PROCEDURE

Excavation Procedure

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3	Review	M Vorpagel	D McNeil	27.09.2019
Electronic approval by: **Name:** David McNeil **Position:** Operations Manager **Date:** 27.09.2019				

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1 PURPOSE

Define requirements for establishing and maintaining a safe work site for excavation and trenching work.

2 SCOPE

Reay Services Group employees and contractors who carry out excavation work or trenching work and people who may be exposed to hazards from the work.

3 DEFINITIONS

Backfill: Material used for refilling an excavation.

Battering: To excavate a hole or build an earth bank so that it forms a batter.

Barrier or Barricade: Includes all forms of permanent and temporary structures, devices and equipment designed to prevent access to or highlight risk or restricted areas.

Benching: To cut an excavation in steps to provide horizontal bearing and sliding resistance.

Low Risk Excavation: Excavation work in areas where:

- it has been confirmed there are no concealed services,
- ground penetrations are less than 300 mm deep.

4 RESPONSIBILITIES

All company Employees and Contractors are responsible for complying with the requirements of this procedure.

Refer to QMS-PRO-026 – Authority and Responsibilities Procedure for further details.

5 PROCEDURE

5.1 Risk Management

A risk assessment shall be conducted for the excavation prior to commencing the work.

Where an unstable condition is identified and the risk of collapse or cave-in is identified, advice shall be sought from a Geotechnical Engineer.

Where engineering controls, such as shoring, are selected as a suitable method of control, these shall be prepared by a competent person.

An Excavation Permit shall be completed for ground excavations, other than low risk excavations.

The risk assessment and Permit shall be revised if there has been a change in the excavation work design, working environment, working arrangements or work methods.

An excavation may become a confined space requiring a Confined Space Permit if deeper than 1.5m and poorly ventilated or subject to fumes or gases (from the earth, materials excavated, services broken into or excavating equipment). Refer WHS-PRO-015 Confined Space Procedure.

Overhead power lines near the excavation work shall be considered and specific control measures implemented to prevent contact, including specification of the required separation distance depending upon the voltage – refer to Site Electrical Safety requirements.

An agreed method of communication between Spotter and operator shall be agreed prior to work commencing (e.g. hand signals, two-way radio, combination etc).

The risk assessment shall address:

- the interaction between people and mobile plant, and
- emergency response.

5.2 Excavation Permit

With the exception of Low Risk Excavations, the Permit Issuer shall complete and authorise a Permit to Work WHS-FRM-008.

Where a Permit is required, a Spotter shall be assigned.

The validity period for any Permit to Work shall not exceed 7 days.
The Permit to Work shall be revalidated when the work team changes or when environmental conditions change.

Upon completion of the job, the Permit to Work Receiver shall sign the completion section and return it to the Permit Issuer. The permit shall be retained as a record for three months or until the completion of the project, whichever is longer.

5.3 Underground Services

Several days before excavation, the Dial Before You Dig service shall be contacted (phone 1100 or online at www.1100.com.au).

Location and depth of services, even when provided by Dial Before You Dig or indicated on drawings and plans, shall be positively determined by physical inspection or detection equipment.

Before starting work, location and depth of known services in the work area shall be marked out:

- on a copy of site plans, drawings or other suitable documentation, and
- on the ground in marking paint.

If underground services are known or likely to exist, a Spotter shall be assigned to look out for the presence of underground services during excavation.

Excavation within 500mm of a known underground service shall be carefully carried out by hand (mechanical excavating equipment shall not be used).

Where the location of underground services cannot be verified with detection equipment, the trench shall be hand-dug or pot-holed.

When pot-holing for services, progress in 50-100mm layers and observe ground conditions for signs of nearing services (such as change of soil type, coloured tape, bricks, concrete, sand, wire lines or traces).

Once the underground service has been located and exposed, an excavator may be used to dig within 300 mm on either side of the service if:

- approved by the Permit Issuer, and
- there is a Spotter present.

5.4 Isolation

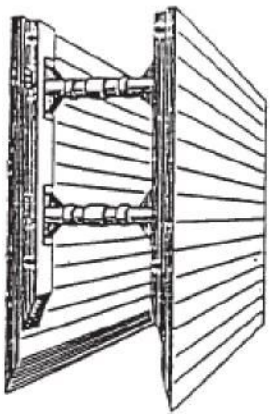
Where practicable, potentially hazardous underground services shall be de-energised or isolated before and during excavation work.

If isolation is not practicable, measures shall be taken to protect hazardous underground services from impact and damage by using protective sheets, boards or other hard barriers.

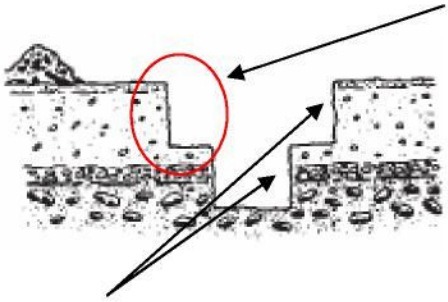
5.5 Prevention of Collapse

Shoring, benching, battering or other support structures shall be installed if a person is required to work in or near an excavation deeper than 1m.

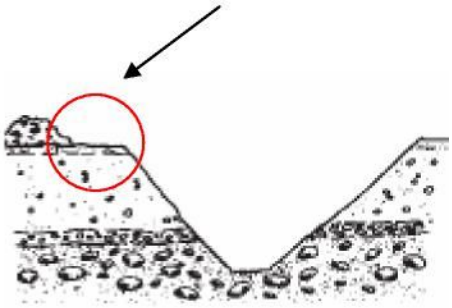
- If benched or stepped, no bench shall be higher than it is wide and none shall be higher than 1 m .
- If battered, the angle shall not be more than 45 degrees from horizontal and the batter shall not be higher than 1m from the bottom of the excavation.



Trench



Shields Benching



Battering

- The design of the shores or other support structures shall take into account the planned location of spoil.
- If a person is working in an excavation more than 1m deep, at least one other person as Spotter shall be in the immediate vicinity.
- When working within an excavation, no one shall be within 5m of the working area of the excavation machinery.
- Spoil shall not be placed closer than 600mm to the edge of the trench.

5.6 Prevention of Excavated Materials or Objects Falling into Excavations

- The face of the spoil pile shall be kept at a safe slope.
- Plant, equipment and other loads shall be placed at a distance of at least 600mm from the edge of the excavation, or as specified in the design of shores, shields or other support structures.

5.7 Prevention of Falls into Excavations

- People shall be protected by barricades, coverings or other isolation devices.
- Where practicable, barricades and signs shall be at least 2m from the excavation edge.
- Materials, other than spoil, should be stored away from the excavation to prevent materials inadvertently falling into the excavation.
- Outside working hours, if an excavation is to be left unattended and access by the other site personnel is possible, it shall be secured by barricades or securely covered.
- Where practicable the excavation shall be backfilled progressively.

Excavations shall be signposted with danger signs, example:

If there is not enough light, excavations shall be illuminated so the barricades and warning signs can be seen.

Ladders, ramps or other forms of entry and exit shall be provided at intervals of not more than 9m for trenches more than 1m deep when occupied.

If adjacent structures or buildings may be affected by excavation work, advice shall be sought from an appropriately qualified engineer.

5.8 Backfill

Excavations should be dewatered prior to backfilling. Coating damage is to be repaired and inspected. The backfill should be selected material approved by the authorised person, be compacted in such a way that will not damage the pipeline, coating, or cable and ensure settlement does not result in subsidence.

If required, replace top soil and grass on top of excavation to ensure rapid rehabilitation, comply with site rehabilitation procedures and plans.

5.9 Environmental Controls

- Excavation work shall be carried out to minimise environmental impacts.
- If there is a risk of water coming in or flooding, dewatering facilities shall be provided.
- Potential sources of ambient dust (excavation, access routes, and transfer points) shall be assessed and appropriate control measures implemented.
- Disposal of topsoil and spoil shall be according to local waste management requirements.
- Controls for soil erosion, sediment control and the prevention of contamination to the surrounding environment shall be implemented.

5.10 Inspections

The excavation shall be regularly monitored for signs of failure including:

- shoring components not secure or failing,
- angle of batter remains sufficient to prevent collapse,
- premature removal of shoring,
- workers in excavations venturing outside the confines of shoring, benching or battering,
- cracks appearing near the edge of an excavation,
- excavated and other material being placed next to the excavation,
- machinery operating next to excavations causing weight and vibration influences,
- surface soil falling into the excavation,
- water seeping into excavations from its side walls or base,
- changes to soil or weather conditions, and
- unsafe access or egress.

5.11 Completion of work

- The work site shall be as far as practicable returned to its original condition.
- Where contractually required, the client shall be advised of the location, arrangement, depths and services installed.

6 REFERENCE DOCUMENTATION

WHS-PRO-015 Confined Space Procedure
WHS-FRM-008 Permit to Work