type 4 (very soft and loose). Soil types are defined later in this publication.

Never count on the soil type alone to protect you, unless it is sound and stable rock. Soil types may be mixed. Seams of gravel or debris may lie behind seemingly solid trench walls. The employer and supervisors must therefore assess the soil conditions carefully before beginning work and take appropriate precautions. If soils are mixed, always base precautions on the most unstable soil type that could be present—assume the worst.

Moisture content

Moisture reduces soil strength. Once a trench or excavation is opened, the walls are exposed to the elements. Moisture content and soil stability can change rapidly.

Vibration

Vibration from compaction activities, equipment operations, nearby traffic, trains and so forth often weakens soil stability. The effects increase if the soil is wet or loose.

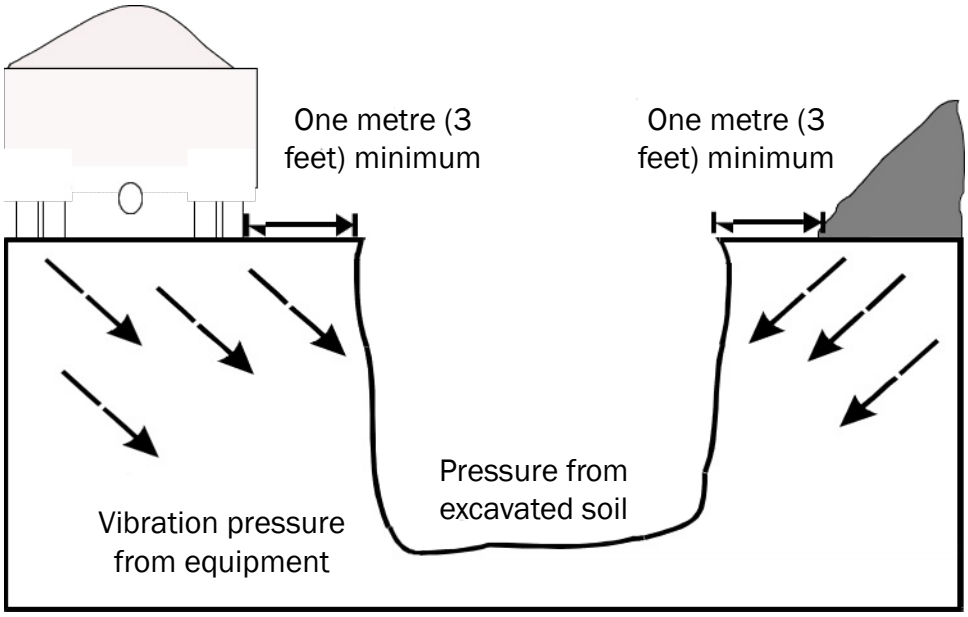
Adjacent buildings and structures

These can undermine soil stability by putting extra pressure on the walls or disrupting soil cohesion. Likewise, trenches and excavations can cause nearby building walls to collapse.

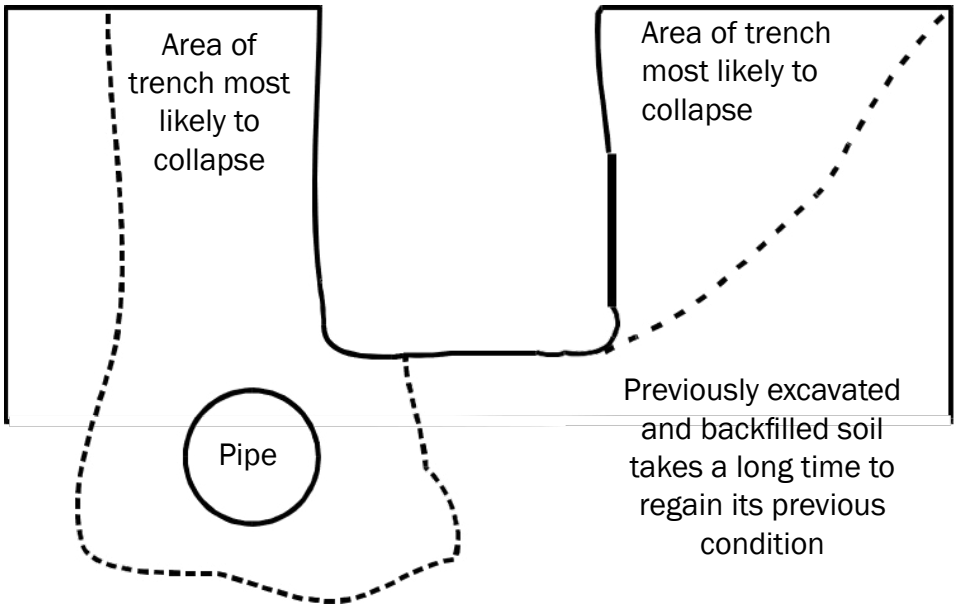
Adjacent weight (surcharge)

Surcharge is a large weight or load that affects the strength of the trench walls. For example, spoil piles (excavated earth), mobile equipment and supplies placed near the trench put pressure on the walls. Keep surcharges as far away from the excavation or trench as reasonably practicable.

Vibration and pressure reduce soil stability



Previous disturbances of the soil



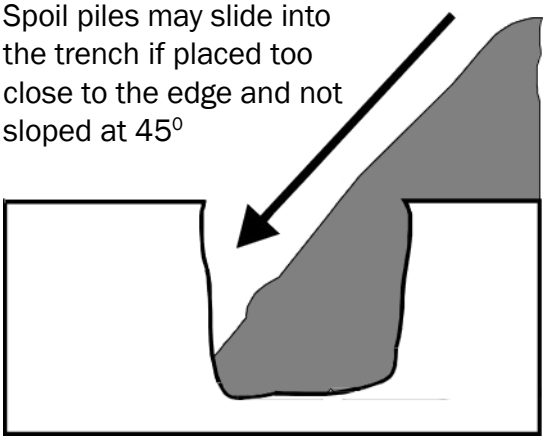
Soil around old excavations or trenches is very unstable, as is ground that has been excavated recently. Take great care in these conditions.

Weather

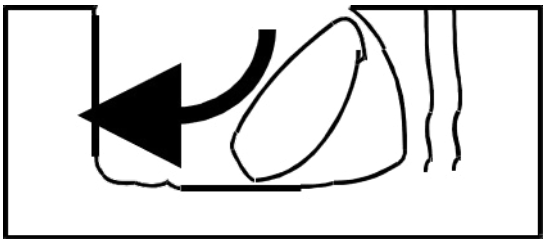
Rain, melting snow, freezing, flooding and heat from the sun reduces soil cohesion quickly.

Common causes of cave-ins

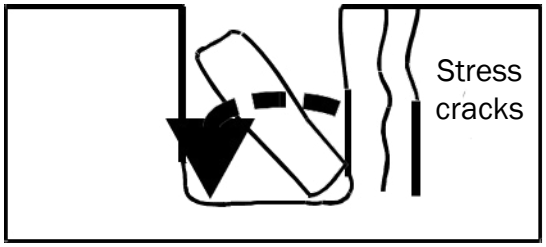
Spoil piles may slide into the trench if placed too close to the edge and not sloped at 45^0



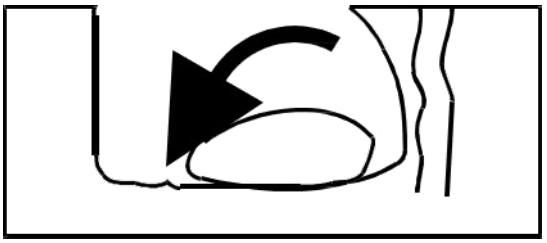
Clay soils may do this when saturated with water



This often happens in clay soils that have dried in the sun. It is also a problem in naturally frozen ground



This often happens in previously disturbed soils. It is also a problem in frozen or wet ground and mixed soils



Pre-job planning

When planning to dig an excavation or trench, consider such things as:

- how to determine soil conditions at the site
- underground services
- notifications
- engineering approvals
- equipment and protective structures
- site organization
- emergency planning

How to determine soil conditions at the site

Before work begins, the employer must determine what soil types are present at the site. Check for recent excavations in the area. Find out if there are any hidden hazards, such as unmarked underground services or soil contaminated by fuel leaks from old underground tanks.

Check for overhead services, such as power and phone lines. If overhead lines could be hazardous, consult the owner of the service.

Underground services

- Underground services must be identified and accurately located before excavation work begins. Notify the owners and arrange for the identification and marking of underground:
  - gas lines, pipelines, sewers and water mains
  - phone, television and other communication lines
  - power lines
- Underground services within 600 mm (two ft.) of the excavation must be exposed by hand or other approved systems.
- Existing services must be supported when unearthed. Any damage must be reported immediately to the owner of the service.

Check the atmosphere in utility trenches and sewer access points before work begins. (Gasoline and other liquid hydrocarbons have been unexpectedly encountered in these places). Ensure hazardous contaminants are not present and sufficient oxygen is available.

Identify sewer access covers and areas that may be contaminated with toxic substances. Control sources of ignition whenever an explosive environment may be present.

Notifications

The Occupational Health and Safety Division of the Ministry of Labour Relations and Workplace Safety must be notified if an employer wishes to dig:

1. any excavation, trench or shaft deeper than five metres that workers will enter.
2. a tunnel at any depth that a worker will be required or permitted to enter.

The notification must include:

- The legal name, mailing address and phone and fax numbers of the employer, contractor or owner.
- The location of the site and the nature of the work to be done.
- The number of workers to be employed.
- The expected starting date and duration of the work.

Engineering approvals

A professional engineer must design each of the following:

- A temporary protective structure designed to protect workers who may be affected by a trench or excavation collapse.
- A temporary protective structure designed to protect the stability of a building or structure that may be affected by a trench or excavation.
- Artificial freezing of the ground. This must be designed and implemented according to the specifications and instructions of the professional engineer.

Protective structures must be installed, used, maintained and dismantled according to the professional engineer's design. Drawings and instructions must be kept at the site and made available to workers.

A professional engineer must design and certify as safe temporary protective structures used in:

- excavations more than three metres deep
- trenches more than six metres deep in type 1, 2 or 3 soil
- trenches deeper than four metres in type 4 soil
- an excavated shafts three metres or more deep
- excavated tunnels at any depth

Equipment and protective structures

Before work begins, the employer is expected to determine what equipment and protective structures will be needed. Equipment should be inspected and traffic control plans drawn up for the site.

Select appropriate protective structures for the soil and working conditions. Ensure that

metal shoring will be wide enough to accommodate the size of the trench. Make sure that a professional engineer certifies the safety of any protective structure not manufactured to an accepted standard.

Site organization

The employer and supervisors should carefully plan how the site will be organized. For example:

- Where are power lines and other hazards?
- Where will material be stored?
- Where will spoil piles be? Ensure that there will be at least 1 metre (3 feet) of space between the spoil pile and the edge of a trench.
- How will loose material be removed from trench or excavation walls and nearby areas so that it cannot fall onto workers?
- How much operating room will equipment need?
- Where will exits and entrances to the trench be? Make sure there are enough ladders and ramps available. Any worker in a trench must be no further than 8 metres (26 ft.) from a ladder.
- Could buildings or structures be destabilized by the work?
- Where will traffic entrances and exits to the site be?

Where a worker is in a trench more than 1.2 metres deep, station a competent worker on the surface to alert workers in the trench of potentially unsafe conditions and help in an emergency.

Emergency planning

The employer should be prepared for emergencies. Everyone should know what to do and who to contact if an accident occurs. First aid and emergency plans should be reviewed with the committee or representative. Consider the types of mishaps that could occur and how each will be dealt with. Earthwork, such as trenching and excavating, is considered high hazard work as listed in Table 8 of *the Appendix to the Regulations*. For example:

- What level of first aid preparedness is required? For example, a Class A first aid attendant and supplies for high hazard work are required if there are five or more workers on the site. See Table 9 of the Appendix to the Regulations for more information.
- How far is the site away from a medical facility? Are ambulance and emergency medical services available at the site? Can the local ambulance and fire department respond? For example, is a municipal boundary involved?
- Does the employer have emergency transportation available for injured workers? Does it meet the requirements of the first aid regulations?
- Are emergency rescue equipment and supplies at the site adequate?
- Can responders safely get an injured worker out of a cave-in?

- Are workers adequately trained to handle workers injured in a cave-in or other accident?

The committee or representative should help the employer answer these questions and prepare an adequate emergency plan.

Doing the job safely in excavations and trenches

Definitions under the regulations

Excavation – means any dug-out area of ground other than a trench, tunnel or excavated shaft.

Trench – means an elongated dug-out area of land whose depth exceeds its width at the bottom.

Temporary protective structure – means a structure or device in an excavation, trench, tunnel or excavated shaft that is designed to provide protection from cave-ins, collapse, sliding or rolling materials, and includes shoring, trench boxes, trench shields and similar structures.

Type 1 soil – Means soil that most closely exhibits the following characteristics:

- is hard in consistency, very dense in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of greater than 50 blows per 300 millimetres
- can be penetrated only with difficulty by a small, sharp object
- has a dry appearance
- has no signs of water seepage
- can be excavated only by mechanical equipment
- does not include previously excavated soils

Type 2 soil – Means soil that most closely exhibits the following characteristics:

- is very stiff in consistency, dense in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of 30 to 50 blows per 300 millimetres
- can be penetrated with moderate difficulty by a small, sharp object
- is difficult to excavate with hand tools
- has a low to medium natural moisture content and a damp appearance after it is excavated
- has no signs of water seepage
- does not include previously excavated soils

Type 3 soil – Means soil that most closely exhibits the following characteristics:

- is stiff in consistency, compact in compactive condition and, if a standard penetration

test is performed, has a standard penetration resistance of 10 to 29 blows per 300 millimetres

- can be penetrated with moderate ease by a small, sharp object
- is moderately difficult to excavate with hand tools
- exhibits signs of surface cracking
- exhibits signs of localized water seepage
- is previously excavated soil that does not exhibit any of the characteristics of type 4 soil

Type 4 soil – means soil that exhibits any of the following characteristics:

- is firm to very soft in consistency, loose to very loose in compactive condition and, if a standard penetration test is performed, has a standard penetration resistance of less than 10 blows per 300 millimetres
- is easy to excavate with hand tools
- is cohesive soil that is sensitive and, on disturbance, is slightly reduced in internal strength
- is dry and runs easily into a well-defined conical pile
- has a wet appearance and runs easily or flows
- is granular soil below the water table, unless the soil has been dewatered
- exerts substantial hydraulic pressure when a support system is used
- is previously excavated soil that exhibits any of the characteristics set out in the seven bullet points above

Requirements for trench/excavation side wall cut backs

Warning

Never enter a trench deeper than 1.2 metres (four ft.) unless it is properly cut back, shored or protected by a trench box/cage designed by a professional engineer. Never enter an excavation deeper than 1.2 metres (four ft.) and work closer to the wall than the depth of the excavation unless the wall is properly cut back, shored or protected by a temporary protective structure designed by a professional engineer.

These regulatory requirements do not apply to trenches and excavations cut in solid and stable rock.

- When ground contains more than one soil type, the ground must be classified at the higher number. For example, a trench containing type 2 and 3 soil would be classified as type 3 soil.
- Information and instructions concerning temporary protective structures shall be on site and readily available to workers.

- Spoil piles and heavy mobile equipment must be kept at least one metre (three ft.) from the edge of the excavation or trench. The spoil pile must be sloped at an angle not steeper than one horizontal to one vertical, or 450 measured from the horizontal.
- Natural freezing of the soil cannot be used instead of a temporary protective structure or cutting back the side of the wall.
- Any structure that could be affected by the excavation must have its structural stability adequately supported.
- A trench greater than 1.2 m deep requires a competent worker to be stationed at the surface of the trench to warn workers in the trench of danger and to provide emergency help.
- A safe means of getting in and out of the trench must be provided no more than eight metres (26 ft.) from workers in the trench.

Inspections

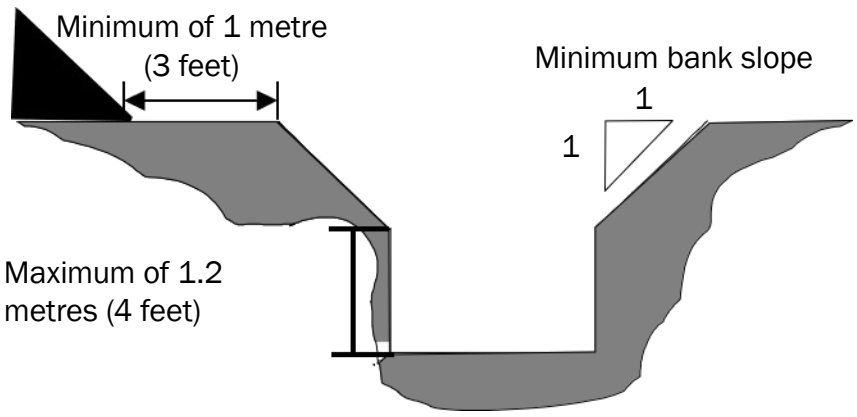
Inspect all things connected with trenching operations.

- Check the surface for tension cracks, particularly ones running parallel to the trench. These often occur before a cave-in.
- Check for material that may slide.
- Look for wet spots in the trench and other signs of water damage.
- Check shoring components every day. Look for signs of crushing or bending in brace areas. Make sure all components of shoring systems are in good condition. Check hydraulic and air shoring braces for hose and cylinder leaks. Watch for bent bases and other damaged or defective parts.
- Inspect trench cages (boxes) for cracks in the welds, structural damage and other defects.

The committee, representative or workers should help the employer conduct these inspections.

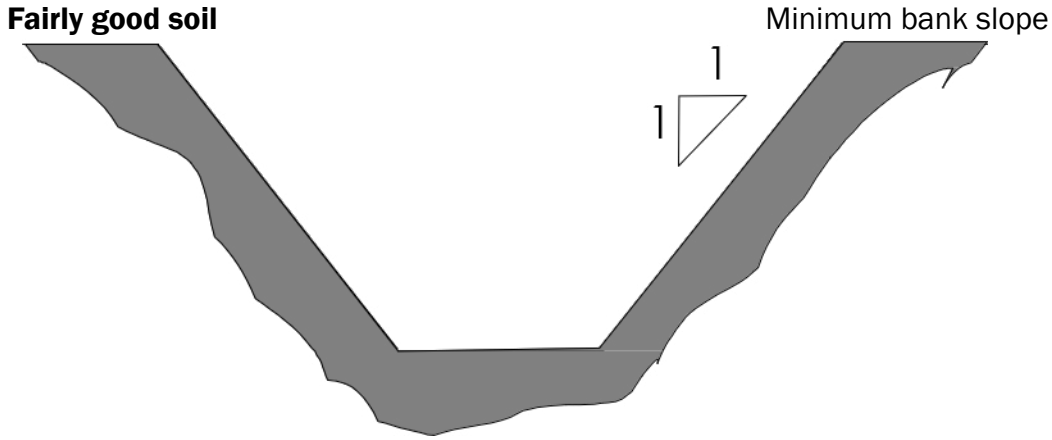
Working with type 1 and 2 soil

Good soil



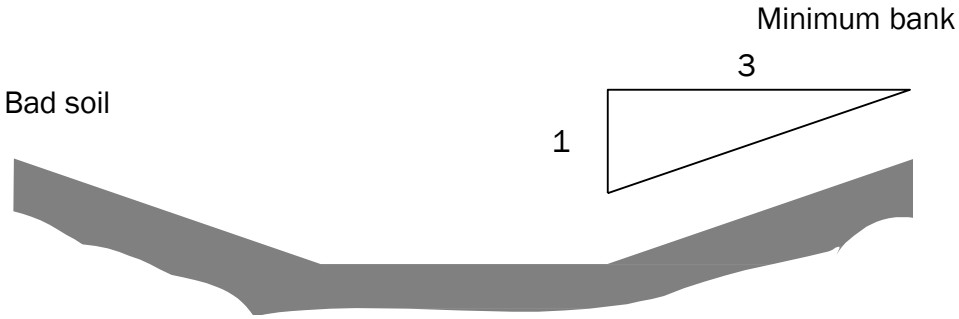
Type 1 and 2 soil must be sloped to within 1.2 metres (four ft.) of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 450 measured from the horizontal.

Working with type 3 soil



Type 3 soil must be sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 450 measured from the horizontal.

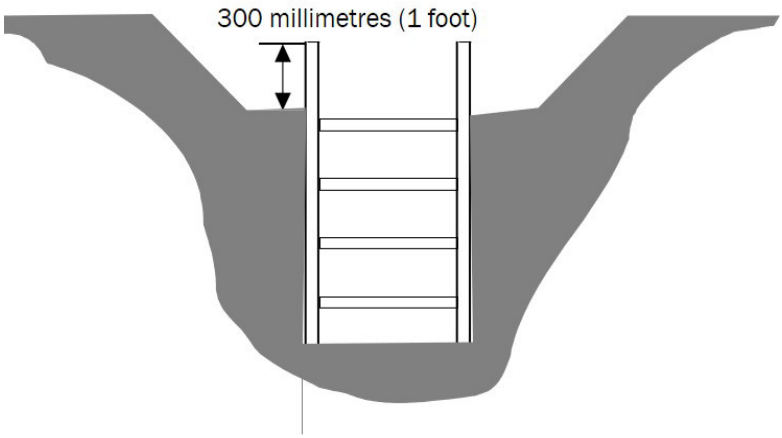
Working with type 4 soil



Type 4 soil must be sloped from the bottom of the excavation or trench, with a slope at an angle not steeper than three horizontal to one vertical, or 190 measured from the horizontal.

Working with temporary protective structures

Combination of a temporary protective structure and cut back



- Temporary protective structures such as shoring and trench boxes (cages) must provide adequate protection for workers and extend at least 300 mm (1 ft.) above the side wall.
- Temporary protective structures, such as metal shoring and trench boxes (cages), must be designed by a professional engineer. The structures must be installed, used, maintained and dismantled according to that design.
- Wooden shoring shall be No. 1 structural grade spruce or equivalent and installed as set out in Table 17 of the Appendix to the Regulations.
- A combination of cutting back the side walls and using protective structures is acceptable.
- Shoring members must be installed and removed in a manner that protects workers from cave-ins and structural collapses and from being struck by shoring components. Shoring components must be securely connected together to prevent sliding, falling, kick-outs or other possible failure.

Individual shoring components must not be subjected to loads that exceed what they were designed to bear.

Trench cage walls are 300 millimetres (one foot) above ground

Ladder is one metre above wall

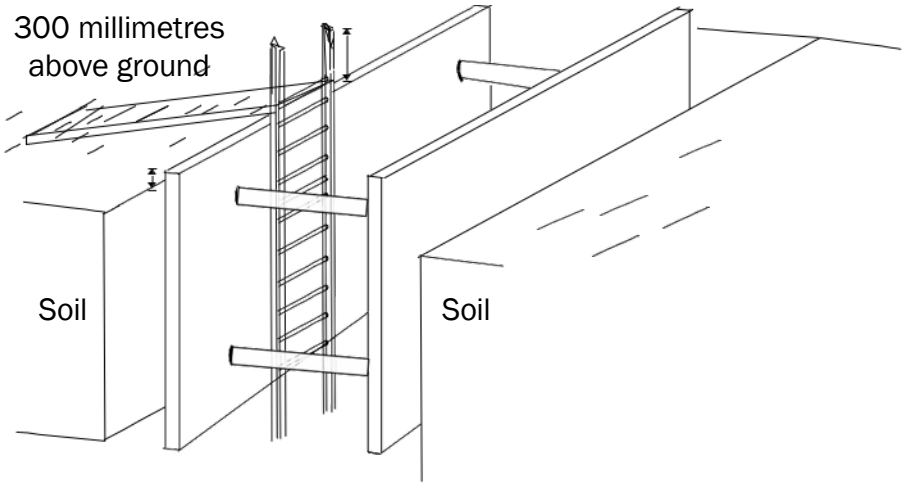


Table 17 of the appendix to the regulations: excavation and trench shoring							
Trench or Excavation Depth	Soil Type	Uprights	Braces				Wales
			Width of Excavation or Trench at Brace Location		Brace Spacing		
			1.8 m to 3.6 m	Up to 1.8 m	Vertical	Horizontal	
3.0 m or less	1	50 mm x 200 mm at 1.2 m o/c	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m*	200 mm x 200 mm*
	2	50 mm x 200 mm at 1.2 m o/c	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m*	200 mm x 200 mm*
	3	50 mm x 200 mm at 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	250 mm x 250 mm
	4	75 mm x 200 mm at 10 mm gap	250 mm x 250 mm	200 mm x 200 mm	1.2 m	2.4 m	300 mm x 300 mm
Over 3.0 m to 4.5 m	1	50 mm x 200 mm with 10 mm gap	200 mm x 200 mm	150 mm x 150 mm	1.2 m	2.4 m	200 mm x 200 mm
	2	50 mm x 200 mm with 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	250 mm x 250 mm
	3	50 mm x 200 mm with 10 mm gap	250 mm x 250 mm	250 mm x 250 mm	1.2 m	2.4 m	250 mm x 250 mm
Over 3.0 m to 4.0 m	4	75 mm x 200 mm with 10 mm gap	300 mm x 300 mm	300 mm x 300 mm	1.2 m	2.4 m	300 mm x 300 mm
Over 4.5 m to 6.0 m	1	50 mm x 200 mm with 10 mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2 m	2.4 m	200 mm x 200 mm
	2	50 mm x 200 mm with 10 mm gap	250 mm x 250 mm	250 mm x 250 mm	1.2 m	2.4 m	250 mm x 250 mm
	3	50 mm x 200 mm with 10 mm gap	300 mm x 300 mm	300 mm x 300 mm	1.2 m	2.4 m	300 mm x 300 mm

*Note: for excavations and trenches to three metres deep in soil types 1 and 2, the wales can be omitted if the braces are used at 1.2 metre horizontal spacings.

Other issues

- falling objects and material
- equipment mishaps
- slips, trips and falls

Introduction

There is more to running a safe trenching operation than simply getting in and out of the excavation alive. For example, falls account for more serious injuries than most other accidents. The employer can go a long way to maintaining a safe worksite by controlling what happens on the surface as well as in the trench. This section describes how the employer can prevent other types of common accidents in the industry.

Falling objects and material

If excavated material must be placed near the excavation or trench, ensure effective barricades are in place to prevent fallback. Heavy tarpaulins, sheeted barricades and built-up board barricades can help keep excavated material out of work areas. Barriers can help keep tools and workers from falling onto other workers in the excavation or trench. If the trench or excavation must stay open for a long time, barricades, fences and so forth are necessary. Guard the site at night with flashing lights or security fences. Keep workers out of the operating radius of backhoes and other equipment.

Equipment mishaps

To prevent heavy mobile equipment accidents:

- maintain the safety features, such as roll over protective structures
- provide systematic inspection, maintenance and repair programs
- make sure operators and repair personnel are competent
- require workers to use three point contacts and avoid jumping when getting on or off equipment
- do not allow passengers to ride outside of equipment cabs

Equipment operations should be carefully planned and managed. Workers can easily be struck by mobile equipment in construction areas, particularly when machines are backing up. Backing alarms are required on all mobile equipment in areas where workers are at risk of being struck.

In crowded work areas, have a signaler direct traffic and warn workers of moving equipment. Each signaler should wear a high-visibility vest when directing traffic.

A standard set of signals should always be used and the signaler should stay in the view of drivers at all times.

Workers should be warned to keep away from excavators, backhoes and similar equipment. When appropriate, danger zones around this equipment should be barricaded or roped off to keep workers out.

Operators should be informed before any worker enters. Operators should keep workers in the danger zone in sight at all times.

Equipment should not be operated while workers are present.

Slips, trips and falls

Make sure that ladders extend at least 1 metre above the trench wall. When using a ladder, workers should be instructed to hold both side rails and have one foot on a rung at all times (three-point contact).

Ensure that wooden and other ladders meet standards set in Part XVI of the regulations (Entrances, Exits and Ladders). Use ropes to lower materials and tools into the trench. Do not carry them up and down ladders or throw them into or out of the trench.

Where ladders rest on the edges of cut pavement, make sure the pavement's undersurface does not crumble and cause workers on the ladders to fall or be struck by debris.

Make sure fences and barriers at the trench surface are secure and will protect workers when needed. Remember to keep fences and barriers far enough away from the edge of the trench to prevent workers or bystanders from slipping or falling into the opening.

Provide fall protection to workers working on the edge of the trench who could fall into the opening. Maintain good housekeeping to prevent accidents.

Review

Most accidents in the trenching and excavation industry involve:

- cave-ins
- falling objects
- equipment mishaps
- slips, trips and falls

To prevent trenching and excavation accidents:

1. Determine what type of soil is at the site.
2. Locate underground services before work begins.
3. Notify the Occupational Health and Safety Division if the trench will be deeper than 5 metres.
4. Obtain engineering approvals for temporary protective structures:

   i) used in an excavation deeper than three metres (10 ft.)

   ii) used in a trench deeper than six metres (20 ft.) in type 1, 2 or 3 soil; or deeper than four metres (13 ft.) in type 4 soil

   iii) in a shaft that is three metres (10 ft.) or more deep

   iv) a tunnel of any depth that a worker will be required or permitted to enter

Ensure that temporary structures are installed, maintained, inspected and disassembled in accordance with the engineer's design. Keep plans at the site for the information of workers.

5. Where required, establish an occupational health committee or designate a worker health and safety representative.
6. Train workers and supervisors.
7. Provide competent supervision.
8. Prepare emergency plans.
9. Support buildings and structures that could be affected by the work.
10. Design the job to control hazards posed by the most dangerous type of soil present.
11. Do not use natural freezing as a substitute for temporary protective structures and wall cut backs.
12. Keep spoil piles and other surcharges at least one metre (three ft.) away from the trench.
13. Place a competent worker at the surface to inspect the job and to warn workers in the trench of danger.
14. Make sure that no worker in the trench is farther than eight metres (26 ft.) from a ladder or ramp.
15. Slope type 1 and 2 soil to within 1.2 metres (four ft.) of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 450 measured from the horizontal.
16. Slope type 3 soil from the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical, or 450 measured from the horizontal.
17. Slope type 4 soil from the bottom of the excavation or trench, with a slope at an angle not steeper than three horizontal to one vertical, or 190 measured from the horizontal.
18. Ensure temporary protective structures such as shoring and trench boxes (cages) provide adequate protection for workers and extend at least 300 mm (one ft.) above the side wall.
19. Ensure temporary protective structures, such as metal shoring and trench boxes (cages) are designed by a professional engineer. The structures must be installed, used, maintained and dismantled according to that design. Keep drawings and plans at the site for the information of workers.
20. Use only No. 1 structural grade spruce or equivalent for wood shoring. Install it as set out in Table 17 of the Appendix to the Regulations.
21. Use a combination of cutting back the side walls and using protective structures as necessary.
22. Carefully inspect all aspects of the operation. Watch out for stress cracks in the soil and deformities in temporary protective structures.

Appendix: General requirements

- duties of employers
- duties of workers
- duties of self-employed persons
- duties of contractors
- duties of owners
- duties of suppliers
- duties of supervisors
- training

Introduction

The dangers of the work require employers to take extensive measures to protect workers. Likewise, owners, contractors, suppliers, workers and supervisors must help the employer maintain safe working conditions.

Everyone is expected to know and comply with applicable legislation. Requirements are usually placed on the person with the greatest control over the situation. However, others are not absolved of their duties if this person does not meet his or her obligations. The law holds both individuals and organizations accountable.

Duties of employers

The employer shall ensure any worker who is required or permitted to enter an excavation, trench, excavated shaft or tunnel is adequately protected from cave-ins or sliding material. The employer must also instruct supervisors and workers in the requirements of the regulations and ensure they comply.

Duties of workers

Workers can help maintain a safe and healthy worksite by:

- cooperating with the employer, supervisor, committee or representative in maintaining healthy and safe trenching practices
- using all personal protective equipment required on the site, such as hard hats, safety boots and safety glasses
- working and acting safely on the site and in the excavation
- remaining within protected areas
- watching out for hazards in excavation walls and soil conditions
- promptly reporting hazards in equipment
- watching over inexperienced workers, especially in the trench
- asking for advice when in doubt about the safety of a procedure or condition in the trench

Duties of self-employed persons

Self-employed persons must take all reasonably practicable steps to ensure their trenching/excavation work does not endanger themselves or anyone else. They are expected to cooperate with anyone who has a duty under the legislation and know and comply with the regulations.

Duties of contractors

When you hire a trenching firm you become a *contractor.* The trenching firm is an employer unless the firm has no employees and therefore is *a self-employed person*.

Simply put, contractors are responsible for those things that are not under the direct and complete control of the trenching firm. For example, a town hires a trenching firm to work on town services. The town is now the *contractor.* It is obligated to eliminate or control the risks posed by tasks that are not under the direct and complete control of the trenching firm. Contractors are expected to:

- Inform the trenching firm about hazards that may not be evident when underground services are being located.
- Take appropriate measures to ensure the trenching firm knows and complies with the legislation and otherwise follows safe work practices.

Duties of owners

Owners of the site being excavated are expected to inform the employer about hazards that may not be evident, such as unmarked plastic lines and other underground services that may not be locatable or detectable.

Owners are expected to promptly correct concerns and activities on their property that are not under the direct and complete control of the employer. Owners are expected to comply with applicable legislation.

There are also circumstances (such as in the case of a town) when the owner is also the contractor.

Duties of suppliers

Suppliers of equipment, such as shoring, trench cages and ladders that will be used by the employer on the site, are expected to:

- ensure that their products are safe when used properly
- inspect their products (such as shoring material) before delivery
- provide information about the potential hazards and limitations of their products
- provide written instructions about how to assemble and use their products safely on the site

Duties of supervisors

A supervisor is any worker given authority to direct the activities of other employees. Supervisors are expected to know the job, understand how to control hazards and supervise effectively.

Effective front-line supervisors are critical to maintaining a healthy and safe workplace. Supervisors are responsible for ensuring their workers know and comply with safe work practices and legislation. Inexperienced workers must be supervised closely until they can work safely. Finally, supervisors must set an example by working and acting safely themselves.

Training

Employers have a responsibility to provide information and training to workers and supervisors that will equip them to protect their health and safety. Training should be documented and include any information the employer has that:

- may affect the workers' health and safety
- is necessary to identify and control hazards at the site
- includes information specified in the legislation

This information must be provided to the committee, representative or workers as well as contractors and self-employed workers. A copy of the legislation must be available to workers at the site.

Supervisors and workers must be trained about everything that is relevant to their duties, such as:

- the need for, limitations, and safe use of personal protective equipment
- monitoring of soil conditions
- how to transport, set up, use, maintain and disassemble temporary protective structures
- emergency procedures, such as trench extrications
- any other matters necessary to protect the health and safety of the supervisor's workers

New and inexperienced workers must be orientated and trained about:

- the location of first aid facilities
- restricted or prohibited areas on the site and in excavations and trenches
- how to protect themselves from hazards at the site (such as cave- ins, machinery hazards and so forth)
- work rules and safe work procedures, such as those around machinery and in trenches
- applicable regulations, such as the trenching regulations

Workers may not begin work until they have been orientated and trained. Inexperienced workers must be supervised closely by a competent supervisor.

Time spent in training counts as paid work time.

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06/20 WEB