

Excavations: Locating buried facilities

OHS information for employers, prime contractors and workers

This publication provides information about locating buried facilities prior to excavation, as specified in Part 32 of the Occupational Health and Safety Code (OHS Code).

KEY INFORMATION

- Employers must contact the owner of the buried facility or concrete-embedded facility prior to the start of work.
- The locations of buried facilities or concrete-embedded facilities must be visibly marked before excavation or concrete-removal activities begin.
- If a buried facility cannot be identified, located, and marked, a utility locating organization may be able to assist.

What is a buried facility?

As defined in the OHS Code, a buried facility is anything buried or constructed below ground level respecting:

- electricity;
- communications;
- water;
- sewage;
- oil;
- gas; or
- other substances.

Buried facilities include (but are not limited to):

- pipes;
- conduits;
- ducts;
- cables;
- wires;
- valves;
- manholes;
- catch basins; and
- any attachments to these buried facilities.

The location of buried facilities in the area of an excavation must be visibly marked before excavation activities begin. The identification and marking of locations of buried facilities is called a “locate.”

Why is it important to locate buried facilities?

The risk of exposure to major hazards is higher for excavation activities near buried facilities. Contacting or disturbing the ground in which a facility is buried may damage or even rupture it. Rupturing a natural gas or oil pipeline can cause an explosion or fire, while damage to a high-voltage electrical cable can cause electrical flash, fire, or electrocution.

WHAT ABOUT BURIED FACILITIES ENCASED IN CONCRETE?

Sometimes buried facilities are embedded in concrete to prevent damage. These may include conduit or utility lines placed under a parking area, roadway or sidewalk. Despite being encased in concrete, all locate requirements still apply.

Who needs to be notified?

Before disturbing ground or removing existing concrete, employers must contact the buried facility's owner (or designate), advise them of the proposed work, and ask the owner to identify and mark the location of the buried facility. The ground cannot be disturbed and concrete cannot be removed until all buried or concrete-embedded facilities have been identified and their locations marked.

The operator or licensee of a pipeline right-of-way must be contacted if the ground disturbance is to take place within that pipeline right-of-way. The owner or licensee's approval must be obtained before any ground disturbance begins. If a pipeline is exposed during a work operation, the employer must notify the pipeline operator or licensee before backfilling the excavation.

If a buried facility cannot be identified, located, and marked, a utility locating organization may be able to assist.

Exceptions to establishment of locates

An employer can establish the locates without involvement of the facility owner if:

- as-built record drawings (which must be certified by the owner as being the most current drawings of record) are available showing the constructed locations of the buried and concrete-embedded facilities; and

- the planned work meets both of the following criteria:
 - Excavation or removal of the soil, ground or existing concrete is not required.
 - Ground penetration is to a depth of one metre or less, or penetration of existing concrete is to a depth of 150 millimetres or less.

Notifying workers of hazards

After the locates of buried facilities in the excavation area are established, the employer must ensure workers are informed of the locate marks. The employer must also ensure steps are taken to re-establish the locate marks if they are destroyed by activities at the work site.

Exposing buried facilities

Hand digging

Employers must ensure that work with mechanical excavation equipment (such as powered drills, saws, and pressure washers) is not allowed within the hand expose zone until the buried facility has been visually exposed by:

- hand digging;
- a non-destructive technique acceptable to the owner (or designate) of the buried facility; or
- a method equivalent to either of the first two methods.

WHAT IS A “HAND EXPOSE ZONE”?

For all buried facilities except high-pressure pipelines, the “hand expose zone” is defined in the OHS Code as the strip of land one metre wide of each side of the buried facility’s locate marks.

For high-pressure pipelines, the hand expose zone is normally defined as five metres wide on each side of the locate marks. However, the hand expose zone can be reduced to one metre wide on each side of the locate marks if:

- the high-pressure pipeline is not governed by the *Pipeline Act*, and
- the employer obtains written approval from the pipeline’s owner.

Hand digging requires the use of hand tools. A “hand tool” is defined in the OHS Code as “hand-held equipment that depends on the energy of the worker for its direct effect and does not have a pneumatic, hydraulic, electrical or chemical energy source for its operation.”

Exceptions to hand digging

Hand digging to expose buried facilities is an important safety practice to protect workers from injury and reduce the

likelihood of facilities being damaged. However, mechanical excavation to expose buried facilities is allowed if doing so does not create a hazard and:

- the buried facility is an electrical cable or conduit that has been grounded and isolated so its disconnection is visible, and the owner is notified before the excavation begins; or
- the buried facility is not an electrical cable or conduit, is no longer in use, and the owner gives the employer written consent to excavate or remove it.

Pipelines

Employers must not allow mechanical excavation equipment to be used within 600 millimetres of a buried pipeline unless the equipment is used under the direct supervision of a representative of the pipeline owner.

Exception for emergency work

None of the above requirements in this bulletin’s “Exposing buried facilities” section apply if an employer, on behalf of an electric utility, does emergency work that:

- involves ground disturbance to a depth of no more than 500 millimetres below the ground;
- is on the horizontal alignment or right of way of an electric utility structure; and
- is determined by the employer to be in a location where no buried facilities are in the area affected by the work.

Maintaining safety once buried facilities are exposed

Employers must ensure any exposed buried facilities are protected and supported so workers are not injured.

Colours for buried facility marking

The marking of buried facilities in Alberta follows the Uniform Color Code introduced by the American Public Works Association. The colours used when marking buried facilities are as follows:

White	Limits of proposed excavation
Pink	Temporary survey marks
Red	Electric power lines, cables, conduits and ducts or lighting wires and cables
Yellow	Gas, oil, petroleum, steam or gaseous materials
Orange	Communications, telecommunications, alarm or signal lines, wires, cables, conduits or ducts
Blue	Potable water lines or pipes
Green	Sanitary sewer, storm sewer, culvert or drain lines
Purple	Irrigation, reclaimed water or slurry lines or pipes

Contact us

OHS Contact Centre

Anywhere in Alberta

- 1-866-415-8690

Edmonton and surrounding area

- 780-415-8690

Deaf or hard of hearing (TTY)

- 1-800-232-7215 (Alberta)

- 780-427-9999 (Edmonton)

Notify OHS of health and safety concerns

alberta.ca/file-complaint-online.aspx

Call the OHS Contact Centre if you have concerns that involve immediate danger to a person on a work site.

Report a workplace incident to OHS

alberta.ca/ohs-complaints-incidents.aspx

Website

alberta.ca/ohs

Get copies of the OHS Act, Regulation and Code

Alberta King's Printer

alberta.ca/alberta-kings-printer.aspx

OHS

alberta.ca/ohs-act-regulation-code.aspx

For more information

Excavations: Cutting back walls (EXCV001)

ohs-pubstore.labour.alberta.ca/excv001

Excavations: Temporary protective structures (EXCV002)

ohs-pubstore.labour.alberta.ca/excv022

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