

Excavation and Penetration Procedure

Health & Safety

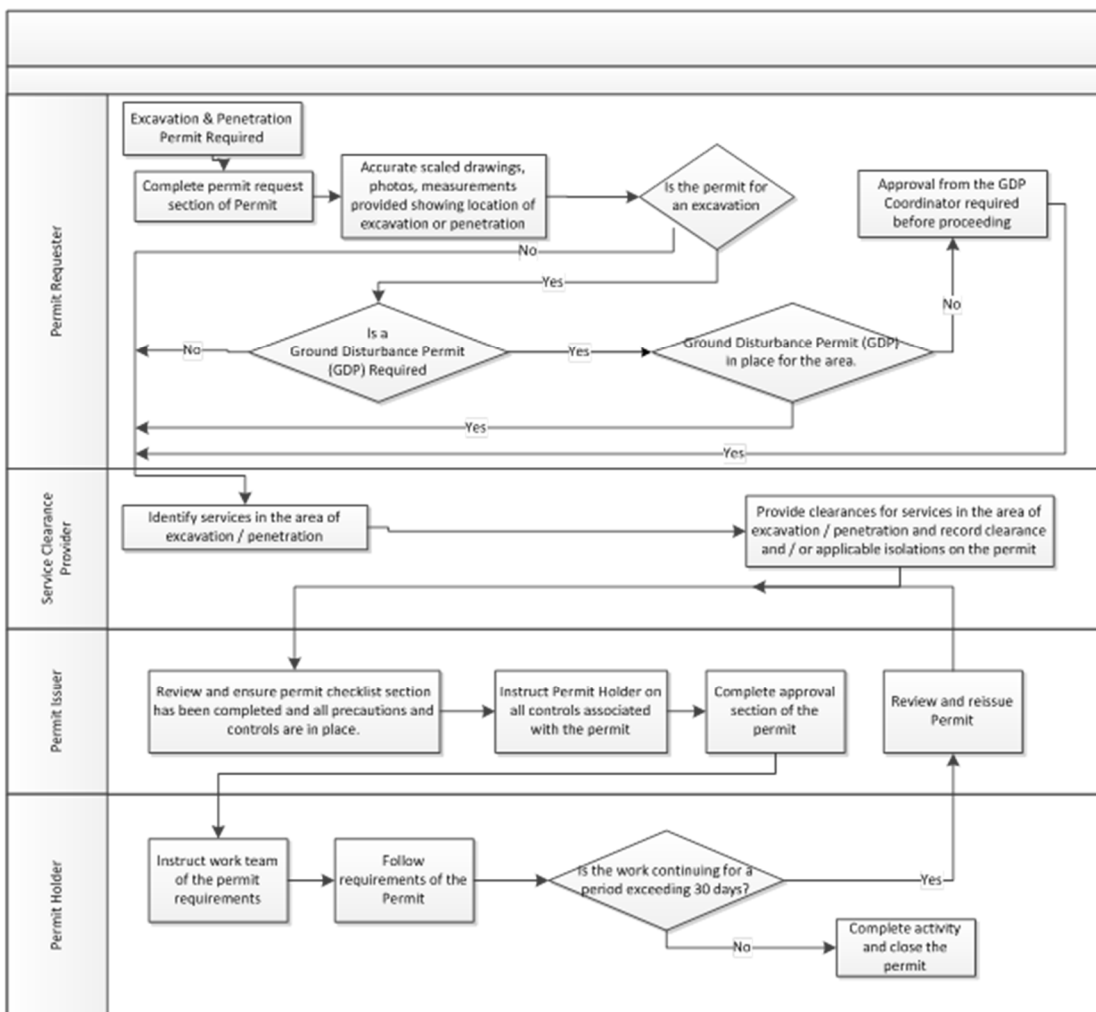
1 Purpose and scope

The purpose of this Procedure is to provide a safe system of work to enable excavations and penetrations to be undertaken without endangering personal or damaging property through unplanned contact with services.

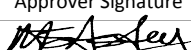
This Excavation and Penetration Procedure provides mandatory requirements to support sustained conformance with the HSES Performance Standard 16 – Safety Process.

This Procedure applies to all persons entering Roy Hill operations, other workplaces or any area which Roy Hill has accountability.

1.1 Excavation and Penetration Flow Chart



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1.2 General Requirements

An Excavation and Penetration Permit shall be issued prior to any excavation or penetration activities being carried out.

Excavation includes and is not limited to any of the following:

- Drilling;
- Trenching;
- Levelling;
- Digging
- Driving of stakes/pegs into the ground.

Penetration is any activity that penetrates the integral surface of a building or structure including walls, floors and ceilings where the presence of services cannot be visually determined.

All excavation and penetration permit officers must be authorised in writing by the relevant Area Manager.

1.3 Excavation and Penetration Permit

An Excavation and Penetration Permit is required for any excavation and/or penetration activities.

An Excavation and Penetration Permit is not required:

- For normal operational mining activities within the mine pit, ROM pad, stockpiles etc.
- When digging by hand using a shovel or spade up to a depth of **200mm** where the presence of buried services is known; e.g. when replacing a sprinkler head, tending an established garden bed or fault finding.
- When driving light duty pegs into the ground to a depth of no more than **200mm**. Note – star pickets are not considered light duty.
- For penetrations in drywalls in domestic situations where it can be positively identified that no services exist within 300mm of the proposed penetration e.g. cabling, electrical fittings, taps and pipe work.

1.3.1 Raising an Excavation and Penetration Permit

The person responsible for the excavation or penetration activity shall be accountable for requesting the issue of an Excavation and Penetration Permit and the clearance of services

Accurate scaled drawings or drawings including accurate measurements should be supplied with all requests for Excavation and Penetration Permits by the person requesting the permit. On construction projects, only the most recent “as built” drawing shall be used as a reference, in conjunction with a physical site check.

If the excavation is to occur on previously uncleared ground the requestor is required to contact the Roy Hill GDP Coordinator ensure there is an approved Ground Disturbance Permit (GDP) in place for the area where the excavation is to take place. The GDP Coordinator can be contacted by email: rh.gdp@royhill.com.au.

A task specific Job Hazard Analysis (JHA) and/or approved Work Instruction (WIN) shall have been completed to ensure that hazards and risks are identified and controlled prior to the issuing of an Excavation and Penetration Permit and the commencement work.

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1.3.2 Clearances

The Department responsible for the service is accountable for providing the excavation and penetration clearances.

Only licensed electrical workers are permitted to identify and locate electrical services.

The cleared area of excavation or penetration shall be physically delineated in the field, prior to commencement of the excavation or penetration activities. For further information on delineation requirements refer to the Guarding, Barricading, Demarcation and Signage Procedure [OP-PRO-00993].

The service clearance provider shall record applicable isolations and precautions in the relevant section of the Excavation and Penetration Permit. Entries must be made for any services marked as Not Clear on the permit.

1.3.3 Issuing an Excavation and Penetration Permit

Only personnel who have been authorised in writing by the relevant Area Manager responsible for the work area are permitted to issue Excavation and Penetration Permits in the work location associated with the permit.

The person issuing the Excavation and Penetration Permit and the person receiving the permit (Permit Acceptor) shall not be the same person.

The Permit Officer shall ensure the Excavation and Penetration Permit is correctly completed and all the identified precautions, isolations and checklist items necessary to protect the services from damage are in place.

Excavation and Penetration Permits shall only be issued for a maximum period of 30 days. Where work is to continue for a period exceeding 30 days, the Excavation and Penetration Permit shall be reviewed by the Permit Officer to ensure circumstances have not changed. The permit may then be reissued for further periods not exceeding 30 days.

1.3.4 Working under an Excavation and Penetration Permit

The Permit Acceptor (Person Directly in Charge of the Work) is accountable to ensure all the requirements identified on the Excavation and Penetration Permit, JHA and/or WIN have been implemented.

The Permit Acceptor shall also:

- Instruct the persons involved in the Excavation/Penetration on the conditions and limits of the permit
- Maintain ground markings identifying the location of buried services.
- Keep the permit at the work place at all times while work covered by the permit is being performed.

Persons involved in the excavation or penetration work shall sign onto the Excavation and Penetration Permit in the space provided agreeing to comply with the permit, JHA and/or WIN conditions.

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1.3.5 Closing an Excavation and Penetration Permit

Prior to closing the Excavation and Penetration Permit, the Permit Acceptor shall ensure the following has been met:

- All work associated with the permit has been completed
- The work area and adjacent areas have been inspected and left in a safe condition
- Survey of all in-ground services completed prior to backfilling including RLs
- New or altered services have been identified and recorded.
- Completed as constructed data including all survey and mark up of any drawings properly recorded and provided to engineering services drawing office.
- All electronic data to be compliant with Roy Hill standards, including but not restricted to, Roy Hill Drafting Specification.

After confirmation of the above the Permit Acceptor shall sign and date the cancellation section of the Excavation and Penetration Permit. The completed permit shall be returned to the Permit Officer for record keeping.

1.4 Training, Competency and Awareness

Only trained and competent persons shall issue Excavation and Penetration Permits.

Persons who locate and identify the locations of services and issue excavation and penetration clearances shall also be trained in issuing Excavation and Penetration Permits.

Only persons assessed as trained and competent in Cable Location shall locate and identify the locations of services. The training should assess:

- competency in the use of location equipment to accurately locate cables that are both energised and de-energised as well as other metallic services
- the use of drawings to identify the location of services

1.4.1 Inductions

All personnel shall be made aware of the requirements for Excavation and Penetration permits during the induction process

2 Excavations Specific Requirements

Machine digging is not permitted within 1 metre either side of buried services unless approved by asset owner.

No excavation is allowed to be carried within the easement of a gas lateral pipeline, unless approved by the asset owner.

Access to open excavations shall be controlled in line with the requirements of Guarding, Barricading, Demarcation & Signage Procedure and, where the excavation is considered a confined space, Confined Space Entry Procedure [OP-PRO-00457].

No vibrating machines shall be used in or within close proximity to an open trench unless identified, via a risk assessment, as a low risk of causing trench wall subsidence.

Emergency Services shall be notified when excavation activities are likely to block emergency vehicle access.

Where excavations are carried out in a public road verge the responsible government body shall be notified.

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The Manager Wayside shall be contacted prior to the approval of any excavations within 15 metres either side of the rail Danger Zone.

No excavation shall be undertaken adjacent to structures where that excavation may lessen the structural integrity of that structure unless approved by a competent person.

All excavations where a person is required to enter shall be designed to meet the requirements of the Safe Work Australia Excavation Code of Practice and be fitted with effective means of access and egress.

No person shall enter an open trench more than 1.5m deep unless:

- Where the trench is classified as a confined space, a confined space permit and its requirements, including gas testing, is in place.
- The trench is fitted with a shielding system or shoring system
- The trench is benched not higher than it is wide and no vertical face exceeds 1.5 metres
- The trench is battered at an angle not exceeding 45° and the bottom vertical face does not exceed 1.5 metres
- Approved in writing by a civil engineer as safe to work in.
- There is a spotter in place to monitor the activity and ground conditions. The spotter shall also be able to raise the alarm in the event of an emergency.

Sides of excavations should be thoroughly inspected for stability and any signs of collapse:

- daily, prior to each shift and after interruption in work of more than one day;
- after every blasting operation;
- after an unexpected fall of ground;
- after substantial damage to supports;
- after a heavy rain;
- when boulder formations are encountered;
- Where vibrating machines have been used in close proximity.

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3 Definitions

Term	Definition
Danger Zone	The space within three metres of the nearest rail when measured horizontally and at any level above or below the rail when measured vertically, unless in a position of safety.
Excavation	Includes any of the following; drilling, trenching, levelling, digging and driving of stakes/pegs into the ground.
Excavation and Penetration Permit	A printed form used to control all excavations and penetrations initiated by or for Roy Hill.
Formwork	A temporary structure into which concrete is poured which defines its shape once cured.
Hand Digging	Digging by hand using a shovel or alternatively an electric demolition hammer e.g. Kango fitted with a spade bit. Digging by hand includes non-invasive digging techniques such as vacuum excavators. Note: Digging by hand does not involve the using a crowbar, pick or similarly pointed tools.
Machine Digging	Conducting excavations activities by hand using methods not defined as Hand Digging or alternatively using a machine e.g. backhoe.
Penetration	Penetration is any activity that penetrates the integral surface of a building or structure including walls, floors and ceilings where the presence of services cannot be visually determined.
Permit Officer	A person authorised in writing by the relevant Area Manager to issue permits
Services	Includes power cables, water pipes, drains, sewer pipes and systems, communications cables, fuel/oil pipes/tanks, gas lines and compressed air lines.
Shielding System	A structure that is able to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
Shoring System	A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Table 1: Definitions

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4 References and Associated Documents

Document Number	Title
OP-STD-00195	Health, Safety, Emergency and Security Performance Standards. Performance Standard 16 – Safety Processes.
OP-FRM-01259	Excavation and Penetration Permit
OP-PRO-00993	Guarding, Barricading, Demarcation & Signage Procedure
OP-PRO-00457	Confined Space Entry Procedure
	Bow Tie PH-04 Electrical Interactions
	Safe Work Australia Excavation Code Of Practice
	Main Roads (WA) Utility Providers Code of Practice for Western Australia
	Mines Safety and Inspection Regulations, 1996
	Occupational Safety and Health Regulations, 1996
OP-PRO-00355	Recording and Dissemination of Composite Services Information
OP-SPC-00049	Drafting Specification

Table 2: References and Associated Documents

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