

1 Purpose:

To minimise the health and safety risks associated with excavation and trenching work. This Work Instruction applies to excavation work if an excavation formed by the work is (or will be) more than 1.5 m high when measured from the bottom of the excavation.

2 Objective:

To comply with regulatory standards and contractual requirements.

3 Target:

- No incidents, accidents or injuries associated with excavation and trenching work.

4 Controls:

a) Before any Excavation Work

Before any excavation work begins, an Excavation Permit must be completed and obtained by the work group. An Engineer responsible for the site must assess all site conditions and prepare and issue an Excavation Permit (FO 23 Excavation Permit), on the site conditions, safety precautions and any other areas of concern pertaining to the safety of personnel near or in the excavation.

In accordance with WHS Regulations 2012 Section 304, prior to all excavations taking place, current underground essential services information about the areas of, and adjacent to, the excavation must be obtained before directing or allowing the excavation work to commence. This information must be communicated to the workers carrying out the excavation work. This information must be held for 2 years, and be presented to the regulator when asked. This information shall be included in the Excavation Permit (FO 23 Excavation Permit).

A competent person must, at least once a day, carry out an inspection of the excavation to ensure that conditions at the site are safe and that the work is being performed in accordance with any engineers report (where applicable). A signed written record must be prepared of the inspection and kept on site until the completion of the excavation work. Use FO 24 Excavation Daily Inspection or FO 109 Daily Excavation Inspection (Weekly format) for the purpose or maintaining a record of daily inspections for excavations.

b) Working in Trenches

All trenches 1.5 metres or deeper are to be shored, battered or benched such that the depth of the vertical trench does not exceed 1.5 metres. In line with Regulation 306 shoring, benching or battering is not required when written advice has been received from a geotechnical engineer (as part of the FO23) confirming all side of the trench are safe from collapse (taking into account any conditions, other controls and timeliness recommended therein).

The above threshold may need to be reduced in circumstances where material type or work activity, raise the risk level. Where there is any doubt concerning the structural integrity of materials and a potential risk of trench collapse due to the nature of material (i.e. sand), appropriate engineering advice and implementation of safety controls are required to render work in the trench safe. This includes circumstances where work in a proposed trench, which may involve kneeling or lying, may

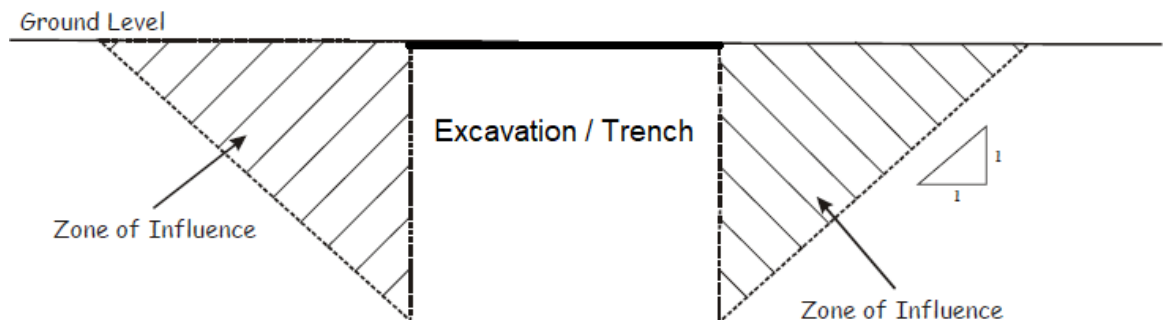
require lowering the safety threshold below 1.5m, requiring appropriate shoring, battering or benching which is in height intervals less than 1.5m, as recommended by a geotechnical engineer.

In line with the Office of the Federal Safety Commissioner, shoring systems must, be:

- designed by a qualified engineer;
- detailed on up-to-date drawings/plans;
- installed by competent persons and verified as correctly installed prior to use in accordance with the drawing/plan; and
- authorised and signed off by a qualified engineer where changes to the design or installed system are made.

All shoring must be installed and checked daily by a competent-experienced employee. When working in a shored trench do NOT go out of the shored area.

Plant, equipment and materials, including spoil, must NOT be placed or operated within 1.0 metre of the 'zone of influence' of excavations or trenches because this may result in a wall collapse.



Hard hats must be worn in all trenches and personnel should take note of any changes to soil condition, small slips or movement, stress cracks, increased water etc. and report these to their supervisor.

Personnel must also report any unusual smells or evidence of hidden services such as water/gas mains, electricity or glass fibre cables – do not dig around services unless authorised to do so by the supervisor.

Trenches are usually cramped work areas so it's important to use mechanical assistance or lifting equipment whenever possible, for example, when laying pipes, moving heavy or awkward equipment.

Any trenches or excavations must have appropriate warning signage erected and be barricaded off (Min 900mm height) to warn people of their location and to prevent accidental or unauthorised entry. Barriers that are not designed as edge protection must be set back a suitable distance from

the edge of the excavation. Where excavations are left open and there is a risk of public access, 1800mm high fencing or hoarding should be erected.

In addition suitable signs, barricades flashing lights etc. must be installed where there is vehicular traffic of night work. Signage shall conform to legislation, standards and codes.

As part of the SWMS development for excavation and working in trenches, consideration must be given to emergency situations, and a suitable emergency evacuation plan developed.

c) SWMS Development for working in Excavations/Trenches

Any construction work involving 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, is considered to be 'high risk construction work' and a Safe Work Method Statement (SWMS) must be authorised before carrying out the work.

A SWMS is to be developed for digging and working in excavations and trenches. Along with identifying and controlling relevant hazards associated with each step of the job, an Emergency & Rescue Procedure needs to be developed as part of the SWMS process.

Hazards commonly associated with excavation work:

- The fall or dislodgement of earth & rock
- The instability of the excavation or any adjoining structure
- The inrush or seepage of water
- Exposure to airborne contaminants above the safety threshold value
- Unplanned contact with services (electricity, water, gas, communications) (Refer to WI 34 Working Around Services).
- The placement of excavated material
- Falls into excavations
- The movement and positioning of heavy plant and equipment affecting the excavation
- Ground vibration affecting the stability of the excavation
- Vehicle movement
- Excessive noise from the operation of machinery
- Manual handling injuries
- Changes to excavation conditions

When the nature of the hazard and possible emergencies have been assessed and identified, some of the control measures may include:

- Development and communications of a warning system
- Development and communication of safe and rapid evacuation procedures, including injured persons
- Having trained personnel to oversee evacuation and rescue procedures until emergency authorities arrive
- Appropriate medical treatment and evacuation of injured persons
- Shutting down work in and around excavation
- Provision of firefighting and rescue equipment at appropriate locations

- Signage and physical barriers are put in place to prevent plant from getting dangerously close to an excavation.
- Obtaining geo-technical assessment to determine impact of excavation on surrounding structures. A dilapidation report may also be carried out.
- Where a geo-technical assessment identifies a threat to surrounding structures, temporary props are installed according to the relevant standards and codes.
- Display of evacuation procedures in appropriate locations at work site.

5 Permits/Licences:

FO 23 Excavation Work Permit

6 Emergency Response:

Emergency response plan to be developed as part of the Trenching/Excavation SWMS
FO 37 Safe Work Method Statement Sheet

The emergency response shall include (but not be limited by) the following potential emergency scenarios:

- flooding and water ingress;
- contact with hazardous services including electrical and gas;
- stability and collapse of excavation;
- fall from height;
- confined space and retrieval; and
- mobile plant rollover.

7 Program Inspection:

FO 24 Daily Excavation Inspection

FO 109 Daily Excavation Inspection (Week Format)

Site Health & Safety Inspection.

Scheduled inspections as per the Project Management Plan.

8 References:

Work, Health & Safety Act, SA 2012

Work, Health & Safety Regulations, SA 2012

COP under SA WHS Laws 2012:

Excavation Work

Demolition Work

How to Manage Work Health and Safety Risks

Managing the Work Environment and Facilities

Definitions:

Competent person: a person who has acquired through training, qualification or experience the knowledge and skills to carry out the task (SA WHS Regulations Chapter 1 Part 5.)

9 Forms:

[FO 37 Safe Work Method Statement Template](#)

[FO 23 Excavation Permit](#)

[FO 24 Daily Excavation Inspection](#)

[FO 109 Daily Excavation Inspection \(Weekly Format\)](#)

EXCAVATION & TRENCHING WORK

