



EXCAVATION GUIDELINES

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1. Introduction

Excavation work can be dangerous and precautions must be taken when excavating a trench, tunnel or shaft. Before excavation work is carried out at the University a number of steps need to be completed to ensure the work is safe and without risk.

The Work Health and Safety Regulation 2011 NSW establishes specific requirements for working safely when conducting excavation work. This guideline details the risk controls to be adopted in accordance with the legislation.

2. Scope

This document outlines the requirements for the management of excavation at the University. This applies to any type of excavation, as per the definition, trenching and breaking ground at any University campus or premises.

This does not apply to areas or worksites where a construction project has a principal contractor appointed and the principal contractor has the responsibility for the worksite which is clearly defined and separated by a physical barrier. In this instance the principal contractor is responsible for ensuring that any excavation complies with the relevant regulations.

3. Definitions

Excavation	Excavation means a trench, tunnel or shaft.
Barrier	means a physical structure which blocks or impedes something such as hoarding.
Barricade	means any object or structure that creates a barrier obstacle to control, block passage or force the flow of traffic in the desired direction.
Backfill	means material used for refilling excavations.
Battering	means to form the face or side or wall of an excavation to an angle, usually less than the natural angle of repose, to prevent earth slippage.
Bench	means a horizontal step cut into the face or side or wall of an excavation to provide horizontal bearing and sliding resistance.
Benching	means the horizontal stepping of the face, side, or wall of an excavation.
Closed sheeting	means a continuous frame with vertical or horizontal sheathing planks placed side by side to form a continuous retaining wall supported by other members of a support system used to hold up the face of an excavation.
Competent person	means a person who has acquired through training, qualification or experience the knowledge and skills to carry out the task.
Exclusion zone	means an area from which all persons are excluded during excavation work.
Face	means an exposed sloping or vertical surface resulting from the excavation of material.
Geotechnical Engineer	means an engineer whose qualifications are acceptable for membership of the Institution of Engineers, Australia and who has qualifications and experience in soil stability and mechanics and excavation work.
Overburden	means the surface soil that must be moved away.
Safe slope	means the steepest slope at which an excavated face is stable against slips and slides, having regard to the qualities of the material

	in the face, the height of the face, the load above the face and the moisture conditions for the time being existing.
Shaft	means a vertical or inclined way or opening from the surface downwards or from any underground working, the dimensions of which (apart from the perimeter) are less than its depth.
Sheet piling	means vertical, close-spaced, or interlocking planks of steel, reinforced concrete or other structural material driven to form a continuous wall ahead of the excavation and supported either by tie-backs into solid ground structural members from within the excavation as the work proceeds.
Shoring	means the use of timber, steel or other structural material to support an excavation in order to prevent collapse so that construction can proceed.
Soldier	means vertical upright steel or timber element used for supporting a trench wall.
Strut	means structural member (usually horizontal) in compression resisting thrust or pressure from the face or faces of an excavation.
Tom	means structural member used to hold soldiers against a trench wall or to press walers apart in a close sheeted trench.
Trench	means a horizontal or inclined way or opening: „ the length of which is greater than its width and greater than or equal to its depth; and,, that commences at and extends below the surface of the ground; and,, that is open to the surface along its length.
Trench box	means a structure with four vertical side plates permanently braced apart by bracing designed to resist the pressure from the walls of a trench and capable of being moved as a unit.
Trench shield	means a steel or metal structure with two vertical side plates permanently braced apart by cross frames or struts designed to resist the pressure from the walls of a trench and capable of being moved as a unit.
Tunnel	means an underground passage or opening that is approximately horizontal and commences at the surface of the ground or an excavation.
Waler	means a horizontal steel or timber element used for supporting a trench wall.
Water scouring	means an erosion process resulting from the action of the flow of water.
Zone of influence	means the volume of soil around the excavation affected by any external load (for example vehicles, plant, excavated material).

4. Responsibilities

4.1. Permit Requestor

The responsibilities of the Permit Requestor are to:

- ensure the details of the task that are documented in the permit are accurate and true
- undertake the task that has been approved by the permit safely in accordance with the permit specifications
- provide the permit approver with a copies of any associated documentation including risk assessments
- seek immediate advice if circumstances or conditions change while undertaking work
- ensure safe systems of work are implemented as per [UOW Risk Management Guidelines](#) and [UOW Contractor WHS Guidelines](#).

4.2. Permit Approver

The responsibilities of the Permit Approver are to:

- ensure that the permit to work form has been suitably completed by the permit requestor
- authorise approval for work to be undertaken once satisfied that the permit requestor can complete the task safely
- monitor the work undertaken by the permit requestor, ensure duration times are adhered to and ensure risk assessments have been completed.
- sign off on the Completion of Work section of the permit after verifying that the work site has been left in a safe condition
- maintain records of work permits including associated documentation such as risk assessments.

4.3. UOW Representative

The UOW Representative is the designated person who engages a contractor to undertake the excavation work.

The responsibilities of the UOW Representative are to:

- Coordinate and manage the contract in accordance with UOW Contractor WHS Guidelines.
- Ensure that the contractor is aware of the UOW PTW system and excavation requirements and directed to the appropriate permit.

4.4. Managers and Supervisors

Managers and supervisors from UOW divisions that coordinate the PTW system must ensure that the requirements are implemented in their area.

4.5. WHS Unit

The WHS Unit shall:

- provide technical guidance on the application of the permit to work system
- evaluate and update the permit to work guidelines at the review period or as procedures change
- provide expertise and regulatory guidance to responsible persons
- develop and maintain a register of restricted access areas across the campus.

4.6. Principal Contractor

Under the WHS Regulation 2011 a Principal Contractor needs to be appointed for a construction project. A construction project is a project that involves construction work where the cost of construction is \$250,000 or more.

The principal contractor is responsible for ensuring that any excavation work complies with the relevant regulations.

5. Excavation Work Process

The University of Wollongong has controls surrounding excavation work. Any excavation work greater than 300mm requires the worker to:

1. Obtain an excavation permit including a risk assessment for the activities occurring, and
2. Have the permit signed and approved by a UOW Permit Authoriser.

The risk assessment process should be adopted to ensure hazards are identified and risks are controlled to avoid any incidents. Refer to the [Risk Management Guidelines](#) for further information.

6. Excavation Work

6.1. Issuing of a Permit

The permit requestor is to provide at least 24 hours notice of the proposed excavation work to apply for a permit. Emergency rectification works may necessitate the immediate need for a permit and as such 24 hours is not required. All relevant sections of the permit must be completed. Work extending over multiple permits requires communication and a handover of the relevant information pertaining to the job.

The permit and attached paperwork shall identify current underground essential services information about the areas proposed excavation. This may include essential services that use pipes, cables or other associated plant located underground.

The permit should also outline any other considerations in relation to proposed excavation work that may be affected by the excavation:

- a) the essential services that may be affected,
- b) the location, including the depth, of any pipes, cables or other plant associated with the affected essential services,
- c) any conditions on the proposed excavation work.

6.2. Trench Excavation

When there is a need to excavate a trench to a depth of 1.5m or more the

- work area shall be secured against unauthorised access and
- all sides of the trench are to be adequately supported by adequate shoring by shielding or other comparable means, benching or battering.

Sides of the trench do not have to be supported where there is written confirmation from a geotechnical engineer that all sides of the trench are safe from collapse in accordance with the regulation.

6.3. High Risk Construction Work

High risk construction work is any construction work (including any work connected with an 'excavation') that is carried out in or near:

- a shaft or trench with an excavated depth of greater than 1.5 metres, or
- a tunnel

6.4. Risk Assessment

A risk assessment shall be prepared, and attached to the permit, where there is a risk of:

- a person falling into an excavation,
- a person being trapped by the collapse of an excavation,
- a person working in an excavation being struck by a falling thing, or
- a person working in an excavation being exposed to an airborne contaminant.

6.5. Safe Work Method Statements and Safe Work Procedures

If the excavation work is or involves high risk construction work then a SWMS must be prepared before the high risk construction work starts.

The Safe Work Method Statement (SWMS) or Safe Work Procedure must:

- identify the type of high risk construction work being done
- specify the health and safety hazards and risks arising from that work
- describe how the risks will be controlled
- describe how the control measures will be implemented, monitored and reviewed, and

- be developed in consultation with workers and their representatives who are carrying out the high risk construction work.

6.6. Duration of Work

The duration of the work is to be noted in the permit and authorised by the Permit Approver. Any change to the duration period needs to be communicated and authorised by the Permit Approver through the completion of a new permit.

6.7. Cancellation

Where a permit has been written and is not required to be issued it is required to be marked as cancelled. The marking should include two diagonal lines across the page with the word 'cancelled' written in between. Cancelled permits will be retained by the Permit Approver for at least one year to facilitate the annual program review.

6.8. Authorisation

Excavation work may only commence after the appropriate permit has been completed and signed off by the Permit Approver. The Permit Approver needs to be satisfied that the Permit Requestor is capable of undertaking the work in accordance with the permit requirements and that all relevant sections of the permit have been completed before approving the work. Both the Permit Approver and the Permit Requestor will need to sign the permit in order to authorise the work.

Authorised Permit Approvers list can be found in the [Permit To Work Guidelines](#).

6.9. Work Completion

At the completion of the job, all tools, equipment and persons must be removed from the excavation site and the permit must be returned to the Permit Approver. The work area is to be made safe and tidy at completion of job and all waste removed.

7. Record keeping

Permits and associated documents such as safe work procedures and risk assessments are required to be stored and maintained as per the [WHS Document Control Guidelines](#) and [UOW Records Management Procedures](#).

8. Program Evaluation

In order to ensure that these guidelines continue to be effective and applicable to the University, the program will be regularly reviewed by the WHS Unit and Facilities Management Division.

Conditions which might warrant a review of the guidelines on a more frequent basis would include:

- Unauthorised entries
- Identification of a hazard not covered in a permit
- An injury or near miss resulting from an excavation work
- Detection of a condition prohibited by permit
- A change in the use/configuration of an excavation area
- Employee, safety committee or contractor concern.

Following completion of any review, the program will be revised / updated in order to correct any deficiencies before further entries are authorised. Any changes to the program will be communicated to all affected employees.

9. Related Documents

- [NSW WHS Act 2011](#)
- [NSW WHS Regulation 2011](#)
- [Excavation work: Code of practice](#)
- [Permit to Work Guidelines](#)
- [UOW Risk Management Guidelines](#)
- [UOW Incident Management and Reporting Guidelines](#)

10. Version Control

Version Control	Release Date	Author/Reviewer	Approved By	Amendment
1	December 2014	Daniel Leo WHS Advisor	Darren Smith WHS Manager	Document created
2	2016 May	Daniel Leo WHS Advisor	Darren Smith WHS Manager	Update broken links, rebrand, high risk construction work defined.