

2022

**GROUND DISTURBANCE
CODE OF PRACTICE**



City of Weyburn

SAFE TRENCHING & EXCAVATING CODE OF PRACTICE

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SAFE TRENCHING & EXCAVATING CODE OF PRACTICE**1 PURPOSE**

This Code of Practice (COP) outlines the procedures and guidelines for safe work practices for every component of a ground disturbance. It sets out the minimum mandatory requirements necessary to ensure worker safety and to avoid contact with underground facilities during ground disturbance activities.

To ensure that this living document contains the most up-to-date information; it shall be reviewed whenever any deficiencies are found but at least on an annual basis by the Occupational Health and Safety Committee.

2 COMPLIANCE

Failure to comply with any of the requirements set forth in the safe trenching and excavating code of practice, emergency response plans or trench permit will result in discipline up to and including terminations.

3 RESPONSIBILITIES**3.1 DIRECTORS /MANAGERS**

- Aware of and sign off on COP and related safe work practices and procedures
- Participate in Safe Trenching and Excavating training
- Ensure Supervisors/Foremen are completing assessments and verification of all training

3.2 SUPERVISORS / FOREMEN

Supervisors/Foremen involved in trenching and excavation work must ensure that the provisions of this COP are followed, that the work is conducted in a safe manner and in accordance with this COP, safe operating practices and procedures (SOP's) and all applicable federal and provincial legislation. They must also:

- Coordinate and participate in the training of those personnel involved in trenching and excavating work under their supervision
- Determine the means of protection required to ensure safe working conditions for each excavation
- Ensure proper sign off is completed (cannot delegate signing authority to charge hand)
- During critical ground disturbances (outlined on page 4) inspect job site, resolve any issue and ensure compliance
- Ensure all personnel have the required training prior to assigning them to work in or around an excavation
- Conduct spot checks for compliance of safe operating practices and procedures performed monthly. The spot checks will be documented and submitted by the 15th of each month to Safety Coordinator
- Ensure staff practice an emergency response drill annually and submit report including any deficiencies.
- Obtain any necessary crossing agreements prior to commencement of a ground disturbance (i.e. CN/CP Rail, Trans Canada Pipeline)
- Know individual role in the Emergency Response Plan (ERP) for each type of utility contact
- In the event of a utility contact, immediately notify the owner of the utility
- Ensure that all incidents and dangerous occurrences reported are investigated (when necessary) in a timely manner

SAFE TRENCHING & EXCAVATING CODE OF PRACTICE**3.3 SAFETY COORDINATOR**

- If deficiencies are found, investigate and revise Code Of Practice as required
- Assist supervisors in investigations as necessary
- Review incoming documentation
- Provide assistance and guidance
- Provide training opportunities
- Contact for all staff involved
- Send notice to the division when required

3.4 CHARGEHAND

Ensure the work is conducted in a safe manner and in accordance with this COP, SOP's and all applicable federal and provincial legislation

- Conduct pre-job hazard assessment completing and signing off on the ground disturbance permit
- Coordinate pre-job activities. Charge hand must directly supervise any critical ground disturbance activity as defined below
- Ensure, on a continuous basis, that it is safe for a worker to work in the excavation
- Ensure all employees on site are trained in this COP and relevant SOP's
- Ensure all utilities (underground and overhead) are identified and marked
- Ensure no one enters an excavation that requires the use of a safety cage if not properly in place prior to entry
- Inform out-of-scope supervisor if procedure involves an initial excavation depth of greater than 3.7 m (12') and acquire out-of-scope supervisors signature on permit
- Inform Safety Coordinator if procedure involves an initial excavation depth of greater than 4.3 m (14') deep and acquire Safety Coordinators signature on permit (out-of-scope supervisor to sign in Safety Coordinators absence)
- Labour Relations and Workplace Safety Occupational Health and Safety Division (SK OH&S) must be notified at depths greater than 4.6 m (15')
- Charge hand in consultation with the excavator operator will determine soil type on the job site (can only be type 3 or 4)
- Designate and sign off on a site supervisor in his absence
- Ensure all applicable water and sewage lines are located
- Ensure any necessary crossing agreement is on-site prior to commencement of ground disturbance (i.e. CN/CP Rail, Trans Canada Pipeline)
- Must have documented confirmation on site of what utilities are in the ground prior to commencement of excavation
- Know their individual role in the emergency response plan for each type of utility, not just the site as a whole
- Ensure that all incidents and dangerous occurrences are reported immediately

Critical Ground Disturbance

Charge hand must remain on site and cannot delegate their responsibilities under the following critical ground disturbance activities:

- Feeder line repairs
- Initial excavation near a Trans Gas line

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- Initial excavation near refinery lines
- Working in depths greater than 15'

*** If the charge hand must leave the site for any reason during any critical ground disturbance activity listed above, this particular activity must stop until the charge hand returns.**

*** If, at any time, the work must deviate from the permit, all changes must be signed off by the charge hand prior to the change. Designated site supervisor is not allowed to make changes to the permit.**

3.5 SUPERVISOR/ FOREMAN

A foreman must have all the required training and qualifications as outlined in the training section of this manual and is given the authority to direct the activities of other employees, assumes all permit responsibilities and must be appointed prior to the charge hand temporarily leaving the work site. With the exception of a competent pipefitter having obtained 2 years' experience as a permanent pipefitter, or as deemed competent by agreement of the Safety Coordinator and out-of-scope supervisor, the designated site supervisor cannot simultaneously perform any other duties (i.e. safety watch, equipment operator, etc.).

3.6 EMPLOYEE

All workers involved in trenching and excavating work must follow the requirements of this code of practice and are also responsible to:

- Use the required personal protective equipment (PPE) during work in excavations
- Follow procedures if a hazardous atmosphere exists within an excavation
- Be aware of emergency and rescue methods and the procedures for calling for emergency rescue personnel
- Be aware of hazards around themselves (and others in the area) and take actions to eliminate or reduce those hazards
- Successfully complete all applicable training, follow all safe work practices and procedures (SOP's) and request additional instructions and training when needed
- Know their individual role in the ERP for each utility, not just the site as a whole
- Refuse to carry out any work procedures they feel to be unusually dangerous (OH&S Right to Refuse)
- Ensure that all incidents and dangerous occurrences are reported immediately

3.7 OCCUPATIONAL HEALTH AND SAFETY COMMITTEE (OHC)

- Review Code of Practice annually
- Participate in investigations as necessary

3.8 SITE VISITORS

- No public visitors / bystanders are allowed in the work area and shall remain 20' outside the work zone area. Barricades, pylons and other traffic/pedestrian control will be placed by the crew prior to commencing operations.

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4 REQUIRED TRAINING

This procedure applies to all City of Weyburn Employees and its ground disturbance contractors working on City projects (i.e. vactor truck, rented backhoes etc.). All workers involved in trenching and/or excavating work must be trained in the requirements of this program. Training must take place **before** the worker is assigned duties in or around an excavation or trench. Training records must be maintained and readily available and must include:

- Participants name
- Instructor's name
- Date and place of the training.
- Copy of the written material covered in the training must be available.

Director/Manager – Safe trenching and excavating code of practice and hazard assessment training

Supervisors/Foreman - Safe trenching and excavating code of practice, hazard assessment, supervision and safety, fall protection, confined space, H2S Awareness and rigging training. All safe work practices and procedures (SOP's).

Charge Hand - Safe trenching and excavating code of practice, hazard assessment, supervision and safety, fall protection, confined space, H2S Awareness and rigging training. All safe work practices and procedures (SOP's) as outlined in the appendix of this manual.

Equipment Operator – Safe trenching and excavating code of practice, PME and rigging training. All safe work practices and procedures (SOP's).

Truck Driver - Safe trenching and excavating code of practice and rigging training. All safe work practices and procedures (SOP's) as outlined in the appendix of this manual. Additional training is required for the operation of the knuckle boom attachment.

Labourer - Safe trenching and excavating code of practice, fall protection, confined space, H2S Awareness and rigging training. All safe work practices and procedures (SOP's) as outlined in the appendix of this manual.

Safety Watch - Safe trenching and excavating code of practice, fall protection, confined space, first aid, flagman and rigging training. All safe work practices and procedures (SOP's) as outlined in the appendix of this manual.

5 MINIMUM STAFF REQUIREMENTS PER ACTIVE EXCAVATION / TRENCHING JOB SITE

Staff requirements per job site may vary depending upon the type of work being completed; however, under no circumstance shall there be less than the following on-site while work is being done in a trench:

1 – Chargehand 1 – Labourer 1 – Safety Watch 1 - Operator

The site supervisor cannot perform their duties and simultaneously be the safety watch. Under no circumstance shall the equipment operator perform safety watch and/or site supervisor duties simultaneously. At no time shall an employee be on an excavation site unaccompanied.

6 PRE- QUALIFYING AND SELECTING CONTRACTORS

In the event that any contract workers are hired to be involved in trenching and excavating operations, they will be required to complete the Contractor Management Form accompanied by required

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documentation. Contractors must comply with all requirements of the City of Weyburn Ground Disturbance Code of Practice and supply proof of qualifications and certifications prior to being allowed on-site. (i.e. directional drilling companies, contract vac truck operators etc.)

Contractors shall not perform any ground disturbance without a valid Ground Disturbance Permit issued by the City of Weyburn. The Contractor Ground Disturbance Permit (Appendix A) is comprised of a checklist of the Pre ground disturbance inspections and considerations detailed in the following sections 7 through to 8.5 of this Code of Practice.

Contract truck drivers on site are not allowed to participate in trenching and excavating operations and shall remain in their truck or outside the immediate work zone. (Minimum of 20’ outside the barricaded area).

7 PRE GROUND DISTURBANCE SEARCH AND NOTIFICATIONS

Supervisor/Chargehand must advise the Public Works & Parks Administrative Assistant of the planned ground disturbance. The Public Works & Parks Administrative Assistant calls Sask First Call and Access Communications to advise of the planned work and request line locates in the area. Supervisor / Charge hand will contact CN/CP Rail directly. Utility companies will advise if they are required to remain on-site while we excavate.

Written crossing agreements must be in place with CN Rail, CP Rail, and Trans Canada Pipeline prior to commencement of work in the area.

8 LOCATING AND MARKING UTILITIES

- After requested, affected utilities will come and locate and mark their lines
- No excavating shall commence prior to lines being located. Must have written confirmation that there are no utilities in the work area. Make sure to **READ THE COMMENTS** section of any locate map provided.
- Please note that Access Communications emails confirmation of locates to the Administrator
- Locates more than 10 working days old must be re-marked
- Location of underground utilities form must be completed prior to commencement of dig
- Trans Gas requires a permit prior to any ground disturbance near their right of way
- CN / CP Rail requires verbal or written permission if working near their lines and a permit for working under their lines or in their right of way. If verbal permission, then write down the name and phone number of the individual giving permission as well as the time and date of conversation.

| UTILITY | COLOUR |
|--|---------------|
| Proposed Excavation | WHITE |
| Electric Power Lines, Cables, Conduit, Lighting Cables | RED |
| Potable Water | BLUE |
| Steam, Condensate, Gas or Oil, Compressed Air | YELLOW |
| Telecommunications, Alarm or Signal Lines, Cables or Conduit | ORANGE |
| Temporary Survey Markings | PINK |
| Sewer and Storm Drains | GREEN |
| Irrigation Lines | PURPLE |

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8.1 LOCATING CITY OF WEYBURN LINES

Please refer to Safe Work Procedure in attached Appendix B.

8.2 HAND / HYDRO VAC EXPOSURE PHONE, CABLE, CITY AND ABANDONED LINES

The following safe work procedure must be adhered to when initially exposing utilities:

- No mechanical excavation can be used within 1' of phone and cable lines
- Mechanical excavation for City water and sewer lines is at the discretion of the supervisor and depends upon operational needs
- If removing abandoned lines, hydro vac / hand exposure is not required

8.3 HAND / HYDRO VAC EXPOSURE SASKPOWER LINES

If there is a need to hydro vac power lines to determine depth and/or direction, SaskPower must first be contacted (306-310-2220) prior to any hydro vac operations being performed. SaskPower will advise whether or not they need to be on site during the hydro vac process.

Please refer to safe work procedure for SaskPower in attached appendix.

8.4 WORKING AROUND SASKPOWER LINES

SaskPower requirements mandate that a distance of ten feet (10') be maintained when working around **all SaskPower lines** (overhead and underground). If work is required closer than ten feet (10') a SaskPower representative must be contacted (306-310-2220) and attend the worksite to give written permission on the permit as to how close our operations can work to the line.

8.5 HAND / HYDRO VAC EXPOSURE SASK ENERGY LINES

The following safe work procedure must be adhered to when initially exposing gas utilities:

- Hydro vac/ hand exposure to be used to locate depth and direction of gas line
- No mechanical excavation can be used within .6 m (2') of gas lines

Please refer to safe work procedure for SaskEnergy in attached appendix.

8.6 CONTACTING UTILITIES

Most utilities are protectively coated upon installation. During operations such as hand exposure, or if machinery comes into contact with lines, they can receive small scrapes that affect the integrity of the coating. This type of damage is inexpensive to repair at the time of contact, however; left unreported, nicks and gouges can cost tens of thousands of dollars in corrosion damage and future repairs.

If a utility is contacted during an excavation process, there is real potential for personal injury or death, public injury, equipment damage, production loss or environmental consequences, all of which are major risks.

If, during an excavation or backfilling procedure, contact is made with a utility that results in a scratch, gouge puncture or crack, flattening or dent, damage to the protective coating, or damage of any other kind, **the excavation work must immediately stop, and emergency response plan followed. DO NOT backfill** the utility until the owner has physically checked the integrity of the line and repaired any damage.

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ALL gas and power line contacts are IMMEDIATELY REPORTABLE internally and will be determined by the Safety Coordinator and/or the out-of-scope supervisor if it is reportable to SK OH&S 1-800-567-7233.

Emergency Response Plans (ERP's) are located in the appendix of this manual and in the permit books which remain on site during an excavation.

9 EMERGENCY RESPONSE PLANS (ERP'S)

The purpose of an Emergency Response Plan is to provide an effective way for personnel on site to respond to an emergency. In ground disturbance situations, this can become quite difficult. Each utility is dangerous in its own capacity, and since the danger to each utility changes, the response must change accordingly.

As underground utilities are unique each utility must have its own ERP. The biggest concern for a broken water line may be containment, whereas a gas leak is life threatening. Each person on site must know the ERP for each specific underground or overhead utility. In cases where there are multiple lines, this gets complex. If during the ground disturbance, contact with a utility is made, the ground disturbance must immediately terminate, and the owner must be notified.

Employees must be trained in accidental contact procedures to prevent injuries resulting from contact with utilities and to provide the appropriate response in the event of an emergency. Each on-site person must know their individual role in the ERP for each utility, not just the site as a whole. Mock drills are to be held annually. Specific procedures are in the attached appendix. ERP's are also located in the permit form book on each job site.

10 HAZARD ASSESSMENT

The attached formal hazard assessment has been completed on trenching and excavating in general and is to be used as a reference only. Each job site is required to complete the excavation permit and address all hazards identified in that assessment prior to the commencement of work.

11 DEEP TRENCH GROUND DISTURBANCE WORK PERMITS

A work permit is a legal document and must be completed fully, accurately and on-site prior to the commencement of work and must remain on-site at all times. If any of the answers are "NO", the out-of-scope Supervisor and/or Safety Coordinator must be consulted to determine what steps are necessary to determine a specific remedy to allow for work to proceed. Make note of the corrective actions taken in the comments section on the permit.

- a. Emergency response plan must be attached to permit and remain on site
- b. All applicable signatures must be in place
 - i. If initial depth < 3.7 m (12') site supervisor / Charge hand has authorization to sign off
 - ii. If initial depth >3.7 m (12') Supervisor needs to authorize prior to entry
 - iii. If initial depth > 4.3 m (14') Safety Coordinator needs to authorize prior to entry
 - iv. If depth > than 4.6 m (15') SK OH&S must be notified
- c. No permit required if total end depth of trench is less than 1.2 m (4') deep
- d. Worksite must be protected overnight

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- e. A new permit is required for each new day of work at site
- f. Original permit must be handed in to supervisor at day's end
- g. All site visitors must sign permit

If, at any time, the work must deviate from the permit, all changes must be signed off by the Charge hand prior to the change. Employees other than the chargehand or foreman are not allowed to make changes to the permit.

12 SAFE TRENCHING AND EXCAVATING

The City of Weyburn will establish a safe trenching and excavating code of practice that addresses training requirements, potential hazards and outlines the minimum mandatory requirements necessary to ensure worker safety and to avoid contact with underground facilities during ground disturbance operations.

Workers performing work in excavations must be aware of their responsibilities and those responsibilities must be clearly defined. Workers must have received training in safe work practices and hazard identification associated with working in and around trenches and excavations.

Provincial Legislation defines a confined space as any area enclosed, or partially enclosed that is not meant for continued human occupancy and poses a hazard to a worker entering it due to its design, construction, location, atmosphere, materials or substances in that space or any other hazard related to that space and has limited means of access and egress.

If a worker is required to enter such a work area, they must possess confined space entry training, complete an entry plan and have an emergency response plan.

According to the Saskatchewan Occupational Health and Safety Legislation definition, a trench is legally considered a confined space. Entry plan and Emergency Response Plan requirements will be met in completing the trench permit.

Atmospheric testing must be conducted and documented in excavations over 4' deep where hazardous atmospheres could reasonably exist. Employees are required to wear gas monitors under these types of work situations (i.e. landfill, main sewers, near hazardous substance storage or gas pipelines).

Ground Disturbance is any work, operation or activity that results in a disturbance of the earth including, without limitation, excavating, digging, trenching, plowing, drilling, tunneling, auguring, backfilling, blasting, topsoil stripping, land leveling, peat removing, quarrying clearing and grading.

Except for routine minor road maintenance, agriculture cultivation less than 450 mm (about 18") in depth and except a disturbance of earth less than 300 mm (about 12") in depth provided it does not reduce the earth cover over a buried pipeline to a height less than that provided when pipeline was installed.

There is more to running a safe trenching operation than simply getting in and out of the excavation alive. The employer can go a long way to ensure and maintain a safe work site by controlling what happens on the surface as well as in the trench.

13 TYPICAL EXCAVATION ACCIDENTS INCLUDE:

- Cave-ins

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- Falling objects or material
- Equipment mishaps
- Slips, trips, and falls

14 CAVE-INS

A cubic meter of soil can weigh as much as 1900 KG or 4200 lbs. A worker who is struck with that much weight will suffer serious injury or death. A cubic meter of dirt collapsing on a workers lower body often results in bone breaks, joint dislocations or hyperextension. A cubic meter of dirt collapsing on a workers upper body will collapse his lungs, stop his heart or cause internal bleeding or ruptures. Dirt does not have to cover the mouth to suffocate them; the weight and pressure are the killers.

Once a trench or excavation begins to cave-in, workers have only seconds to escape. It does not matter how many ladders are available to escape there is seldom enough warning or time to get to them.

Safety measures to eliminate cave-ins must be taken prior to work in the trench beginning. Soil analysis and excavation design are the first steps we must take to ensure trench safety.

Soil mechanics and physics say that **eventually every excavation or trench will collapse**. Unfortunately no one can predict when. How soon the collapse will occur will depend on a number of factors:

- Soil type
- Moisture content or lack of it
- Depth of the excavation or trench
- Length of time left open
- Vibration from local work or processes
- The weight of adjacent buildings, structures, equipment or spoil piles
- Previous disturbances to the soil
- Weather conditions like, rain, snow or freezing and thawing
- Under ground water levels

OH&S regulations recognize 4 different soil types and stipulate specific excavating techniques for each. Although there are diverse soil types throughout the City of Weyburn, for the purpose of safe trenching and excavating work, **all soil types will be considered type 3 or 4.**

14.1 TYPE 1 SOIL:

- Is hard in consistency
- Dense in compactive condition
- Is difficult to penetrate with a small sharp object
- Has no signs of water seepage
- Can be excavate only by mechanical equipment
- Has never been excavated before
- Standard penetration resistance of more than 50 blows per 300 mm

14.2 TYPE 2 SOIL:

- Is stiff in consistency
- Dense in compactive condition
- Can be penetrated with moderate difficulty with small sharp object
- Is difficult to excavate with hand tools

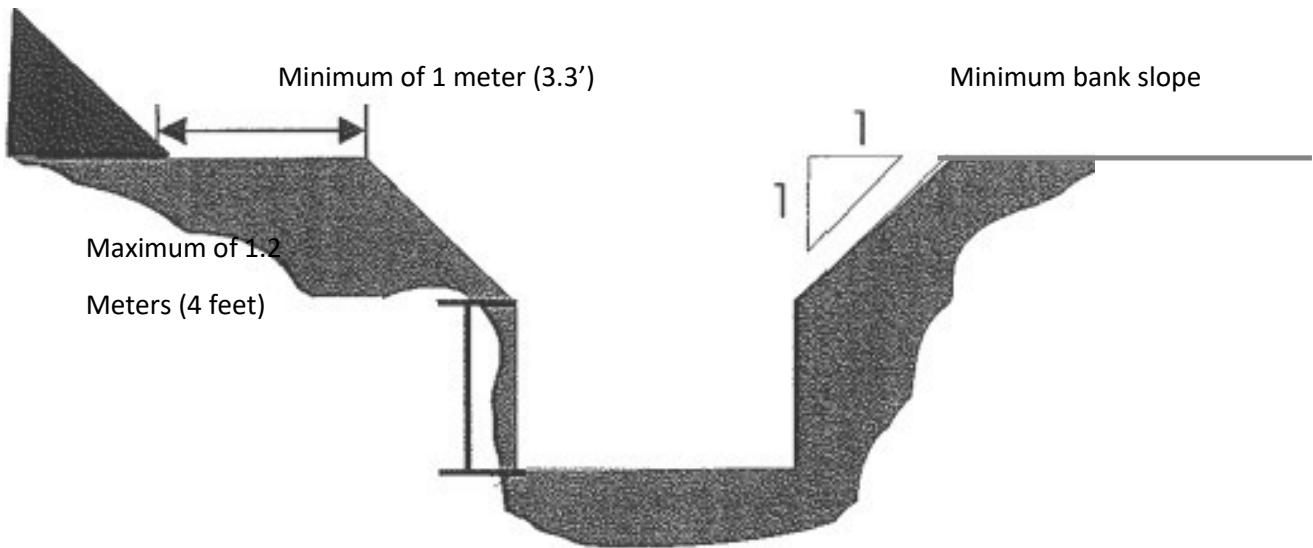
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- Has low to medium moisture content and is damp in appearance after it has been excavated.
- Has no signs of water seepage
- Has never been excavated before
- Standard penetration resistance of 30 to 50 blows per 300mm

Type 1 and 2 soil must be sloped to within 1.2 meters (4ft) of the bottom of the excavation or trench, with a slope at an angle not steeper than one horizontal to one vertical or 45 degrees measured from the horizontal.

14.3 WORKING WITH TYPE 1 AND 2 SOIL

- Good soil

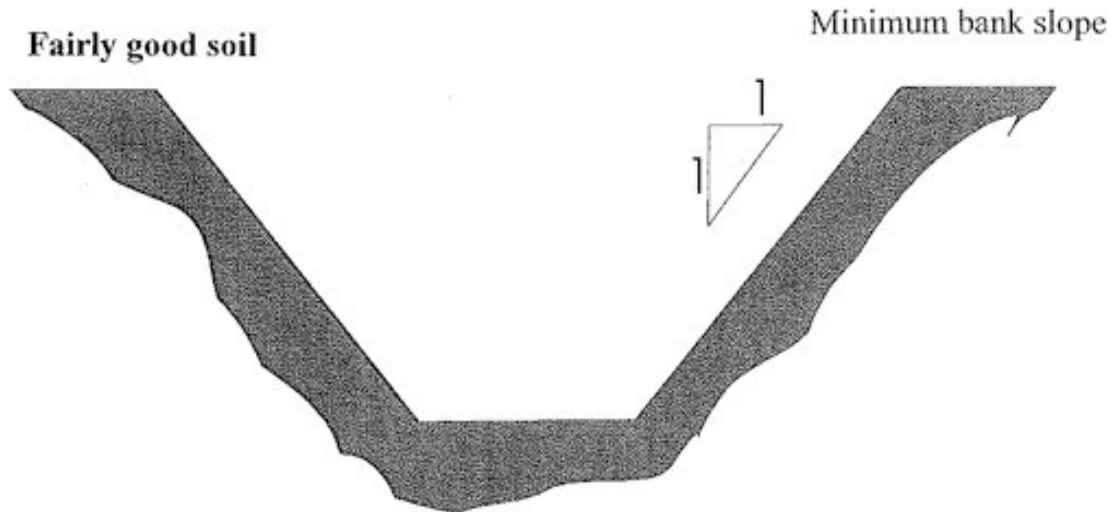


14.4 TYPE 3 SOIL

- Is stiff in consistency
- Compact in condition
- Can be penetrated with moderate ease by small sharp object
- Is moderately difficult to excavate with hand tools
- Exhibits signs of surface cracking
- Exhibits signs of localized water seepage
- Has been previously excavated but shows no characteristics of type 4 soil.
- Standard penetration or 10 to 29 blows per 300mm

Type 3 soils 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 45 degrees.

Working with type 3 soil

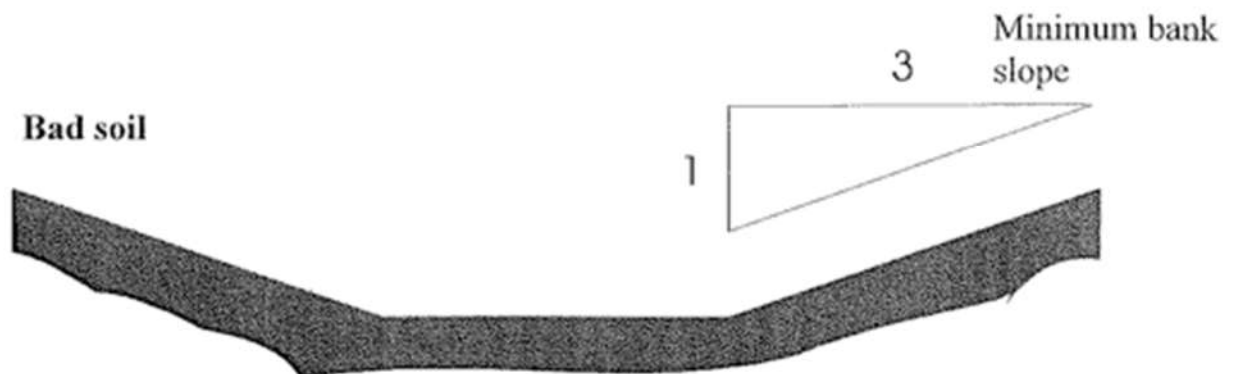


14.5 TYPE 4 SOIL:

- Soft in consistency
- Loose to very loose in condition
- Is easy to excavate with hand tools.
- Is cohesive soil that when disturbed is reduced in internal strength
- Is dry and runs easily into a well defined conical pile; or
- has a wet appearance and runs easily or flows
- Exhibits clear water seepage
- Has been previously excavated

Type 4 soils 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 19 degrees.

Working with type 4 soil



15 STRUCTURAL SHORING

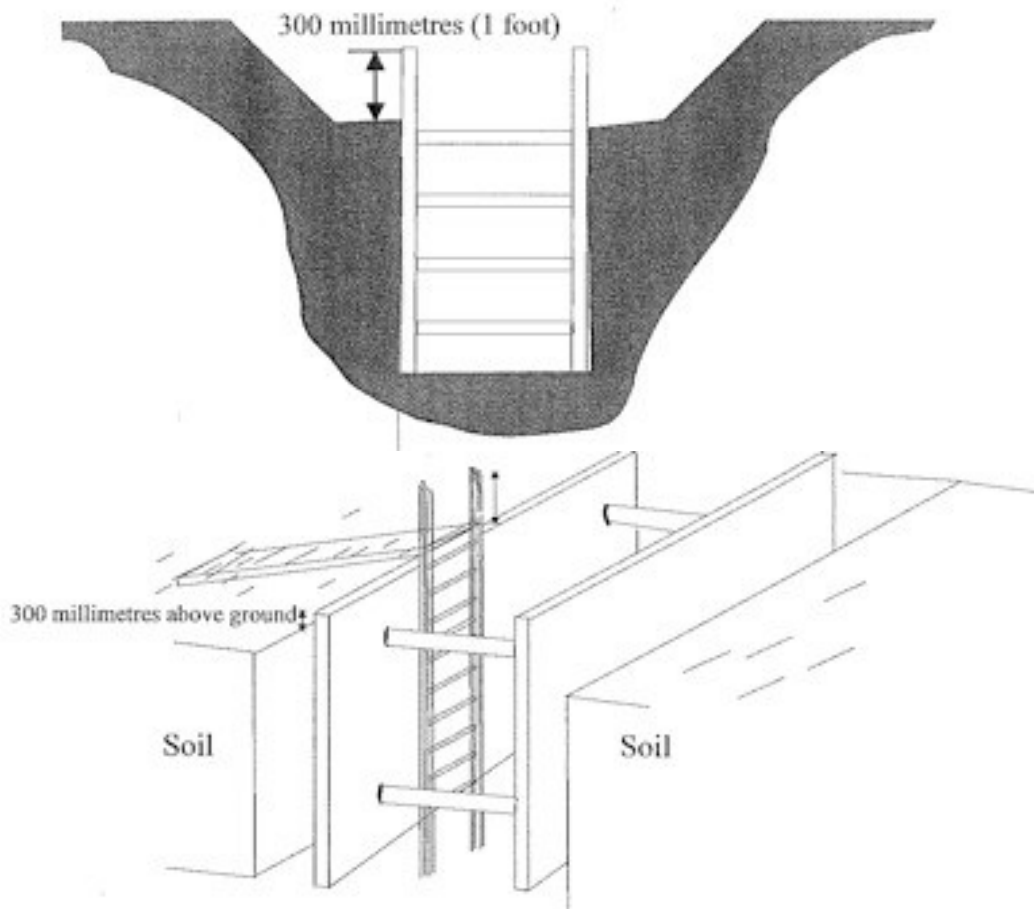
If regulatory sloping is not practical or possible because of pavement damage, traffic issues or adjacent structures, other safe guards can be used. These safe guards will be in the form of shoring or pre-engineered protective structures.

Wooden shoring must be #1 grade spruce or equivalent and installed as set out as per the regulations.

Metal boxes or cages must be designed by a professional engineer and must be installed, used, maintained and dismantled according to the manufactures or engineers instructions.

Structures such as shoring and trench boxes must provide adequate protection for workers and extend at least 300mm or 1 foot above the sidewalls of the trench.

As per fall protection legislation, all ladders must extend 1 meter (3.3') above top of trench.



16 FROZEN GROUND

Frozen ground does not necessarily mean the ground is stable and safe from collapse. If not using a safety cage, proper structural shoring or proper sloping must be in place regardless of the season. Frozen earth can only be considered stable upon the certification of a professional ground / structural engineer.

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17 STEP TRENCHING

Stepped trenching is made in the dirt on the side of the excavation. Each step run must be level and not smaller than 2' x 2' and each step rise must not be more than 16" high.

18 FALLING OBJECTS OR MATERIAL

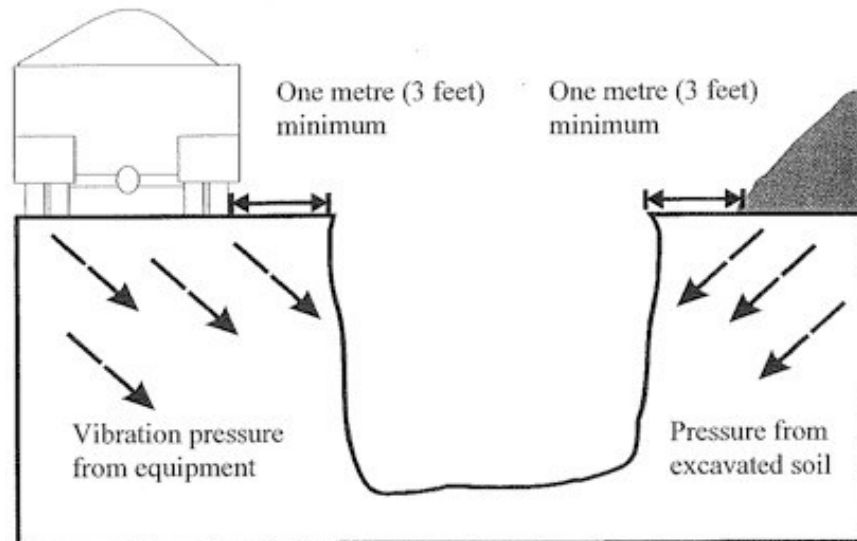
Workers inside a trench or excavation have a very limited area to move.

If material or tools fall into a trench evasive action may be impossible for workers in the way. For this reason extra care must be taken to store tools, fuel, material and spoil piles at least 1 full meter (3.3') back from the edge of the trench.

Material such as pipe, valves and culverts shall be stacked and secured so as not to roll toward or down a trench.

Compressed gas fuel tanks such as propane and oxy- acetylene must be secured in carts and stationed 1 full meter (3.3') back from the trench edge.

Spoil piles shall also be 1 full meter (3.3') back from the trench edge and shall never be piled with more than a 45-degree slope.

**19 EQUIPMENT MISHAPS**

All equipment shall always maintain 1 full meter (3.3') of space from the trench edge. Equipment does not just refer to excavating. Service trucks, welding trucks and skid units, compressors, delivery vehicles, light plants and vac trucks are all considered equipment and shall maintain the 1 full meter (3.3') from the trench edge.

All service vehicles shall try to park parallel to the trench to avoid the possibility of rolling or driving into the excavated area. If the service vehicle must back up to, or pull up to a trench, all personnel must first evacuate the excavated area and the wheels of the vehicle must be chocked.

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When the work process calls for the excavator bucket and the worker to both be in the trench at the same time, extra care must be taken to ensure communication is clear and that no one touches the bucket and that workers remain in clear view of the operator. High visibility coveralls are mandatory.

All equipment and machinery must maintain a safe distance from overhead hazards. The minimum distance from exposed energized high voltage electrical conductors is outlined below in Table 22 Column 1 of the Saskatchewan Occupational Health and Safety Regulations.

Table 22 (Section 465) Minimum Distance From Exposed Energized High Voltage Electrical Conductors

| Risk Factor | | Distance |
|------------------------|-------------------|---|
| Voltage Phase to Phase | Voltage to Ground | Non-Electrical Workers, Material, Equipment |
| kV | kV | Meters |
| 230 | 133 | 6.1 |
| 138 | 79.8 | 4.6 |
| 72 | 41.6 | 4.6 |
| 25 | 14.4 | 3 |
| 15 | 8.6 | 3 |
| 4.16 | 2.4 | 3 |
| 0.75 | 0.75 | 3 |

20 SLIPS, TRIPS AND FALLS

Trench work is quite often wet and muddy. Ladder rungs can become slippery and steps into equipment can get covered with debris. Extra care must be given to access and egress in and out of trenches and equipment.

Newly excavated areas are quite often uneven and can easily cause a trip or a twisted ankle. Workers need to pay extra attention to footing, footwear selection and housekeeping.

Any time a worker is required to work alongside a trench where that worker could be exposed to a fall into the trench, fall protection legislation is in effect. Travel restraint, fall protection gear or barriers must be in place to prevent the worker from falling or to arrest his fall.

21 EXCAVATION SAFETY WATCH SOP

Reporting all deficiencies directly to the Chargehand, the safety watch must be in place when equipment is in operation near overhead lines, gas lines and/or when there is work being done in the excavation. The safety watch is responsible for the following:

1. Ensuring a suitable means of communication is in place to summon emergency services
 - If using a cell phone make sure it is charged and there is coverage
 - If using a radio make sure it is charged and complete a radio check

SAFE TRENCHING & EXCAVATING CODE OF PRACTICE

- Confirm who gets called first in the event of an emergency. These numbers must be on the Emergency Response Plan
- 2. Be familiar with safe work procedures (SOP's) of all aspects of the work being completed.
 - The safety watch needs to know what the tasks are, not necessarily how to do them
 - If the safety watch is unfamiliar with the task then the task needs to be explained to the safety watch at the pre-job meeting
- 3. Keep a close eye on environmental changes such as wind, rain, lightening etc.
 - Approaching rain could change the work decisions of workers or labourers in the trench, if something unexpected is showing up in the area, trench workers shall be warned
 - Increased wind could blow dirt, snow, or debris onto trench workers or into their work, any serious change in wind velocity shall be relayed. Light weight equipment or materials on the surface shall be secured so as not to blow into the trench or into traffic lanes
- 4. Watch for changes in traffic
 - Increased traffic or large vehicles may pose excavator hazards. The operator shall be warned if traffic out of the ordinary is approaching
- 5. Remain in the line of sight unobstructed of the operator and staff in the trench and clear of equipment swing zone.
 - See and be seen by all.
 - Class 2 Level 2 high visibility clothing is mandatory
 - 50/50 tint or clear safety glasses shall be worn so that eye contact can be maintained with the operator
- 6. Stay alert for changes in excavation stability
 - Any changes in the trench that the trench occupants are not directly aware of shall be conveyed immediately
 - If a water collection point has been established at the back of the work area the safety watch shall let workers know when it is full
 - Any stability issues that affect the integrity of the escape ladder shall be addressed immediately.
- 7. Maintain entrances and exits free of obstructions
 - The area around the top of the ladder or steps shall be cleared of gear and material
 - Maintain 1 full meter (3.3') of clear area around any access/egress
 - Ensure that there is at least 1 unobstructed path from the egress point to a safe loading zone for any injured or ill trench workers
 - There must be a ladder or a properly constructed step trench (chicken run) within 8m (26.2') of workers.
 - Each step run must not be smaller than 2' x 2' and each step rise must not be more than 16 inches high
- 8. Police 1 meter (3.3') perimeters for equipment, trucks and spoil piles
 - This 1 meter (3.3') refers to light plants, oxy/acetylene carts, stacks of pipe, etc.
 - For excavators the 1 meter (3.3') point is the out riggers

SAFE TRENCHING & EXCAVATING CODE OF PRACTICE

- Under no circumstances shall workers be in a trench if a service vehicle has to back up to or face a trench. The potential for the vehicle to roll into the trench makes trench occupancy unacceptable
 - If a vehicle must be pulled up to a trench, the wheels must be chocked
9. Control pedestrians and unauthorized personnel to remain 20' from excavation
- If the situation arises that the unauthorized individual is uncooperative and decides to breach the barricade the safety watch shall direct work to cease until the on-site supervisor has remedied the situation
10. Police contract truck drivers to remain in their vehicles
- If the situation arises that the driver is uncooperative the safety watch shall direct work to cease until the on-site supervisor remedies the situation

22 MATERIAL HANDLING SOP

When lowering materials or equipment into the excavated area i.e., manhole sections, packers, horizontal augers, specific rigging practices must be adhered to.

- Rigging off of the excavator bucket must be from an enclosed welded eye on the back of the bucket, never off of the teeth
- Rigging must be hooked to the rigging eye with a shackle or a hook with a mouse clip
- All hooks and shackles must be marked with a load rating
- Only approved slings, wire rope slings, or rigging chains may be used. All rigging must be labeled with load rating
- All rigging must go through a pre-use inspection
- The excavator operator must know the weight of the material or piece of equipment he is lowering and must not exceed the lifting capacity of the excavator
- Under no circumstances shall workers be in the trench or within the swing zone of the excavator while a load is being lowered in. Once the material is within inches of being placed, the workers may re-enter the excavation to help place the load and disconnect the rigging. Prior to that any guiding of the load shall be done with a tag line.
- Workers on the surface need to respect the blind spots and swing zones of excavating equipment. The operator's attention will be on the trench occupants and his job, not on who might be behind him.



SAFE TRENCHING & EXCAVATING CODE OF PRACTICE

23 APPENDIX A: GROUND DISTURBANCE PERMIT



CONTRACTOR
GROUND DISTURBANCE PERMIT

| | | | |
|---------------------------------|--|---------------|--|
| Location: | | Date: | |
| Project Activities: | | | |
| City of Weyburn Representative: | | Contact Ph #: | |
| Contractor Representative: | | Contact Ph #: | |

| RECORD CONFIRMATION | | | |
|---|-----|-------------|-----|
| | YES | NO | N/A |
| 1. Has Saskatchewan One- Call been contacted? If yes, provide ticket #: | | | |
| 2. Has the City Representative been notified to review the scope of work and crossings? | | | |
| 3. Have crossing agreement notifications been made? | | | |
| 4. Are copies of all crossing agreements onsite? | | | |
| 5. Is a copy of the survey drawing on site? | | | |
| 6. Have all City owned power line and utilities in the work area been identified? | | | |
| 7. Has the landowner been notified as required? | | | |
| VISUAL INSPECTION | | | |
| 1. Are all buried utilities, power lines and cables staked on the ground? | | | |
| 2. Are all overhead line caution signs in place if required? | | | |
| 3. Have you confirmed there are NO signs of new ground disturbances within the proposed working area? <i>This may include power lines, gas co-ops, utility cables, new clearings, road construction, pipeline/utility signs, settlement, vegetation change.</i> | | | |
| PRECONSTRUCTION | | | |
| 1. Is the proposed ground disturbance expected to be less than 30cm deep? (Caution: Ground disturbances less than 30cm may encounter facilities improperly installed or changed due to shifting ground conditions.) | | | |
| 2. Are there any pipelines, utilities, power lines or cables being crossed within the distance outline in the crossing agreements or within 5m where there is no right of way? | | | |
| 3. Are all the conditions of the crossing agreements being met? | | | |
| 4. Have all underground facilities been hand exposed or hydrovaced as per the company requirements, crossing agreements and regulations? | | | |
| 5. No mechanical excavation is permitted within one meter of exposed pipelines or utilities. If less than one meter, specify: | | | |
| 6. Has a pre-job safety meeting been conducted? | | | |
| If any item of the above items are marked "no", approval is required from the supervisor and should be documented here: | | | |
| | | | |
| OTHER CONSIDERATIONS | | | |
| 1. The City of Weyburn requires that a representative be onsite when its own utilities/facilities are being crossed and backfilled. | | | |
| Signatures: City Representative: | | Contractor: | |



SAFE WORK PROCEDURE Locating City Owned Lines

| | |
|-----------------------|--|
| Title: | Locating City Owned Lines Work Procedure |
| Adopted on: | May 20, 2022 |
| Adopted by: | Municipal Engineer |
| Jurisdiction: | Safety Coordinator |
| Revision Date: | May 20, 2022 |

1. OBJECTIVES

To provide all City of Weyburn employees a safe work procedure for the locating of City of Weyburn owned lines, this includes sewer, water, electrical and irrigation lines. Workers must not be responsible to locate city owned lines unless they are trained to do so. Training will include complete knowledge of the City of Weyburn's work rules, O.H.&S regulations, CGIS system, city mapping, Ground Disturbance Code of Practice, and ground disturbance Level 2 training.

2. HAZARDS

- Exposure to cold/hot weather
- Working in or struck by traffic
- Potential line strikes if not located properly
- Exposure to spray paint

3. ELIMINATION OF HAZARDS

- Wear weather appropriate and high visibility clothing and necessary PPE.
- Always be aware of your surroundings, ensure safety cones, beacons and signage are deployed in correct manner to isolate and direct traffic around work area.
- Ensure proper direction of spray paint nozzle prior to spraying.

4. TOOLS, EQUIPMENT & MATERIAL REQUIRED

- Maps
- First Aid Kit
- Pylons or other traffic signage
- Spray Paint (blue, green, purple, and white)
- Coloured flags (blue, green, purple, and white)

5. PERSONAL PROTECTIVE EQUIPMENT REQUIRED

- Hard hat
- Safety vest
- Safety glasses
- Steel toe boots
- Gloves

6. RELATED PROGRAMS, MANUALS & SAFE OPERATING PROCEDURES REQUIRED

- Ground Disturbance Code of Practice
- CGIS



**SAFE WORK PROCEDURE
Locating City Owned Lines**

7. PROCEDURE

- Request has been received internally, from Sask 1st Call or Contractor.
- Request is forwarded on to Utilities Foreman or his designate
- Gather the maps/drawings for the area to have locates completed and bring to site
- Check location site for possible hazards
- View maps/drawings for sanitary lines, storm sewer and water lines and mains as well as abandoned lines
- Locate all street valve tops, manhole tops (sanitary and storm) and catch basins
- Typically, by line of sight from valve to valve or manhole to manhole should most often be line location. Refer to maps drawings to ensure all valve and manholes are counted for
- Check the catch basins for the direction of the drains
- Mark the water main and abandon water line with blue paint, the sanitary and storm lines in green, also the catch basin leads in green
- Locate the service connection/s curb boxes that are at or near the property line. Refer to the drawings to use the measurements and/or use a pin locator to locate the curb box, it might be buried.
- Expose the curb box top to verify what has been located. Sweep the area with the pin locator around the found curb box for any other curb boxes. Sometimes there is an abandoned curb box that hadn't been removed.
- If there are no drawings to indicate where the sewer and water lines common trench is, most often these lines are at right angles to the building and the mains. Mark these lines with blue and green paint or flags
- If there are irrigation lines, flag or paint these lines with purple
- When marking the area for our own excavation, mark the proposed excavation site with white paint
- Mark on the map where the lines have been located
- Provide Contractor or Sask 1st call Requestor with map and let them know services have been marked.

8. EMERGENCY PLANS

- IF AN ACCIDENT/INCIDENT OCCURS WITH INJURIES THAT ARE LIFE THREATENING OR SERIOUS CALL 911.
- If in doubt, contact your supervisor.
- Give your name, location, problem, and number of workers
- Do not leave the worker unattended unless your presence puts you in danger. Wait for help to arrive
- Observe the situation and prepare to give a report to the rescue personnel upon their arrival
- Assist rescue personnel as instructed
- Assist the Safety Coordinator in any subsequent investigation