



Department of
Health and Safety

DEPARTMENT OF HEALTH & SAFETY

Trench Excavating on University Property

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Legislative reference: OH&S Regulations Part XVIII 405, 406, 407, 408, 409, 410, 411, 412, and 413.

1.0 OBJECTIVE:

- 1.1 To reduce the possibility of personal injury to University employees, student, members of the campus community, contract personnel, and visitors during trench excavating activities on University property.
- 1.2 To maximize project safety during trench excavating by developing a safety plan that will determine worksite protection and ensure compliance with appropriate Occupational Health and Safety Guidelines and Standards.

2.0 SCOPE:

- 2.1 This procedure will apply to Facilities Management grounds maintenance employees and contractors retained to do excavation work on University property.

3.0 RESPONSIBILITY:

- 3.1 The Buildings Services and Grounds Manager shall assume responsibility for the implementation of this procedure for emergency and routine service, maintenance, and repair activities requiring ground excavations undertaken by University and contract personnel coordinated through his office.
- 3.2 The Project Design and Drafting Office Coordinator shall assume responsibility for implementation of this procedure for excavation projects coordinated through his office.
- 3.3 Persons coordinating work with outside contractors shall ensure that contractors are aware and follow this procedure.
- 3.4 All University employees having occasion to perform excavation work on campus shall follow established procedures.

4.0 PROCEDURE:

Pre-excavation requirements

Before commencing excavation work with power tools or equipment in an area likely to have underground conduits, cables, or pipelines, the location of the service facilities shall be accurately determined.

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Powered equipment shall not be used in a manner that will expose workers to harmful effected results from the damage to service facilities.

Trees, boulders, or other matter located within 1.83 metres of the area to be excavated shall be removed before commencing excavation work.

A worker shall not be permitted or required to enter an excavation over 1.22 metres in depth unless:

- (a) the sides of the excavation are sloped to safe angle;
- (b) the sides have been secured by the use of sheet piling, shoring, and bracing; or
- (c) the workers are protected by other effective means.

If equipment or other heavy objects are located or operated close to the edge of excavations, if excavations are adjacent to or abutting buildings or other structures, or a hazard is created by vibration from nearby equipment or from passing vehicular traffic, the added loads shall be considered in the design of the support system.

Whenever there is danger of undermining adjacent foundations, excavation work shall be done in short sections, and the building walls shall be effectively shored or braced.

Excavation or access

When workers are required to enter excavations over 1.22 metres in depth, a ladder shall be provided in the immediate area where workers are employed and the ladder shall extend from the bottom of the excavation to at least 0.91 metres above the top of the excavation.

Walkways entering excavations:

- (a) shall be not less than 50.80 centimetres wide;
- (b) when over 1.22 metres above grade, shall be equipped with guardrails; and
- (c) when the grade is over 1 in 6, walkways shall be provided with cleats.

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Removal of material

Workers shall not allow excavated material to remain within 1.22 metres of the edge of a trench-type excavation nor within 1.52 metres of a pit-type excavation.

Where skips or buckets are used to remove material from excavations, horizontal shoring members shall be protected against dislodgement by the installation of vertical planking.

Faces and slopes

Where work is being carried on in excavations, the slopes shall be scaled and trimmed or otherwise stabilized to prevent slides of material or falls of rock. Overhanging banks and dangerous trees or stumps shall be removed and means shall be provided to prevent the dangerous erosion of slopes by surface water.

Excavation safety

Excavations shall be guarded by substantial railings or barriers to prevent workers falling into excavations.

Effective means shall be provided to prevent the accumulation of water in excavations.

4.1.0 Project Planning & Site Check

Prior to undertaking any excavation on campus, the person coordinating the project shall:

- 4.1.1 Initiate a site visit with appropriate personnel to determine general conditions which could impact project safety.
- 4.1.2 A project safety plan shall be prepared which will include appropriate safety considerations as outlined in O.H.S. Regulations 139, “Excavating” 87 “Power Line Hazards”, and the WHSCC “Trench Excavation Safety Guide”.

4.2.0 Trench Preparation

No worker is permitted in an excavation over 1.25 m in depth unless:

- 4.2.1 The sides of the excavation are sloped to a safe angle of repose (see “Trench Excavation Guide”);
- 4.2.2 The sides have been secured by the use of shoring or bracing; or

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- 4.2.3 Workers are protected by other means; for example, “Trench Box”.
- 4.2.4 Particular attention shall be given to type of soil encountered and the degree of water saturation in determining a safe angle of repose or the additional need for worker protection.

4.3.0 Safety Rules & Procedures

- 4.3.1 Due consideration shall be given to vehicular and pedestrian traffic in or adjacent to the excavation site and appropriate control measures initiated.
- 4.3.2 If underground utilities are indicated, appropriate measures shall be taken to accurately determine their location so as to avoid any unplanned contact with such utilities. Similarly, a safe working distance (5.5 m) shall be maintained from workers, excavating equipment, and overhead power lines.
- 4.3.3 If heavy objects are placed near the excavation or equipment is required to operate in close proximity to the excavation, attention shall be given to the extra weight and effects of vibration.
- 4.3.4 When workers are required to enter an excavation over 1.22 m in depth, an access ladder shall be provided which will extend (0.91 m) above the top of the excavation.
- 4.3.5 Excavated material shall not be piled within 1.22 m of the excavation edge.
- 4.3.6 Any overhanging banks or similar hazards shall be removed before any workers are permitted to enter an excavation.
- 4.3.7 All excavation projects shall be supervised by a supervisor aware of O.H.S. requirements for trench excavation.
- 4.3.8 Workers shall wear appropriate personal protective equipment; for example, hard hats, safety vests, safety footwear, while working in or around an excavation.
- 4.3.9 All excavations shall be adequately barricaded and marked so as not to represent a hazard to pedestrian or vehicular traffic. This is of particular importance if the excavation is to be left open and unattended overnight or for an extended period of time. Excavations along travelled roadways shall have flashing warning lights strategically placed around the excavation perimeter.
- 4.3.10 Additional safety precautions may be required as outlined under Health and Safety Guidelines and/or procedures or as special situations warrant

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