



# Interim Guideline for Excavating in the Proximity of Underground Distribution Lines

Version 2.0

Ontario Regulation 22/04 Electrical Distribution Safety

Issue date: January 9, 2019

## Interim Guideline for Excavating in the Proximity of Underground Distribution Lines

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***This document is an Interim Guideline developed by ESA to temporarily replace the Guideline for Excavating in the Vicinity of Utility Lines.***

***A revised guideline for section 10 Proximity to Distribution Lines will be developed and will be posted on the ESA website when available.***

# Interim Guideline for Excavating in the Proximity of Underground Distribution Lines

## Definitions

**Abandoned distribution lines** means those *distribution lines* that have been identified by the *distributor* in the *locate* as abandoned.

**Blanket Locate** or **Alternate Locate Agreement** means permission to excavate, subject to the terms and conditions outlined by a written agreement between the *Excavator* and the *Distributor*.

**Boundary Limits** means the volume of soil contained by vertical planes placed 1.0 metre each side of the centre line of the marked *distribution line* or 1.0 metre on either side of the marked limits of an underground structure.

**Distribution line** means an electricity distribution line, transformers, plant or equipment used for conveying electricity at voltages of 50,000 volts or less.

**Distributor** means the individual, partnership, corporation, public agency, or other entity that is licensed to operate an electric distribution system under the *Ontario Energy Board Act*.

**Excavator** means the individual, partnership, corporation, public agency, or other entity that digs, bores, trenches, grades, excavates or breaks ground with mechanical equipment or explosives in the vicinity of a *distribution line*. This includes homeowners and other members of the public.

**Hand dig** means to excavate using a shovel with a wooden or insulated handle, not including picks, bars, stakes or other earth piercing devices.

\* *Note a locate is required for hand digging applications.*

**Hydrovac** means the use of pressurized water or compressed air to loosen soil and a vacuum system to remove it.

**Live** means electrically connected to a source of voltage difference or electrically charged so as to have a voltage different from that of the earth,

**Locate** means identification on the ground of the position of the *distribution line(s)* based on records or electronic locating equipment and includes provision of necessary documentation such as a locate sheet.

**Mechanical Excavation** means boring or open cut excavation by means of mechanical excavating equipment such as powered excavator, earth mover, and earth piercing equipment including hand held augers, picks, bars, stakes or any other device that may damage the *distribution line*.

\* *Note a locate is required for mechanical excavation applications.*

# Interim Guideline for Excavating in the Proximity of Underground Distribution Lines

## 1.0 General Conditions

- 1.1 All work shall be carried out in accordance with:
  - a) The Electricity Act, 1998 and the Ontario Regulation 22/04 Electrical Distribution Safety Regulation and other regulations which apply under this Act;
  - b) The Occupational Health and Safety Act (OH&S) and Regulations which apply under this Act including Regulations for Construction Projects; and
  - c) The Ontario Underground Infrastructure Notification System Act, 2012 and Regulations which apply under this Act.
  
- 1.2 The guidelines described herein are prepared to assist *distributors* and *excavators* in complying with Ontario Regulation 22/04 for the safety of the general public and workers who are carrying out the excavation in the vicinity of *distribution lines*, and for the prevention of damage to *distribution lines* owned by the *distributor*.

## 2.0 Locate Request

- 2.1 Prior to excavation the person responsible for the work shall obtain a *locate* as required by Ontario Regulation 22/04. (see Appendix 1- Section 10.3)
  
- 2.2 In order to obtain a *locate* in Ontario, the *excavator* shall contact “Ontario One Call” and request a *locate* of *distribution lines* in the areas where excavation will take place. The *excavator* must receive the *locate* prior to commencing any excavation.
  
- 2.3 When requesting a *locate*, the *excavator* shall provide Ontario One Call with the information required by Ontario One Call to complete the *locate* process.

### Contact Information for Ontario One Call:

Website: [www.on1call.com](http://www.on1call.com)

Telephone: 1-800-400-2255

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## 3.0 Locate Provision

- 3.1 The distributor shall provide the *locate* within a reasonable time.  
(see Appendix 1- Section 10.4)
- 3.2 Except in emergency situations, or where the response time for the *locate* request has been agreed to with the *excavator*, the *distributor* shall make every reasonable effort to respond to *locate* requests by providing *locates* within 4 working days of receiving the request.
- 3.3 The *distributor* shall mark the *locate* using methods as prescribed by Ontario One Call if available. Otherwise locate marking shall be completed as defined by best industry practices.
- 3.4 In emergency situations, the *distributor* shall follow the requirements prescribed by Ontario One Call for completing the *locates*.
- 3.5 When requested by either party, the *distributor* and the *excavator* shall meet on site to confirm details of the excavation and the location of the *distribution line*.
- 3.6 Where there are no *distribution lines* in the defined area of the proposed excavation the *distributor* may provide verbal confirmation to the *excavator*. Written confirmation shall be provided by the *distributor* on request.

## 4.0 Locate Expiration

- 4.1 The *distributor* shall indicate the length and conditions of the expiration period on the *locate* form or diagram and provide the *distributor's* contact information.
- 4.2 *Excavators* shall not rely on expired *locates*. Where delays occur beyond the expiry date or where the *locate* markings become unclear, a new *locate* must be requested by the *excavator*.
- 4.3 Where the *distributor* has ascertained that no changes have taken place since releasing the locate information and the *locate* markings are still clear, the *distributor* may provide a new expiry date in writing.

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## 5.0 Locate Boundaries and Accuracy

- 5.1 The *excavator* shall not excavate outside the area covered by the *locate* request without first obtaining a further *locate*.
- 5.2 *Locate* accuracy shall be considered to be 1 metre on either side of the surface centre line *locate* or 1 metre on either side of the marked limits of the underground structure, unless the *locate* instructions specifically indicate other *boundary limits*.

## 6.0 Initial Exposure

- 6.1 Where the proposed excavation is to be parallel and within the *boundary limits* of a *distribution line* the *excavator* shall initially expose the *distribution line* by *hand digging* a series of test holes along the entire route at regular intervals to determine the exact centre line and depth of cover of the *distribution line*. The separation between test holes shall not exceed 4.5 metres.
- 6.2 Where the proposed excavation is to be parallel and within the *boundary limits* of a *distribution line* the *excavator* shall not use *mechanical excavation* within the *boundary limits* of the *locate* without first hand digging test holes.
- 6.3 The *excavator* shall dig additional test holes if the *distributor* has identified changes in alignment or in elevation.
- 6.4 Where the *distribution line* cannot be located following the procedures described above, the *excavator* shall contact the *distributor* for assistance with the *locate*.

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### 7.0 Excavating After Test Holes Are Completed

- 7.1 Where test holes in an area have been completed and the *distribution line* located, *mechanical excavation* may take place provided the following conditions are met:
- mechanical excavating equipment shall be operated parallel to the direction of the *distribution line* when the excavation is within 1 metre of the *distribution line*;
  - mechanical excavation shall not be used closer than 0.3 metre (1 foot) in any direction to the *distribution line*;
  - excavation within 0.3 metre (1 foot) in any direction of the *distribution line* shall be carried out by *hand digging*;
- 7.2 With prior agreement of the *distributor*, *hydrovac* excavation may be used as an alternative to *hand digging*.
- (For detailed procedures for using *hydrovac* excavation in the vicinity of electric *distribution lines* see the IHSA Safe Practice Guide “Excavating with Hydrovacs in the Vicinity of Underground Electrical Plant.”)
- 7.3 Prior to initiating any blasting activities in proximity of *distribution lines* excavators shall obtain specific guidelines from the *distributors*.
- 7.4 Instructions for supporting *distribution lines* must be obtained from the *distributor*. The *excavator* shall install temporary support acceptable to the *distributor*.
- 7.5 Temporary support shall remain in place until the backfill material underneath the structure has cured or it has been compacted adequately to restore support.
- 7.6 An *excavator* shall not attempt to move a *distribution line* under any circumstances. Where such a need arises during excavation, the *excavator* shall contact the *distributor* to make the necessary arrangements.

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## 8.0 Backfilling Trenches

- 8.1 Where trenches are to be backfilled, the following requirements shall be followed:
- a) backfilling shall be performed in such a manner as to provide firm support under the *distribution lines*;
  - b) the trench shall be backfilled with clean fill or granular material free of material injurious to the *distribution lines*; and
  - c) backfilling shall be performed without using tamping equipment directly on exposed *distribution lines* and using extra caution around electric cable splices.

## 9.0 Unidentified and Abandoned Distribution Lines

- 9.1 Where a *distribution line* is found during excavation that was not identified by the *distributor*, but within the area covered by the *locate*, the *excavator* shall never assume the line is an *abandoned distribution line*. The *excavator* shall immediately contact the *distributor* as appropriate, to determine if the line is abandoned or *live*.
- 9.2 Excavations in the vicinity of *abandoned distribution lines* shall not be subject to the guidelines.

Note: In circumstances where a *locate* shows an *abandoned distribution line* the *distributor* shall clearly state on the *locate* form that the *distribution line* is abandoned.

## 10.0 Procedure When Damage Occurs

- 10.1 If damage to the *distribution line* occurs, including damage to the coating, the *excavator* shall leave the *distribution line* exposed, barricade the area and contact the *distributor* immediately.
- 10.2 If there are any flames or sparks originating from the exposed *distribution line*, the *excavator* shall barricade the area off, and keep public and workers away. Call 911 and the *distributor* immediately.
- 10.3 In no case shall the *excavator* attempt to control or make repairs to a damaged *distribution line* or equipment.



## 11.0 Complaints Process

- 11.1 ESA is independent of any other Regulator's requirements, enforcement policies, and dispute resolution processes. When addressing any complaints against a *distributor* or *excavator*, or resolving any disputes, ESA will first consider the requirements of Ontario Regulation 22/04. Any other applicable regulations, national standards or industry practices may also be considered in the ESA complaints process.
- 11.2 Any *distributor*, *excavator* or third party may log a complaint with ESA regarding Regulation 22/04 compliance. In order to log a complaint with ESA regarding the actions of another party, the complaint shall be submitted in writing to ESA at the following email: [utility.regulations@electricalsafety.on.ca](mailto:utility.regulations@electricalsafety.on.ca)
- 11.3 The complainant shall provide the following information:
- a) the name and contact information of the complainant;
  - b) identification of the other party or parties involved;
  - c) relevant dates and locations; and
  - d) a detailed description of the issue.
- 11.4 ESA will review the complaint, contact the parties involved if necessary and issue disciplinary actions as required.

## **Appendix 1**

### **Ontario Regulation 22/04 Electrical Distribution Safety**

#### **Section 10 - Proximity to Distribution Lines**

- (1) Despite section 5 of CSA Standard C22.3 No. 1-15 Overhead Systems, a person may place an object closer to an energized conductor forming part of a system of overhead distribution lines than the required minimum separations from energized conductors forming part of such a system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (1).
- (2) Despite sections 5 and 6 of CSA Standard C22.3 No. 7-15 Underground Systems, a person may place an object closer to an energized conductor forming part of a system of distribution lines than the required minimum separations from energized conductors forming part of such system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (2).
- (3) Before digging, boring, trenching, grading, excavating or breaking ground with tools, mechanical equipment or explosives, a Excavator, owner or occupant of land, buildings or premises shall, in the interests of safety, ascertain from the distributor responsible for the distribution of electricity to the land, building or premises the location of any distribution line that may be interfered with in the course of such activities. O. Reg. 22/04, s. 10 (3).
- (4) The distributor shall provide reasonable information with respect to the location of its distribution lines and associated plant within a reasonable time. O. Reg.22/04, s. 10 (4).