Procedure

Excavation and Trenching Procedure

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1. Purpose

The purpose of this Procedure is to define Seqwater's process and controls for managing the risks associated with Excavation and Trenching work. Further guidance on managing the risks associated with excavation and trenching is available in the Excavation Work Code of Practice.

2. Scope

This procedure applies to all workers, including contractors, subcontractors, and visitors at Seqwater sites where excavation or trenching is occurring.

Exceptions:

Principal Contractors (PCs) follow their own health and safety systems. However, they **must still**:

- Follow Seqwater's Minimum Health, Safety and Environmental Requirements (GDE-00368), and
- Meet or exceed the goals in Seqwater's Critical Controls Handbook (MAN-00313).

Permit Requirements for PCs:

Principal Contractors **must use** Seqwater's Excavation and Trenching Permit (FRM-00413) when:

- Working at a Seqwater Water Treatment Plant (WTP) or Network site,
- Excavating within 5 metres of a Seqwater water mains/infrastructure,
- Or as instructed by the site owner or project manager.

3. What is the Risk?

The Hazard Identification and Risk Management Procedure (PRO-00657) must be followed to identify and manage and control the risks associated with excavation and trenching. When assessing excavation and trenching risks the following key hazards should be considered.

Hazard (potential to cause harm)	What's the risk
Contact with Services	Excavator strikes services causing damage to services infrastructure or injury to workers
Excavation Collapse - infrastructure	Excavation collapses causing damage to infrastructure that may injure workers
Excavation Collapse - engulfment	Excavation collapses while people are in it

Other hazards associated with risks may be identified throughout the Excavation process, therefore Seqwater workers may refer to the relevant procedures:

Hazard (potential to cause harm)	What's the Risk	Procedure to reference
Mobile Plant	An excavator is a type of mobile plant. Particularly consideration required around movement of workers around an operating excavator.	Safe Work with Plant Procedure (PRO-00867)
Heights/Falls	A deep excavation may create a risk for a worker falling into the excavation and injuring themselves.	Working at Heights Procedure (PRO-00015)
Overhead Power Lines	Exposure to High Voltage Electricity or Arc Flash/Blast should an excavator enter an exclusion zone for Overhead Power Lines	Electrical – High and Low Voltage Procedure (PRO-00006)
Confined Spaces	An excavation may become a confined space if it presents a risk of worker/s being exposed to an unsafe atmosphere, fire, explosion or engulfment due to conditions inside the excavation or trench.	Confined Space Management Procedure (PRO-00443)

3.1. SWMS Requirement

A Safe Work Method Statement (SWMS) is required for all excavation and trenching work completed on Seqwater sites.

Seqwater employees performing excavation work must use the Excavation Generic SWMS (RSK-00475) or Combined Generic SMWS (RSK-00481) when performing any excavation work.

4. Excavation Risk Controls

The hierarchy of controls must be used to identify the most appropriate risk control measure to manage the risks associated with excavation. The goal is to control the risks in the most effective way possible, starting with the most reliable and preventative measures. The hierarchy of control is structured as follows, from most to least effective:

Hierarchy of Controls	Example of possible risk control
Elimination (Highest level)	• Eliminate the requirement to undertake trenching work using directional tunnelling. • Use temporary fencing that does not require star pickets to be driven into the ground.
Substitution	• Replace the process, plant or equipment with an alternate i.e. use vacuum excavation instead of using an excavator or backhoe.

Hierarchy of Controls	Example of possible risk control
Isolation	• Isolate workers from hazards by installing barriers to separate pedestrians from excavation or trenching work. • Isolate buried services to protect workers from hazardous energies in the event of accidental contact.
Engineering	• Design or re-design the process, plant or equipment (i.e. utilising shoring equipment to protect workers in a trench).
Administrative	• Obtain and review site plans (where available) and contact Before You Dig Australia (BYDA) • Develop SWMS for undertaking tasks that involve excavation or trenching activities. • Erecting warning signage around the work area.
Personal Protective Equipment (PPE) (Lowest level control)	• Hard hat, gloves, safety goggles, protective clothing, etc.

4.1. Excavation and Trenching Permit

An Excavation and Trenching Permit (FRM-00413) must be completed for any excavation work on an Seqwater site including excavation work performed by Contractors or Principal Contractors:

- before commencing any excavation on a Seqwater WTP, Network Site or within 5 metres of Seqwater water mains/infrastructure
- before commencing excavation/trenching to a depth of 300mm or more on a greenfield site
- before a worker can enter any excavation or trench with a depth of 1.5 meters or more, or where there is a risk of engulfment due to poor ground condition

4.2. Site Assessment and Planning

When preparing for an excavation, the following controls must be considered.

4.2.1. Service identification

Critical Control - Positively identify all services within planned excavation area.

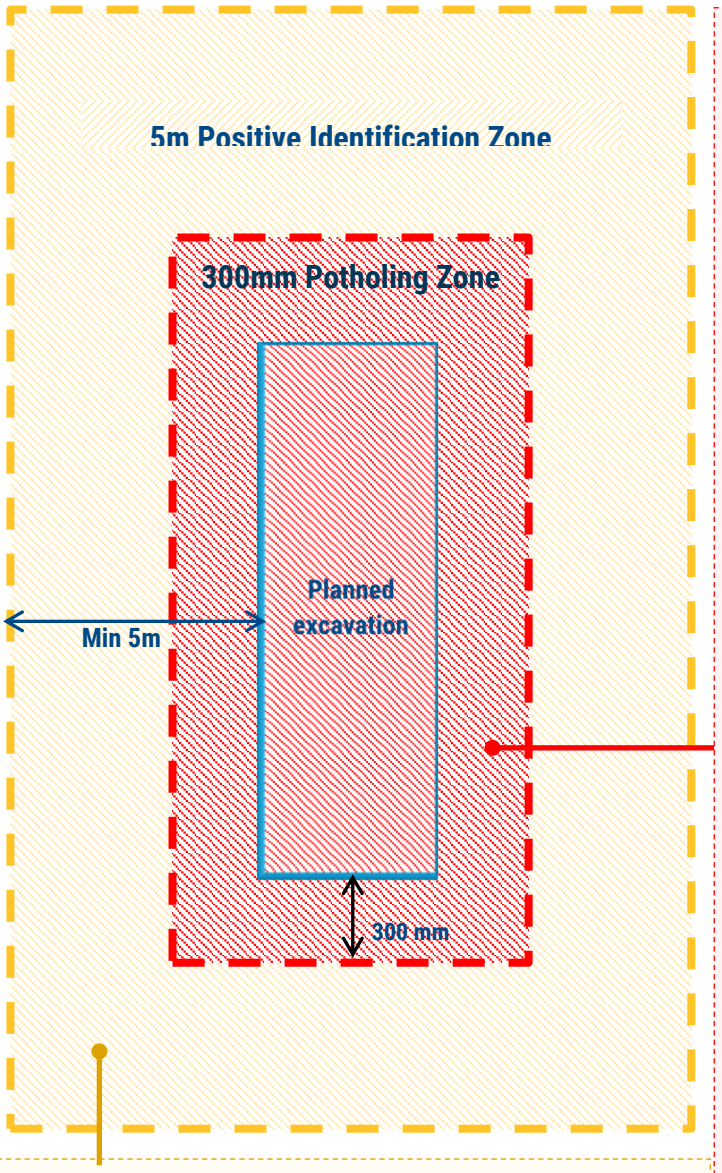
The objective of this control is to prevent mechanical disturbance of known and unknown underground services. For this control to be effective the following performance standards must be in place:

- Proof of dial-before-you-dig within the 28 days prior to the commencement of the excavation.
- GPR and / or EMF (cable locator) used to verify location of all known services within 5m of the planned excavation.
- Spray paint on ground (colour coded) indicating where service is - depth, direction and Mechanical No Dig Zone. (5m).
- Pot-hole markers every 5 metres (depth and direction) 5m.
- Any service encroaching within 300 mm verified by potholing (vacuum excavation or hand digging) with pot-hole markers every 3 metres (depth and direction).

- Further precautions inside the boundary of a WTP / Network site as identified in permit withhold point for precautionary measures.
- A dedicated spotter must be used for any excavation on a WTP, Network Site or within 5 metres of Seqwater water mains/infrastructure.
- At WTPs, Network Sites or 5 metres from a Seqwater water mains/infrastructure, a precautionary slit trench must be placed around the planned excavation area.
    - Consideration must be given where an excavation exceeds 1.8 metre depth of an additional slit trench using GPR or EMF where practicable.
- Precautionary investigation using GPR or EMF across the planned excavation
- Physical inspection of the planned excavation site and other visual indicators of underground services
- Isolation of all energy sources
- Consult with persons who have practical knowledge of underground services
- Review all relevant site plans and contact Before You Dig Australia (DBYD)

Refer to the below diagram for additional guidance on service identification:

Guidelines for Underground Service Location *(diagram not to scale)*



5m Positive Identification Zone:

Known services with potential to encroach within minimum **5 m** of the planned excavation must be positively identified using non-destructive methods and clearly marked on the ground for as long as they remain within the 5m radius.

Positive identification includes the use of non-destructive methods to verify the location, depth and direction of buried services (this includes verifying the exact point where service change direction or intersect). Such methods may include the use of vacuum excavation (max pressure of 2000psi), ground penetrating radar/technology, insulated prodder, cable locators or hand digging.

Once the location of services is confirmed, their location should be clearly marked on the ground using high visibility marking paint

Pothole markers (potholes should be dug and marked as per requirements (detailed right)

300mm Potholing Zone:

Any service encroaching within **300 mm** of the planned excavation must be visually verified by potholing (vacuum excavation or hand digging).

Unless services have been fully exposed within the planned excavation, potholing must be applied to the following minimum requirements:

- Multiple potholes must be dug to confirm depth and direction of each service;
- The exact point where services change direction or intersect must be visually verified;
- Above ground markers showing the type and depth of each service must be installed;
- Distance between potholes (and markers) should not exceed 3m on high risk sites[1] and 5m in other areas;
- Pressure setting of vacuum excavation device must not exceed 2000 psi.

Additional Precautions

The following additional precautions must be applied before commencing mechanical excavation on a Seqwater site

These precautions apply irrespective of whether plans/drawings have identified buried services near the planned excavation.

1. Precautionary slit trench around the perimeter of the planned excavation using non-destructive methods (recommended where practicable giving due regard to the scale of planned excavation).	To be applied: • Around the perimeter of the planned excavation; • To a depth at least equal to the lesser of the: - planned excavation; or - maximum range of the vacuum device (recommended min depth of 2 – 2.5m)
2. Precautionary investigation using ground penetrating radar / technology	To be applied: • In a continuous line along the planned excavation. • To a depth 300mm deeper than the planned excavation (or max range of detection device). • In a pattern that spans at least 300mm from all sides of the planned excavation.

If a new service is identified, it must be potholed as per above requirements.

The following actions must be taken should the performance standards not be met:

Pause Work	• Required to dig deeper than initial slit trench but can be managed locally. • If within boundary of WTP, perimeter slit trench has been attempted and/or conditions not practicable to proceed, permit hold point exemption approved by engaging officer's supervisor. • Service is identified to be wrapped with asbestos containing material. Service can be effectively isolated. • Markers are moved or shifted; services locations to be reassessed.
Stop Work	• Area is excavated without services located. • Service is identified to be wrapped with asbestos containing material. Service cannot be effectively isolated. • Service struck.

4.2.2. Isolation of HV electrical

Critical Control – Positively identify all HV electrical within 500mm of the planned excavation

The objective of this control is to de-energise identified HV, hazardous substance and high-pressure services within the planned excavation. For this control to be effective the following performance standards must be in place:

- Energy sources have been verified as isolated (with Isolation hardware / lock board / locks & tags in place) and entry team have locked on as per isolation instruction.
- Any built-up stored energy has been demonstrably released.
- Approved exemption and deviation (FRM-00795) for non-isolated HV (Voltages more than 1000 volts AC or 1500 volts ripple-free DC) - maintain Minimum approach distances (MAD).
- Positive and undistracted communication maintained with dedicated spotter is in place for all mechanical excavation at WTPs, Network sites or within 5 metres of a Seqwater water mains/infrastructure. (Scrapping sediment/sludge is exempt)

The following actions must be taken should the performance standards not be met:

Pause Work	• Positive and undistracted communication unable to be maintained with dedicated spotter for all mechanical excavation at a WTP, Network Site or within 5 metres of a Seqwater water mains/infrastructure. (Scrapping sediment/sludge is exempt)
Stop Work	• Area is identified as energised after beginning work. • Incorrect services isolated resulting in live services within excavation zone. • Isolation fails or is inadequate within excavation zone. • Services can't be confirmed isolated.

4.2.3. Environment and Cultural Heritage Impacts

The following environmental and cultural heritage hazards must be considered when assessing risks associated with Excavation and Trenching Work. Support is available from the Environment Team or Catchment, Land & Heritage Team.

In addition, an Environmental Permit or License may be required for some excavation work. The Small & Medium Scale Works Checklist (FRM-00649) must be completed prior to commencement of any works to support assessment of environmental risks.

Hazards to be considered	Risk Controls
Declared weeds	• Any plant or vehicle used for excavation or trenching must be cleaned and inspected to ensure all plant material and soil are removed before leaving the site.
Fire Ants	• All excavation or trenching activities, or movement of soil within or from a fire ant restricted area, must follow the Biosecurity Act 2014's general biosecurity obligations. • Before leaving an excavation or trenching site within a fire ant restricted area, all plant must be cleaned and inspected to ensure all soil is removed.
Soil Contamination	• When excavation or trenching occurs on contaminated land, a core soil sample must be collected and analysed to identify the type of contamination. • Contaminated soil cannot be removed from the site until a permit is obtained from the Department of Environment, Tourism, Science and Innovation (DETSI). • Soil contaminated with asbestos must be handled according to the Asbestos Management Procedure (PRO-01752).
Dust/Silica	• Use water trucks or water hoses to reduce dust generation • Where possible, use established roadways to move around excavation or trenching sites • Develop traffic management plans to restrict access to and control movement within the excavation and trenching site (including speed limits).
Acid Sulphate Soil	• Before undertaking excavation or trenching on land less than five meters above the Australian Height Datum (AHD), an assessment must be done to check for the presence of Actual Acid Sulphate Soil (AASS). • If AASS is found, appropriate controls must be put in place to manage the risks of disturbing the soil. Untreated AASS can only be disposed of at a landfill site.
Cultural Heritage	• A cultural heritage field assessment may be required according to the Seqwater Aboriginal Cultural Heritage Compliance Manual (MAN-00256) and the companion Aboriginal Cultural Heritage Field Guide (D14/18349). • If Aboriginal cultural heritage is found at the excavation or trenching site, work must stop immediately. Workers should consult these documents for guidance on how to proceed. They should also seek help from the Aboriginal Heritage Officer for advice, support, and to act as the point of contact with the Aboriginal Party for the area.
Sediment Run Off	• All disturbed soil must be managed to reduce the risk of sediment run-off entering drains, catchments and waterways or spreading across paths and roadways.

4.3. Excavation

Once excavation work has commenced, the following controls must be considered.

4.3.1. Edge protection

Critical Control - Edge protection is in place and compliant for work areas with a drop of greater than 1.5m

The objective of this control is to prevent a person from falling into an open excavation. For this control to be effective the following performance standards must be in place:

- Hard barricading that meets standards required (minimum 900mm above surrounding ground level, durable to withstand potential impacts of persons) is implemented on the edge of excavation OR soft barricading at least 2 meters from the edge of the excavation.
- All excavations should be backfilled overnight where practicable, if not practicable, hard barricading (i.e. fencing, suitable trafficable plates or other trafficable cover) is fixed in place to stop people accessing the excavation.
- Signage to warn people approaching the excavation (e.g. "Danger, Deep Excavation").
- Covers placed in high traffic areas and where an excavation or trench will be left open for 24 hours or more.

Workers must refer to the Barriers and Demarcation Procedure (PRO-02644) when selecting barricading.

The following actions must be taken should the performance standards not be met:

Pause Work	• No edge protection/adequate trench covers in place for excavations deeper than 1.5m but can be addressed with equipment on site. • Soft barricades located closer than 2m to unprotected excavation edge deeper than 1.5m.
Stop Work	• Implemented barriers do not withstand force from impact with person. • No edge protection/adequate trench covers in place for excavations deeper than 1.5m and cannot be addressed with equipment on site.

4.3.2. Prevention of Excavation or Trench Collapse

Critical Control - Excavations exceeding 1.5m depth are benched, battered, shored or verified stable by RPEQ engineer.

The objective of this control is to prevent excavation collapse. For this control to be effective the following performance standards must be in place (depending on method used to manage the risk of trench collapse):

- 1:1 benching (not exceeding 1.5m)
- 45-degree battering
- Shoring device in place
- Registered Professional Engineer Queensland (RPEQ) written approval confirming excavation stability

The following actions must be taken should the performance standards not be met:

Pause	• Ground conditions have changed, requiring re-assessment. • Benching has deteriorated, requiring re-assessment. • Benching angle is inadequate but can have shoring box implemented.
Stop	• Shoring device has failed. • Excavation/trench wall has collapsed.

4.3.3. Minimum separation distances from services

Critical Control - Minimum separation distances are maintained from all underground services

The objective of this control is to prevent contact with known services within the planned excavation. For this control to be effective the following performance standards must be in place:

- 500mm separation of ground penetrations from known live High Voltage services, with delineation/demarcation of no-dig zone marking both sides of the service
- 300mm separation of ground penetrations from all other known services (including high pressure water blasting services), with delineation/demarcation of no-dig zone marking both sides of the service
- Positive and undistracted communication maintained with dedicated spotter is in place for all mechanical excavation on at a WTP, Network Site or within 5 metres of a Seqwater water mains/infrastructure. (Scrapping sediment/sludge is exempt)
- If planned excavation is 'vacuum excavation', local knowledge inspection and discussion on whether sandwich construction PVC electrical conduit is potentially present.

The following actions must be taken should the performance standards not be met:

Pause Work	• While vacuum excavating around PVC electrical conduits – stop work if orange PVC discolours, turns white or becomes damaged. • Minimum separation distance is not maintained during dig; stop and reassess. • Delineation shifts, no longer clearly identifying location of service, and must be reassessed. • Delineation markers are not adequate or not visible – reassess prior to continuing work. • Communication between spotter and operator is inadequate – reassess prior to continuing work.
Stop Work	• Unidentified service located. • Minimum separation distance exceeded, with damage to services.

4.3.4. High Pressure Mains

Critical Control - No entry to an excavation with high pressure mains unless it is isolated, or a risk assessment is approved by the HSQ Team.

The objective of this control is to prevent worker exposure to high pressure or volume of ingressing water due to high pressure mains rupture

- High Pressure Mains positively identified and pressure of main verified
- Air Gap of at least 500mm around High Pressure Mains
- Isolation of high-pressure mains verified prior to workers entering trench.
- Controls approved by HSQ Team are fully implemented and verified as effective prior to workers entering trench if mains have not been isolated.

The following actions must be taken should the performance standards not be met:

Pause Work	• Pressure of the mains is unknown. Work should be stopped until pressure of mains is confirmed. • Controls approved by the HSQ are not implemented. Work should be stopped until controls are implemented.
Stop Work	• Workers have entered an excavation where mains pressure is greater than 6 bars, but there is no isolation in place, or no risk assessment approved by the HSQ.

4.3.5. Heavy Loads and Plant

Critical Control - Heavy loads and non-tracked plant are stable and positioned outside the 'zone of influence' of the excavation

- Ground conditions assessed prior to moving plant and equipment toward unsupported excavation
- Loads or equipment must be set a minimum distance away from the edge equal to the depth of the unsupported excavation/trench wall, unless a shoring box is in place.
- Excavation machine's tracks should not be in the zone of influence and must be orientated 90 degrees to the edge.
- Excavations are clear of persons when there is risk of plant or loads falling into the excavation (no persons in the line of fire).
- Mobile plant loads or equipment with rolling or slipping risk are chocked or fundamentally stable.

The following actions must be taken should the performance standards not be met:

Pause Work	• Excavating mobile plant tracks are not 90 degrees to excavation edge – rectify before continuing. • Loads or equipment other than the tracked excavating machine are within the zone of influence. • Person identified within excavation or trench when there is risk of plant or loads falling into the excavation • Equipment for chocking or other fundamentally stable methods is not functional or adequate, but alternatives are present on site
Stop Work	• Mobile plant, load or equipment has fallen into excavation. • Excavation has collapsed from weight of mobile plant, load or equipment.

4.4. Driving Objects into the Ground

- A SWMS is required for any work where an object is driven into the ground.
- An Excavation and Trenching Permit (FRM-00413) is required for work at a WTP, Network Site or within 5 metres of a Seqwater water mains/infrastructure. where an object is driven into the ground.
- Before driving objects into the ground at a WTP, Network Site or within 5 metres of a Seqwater water mains/infrastructure, identify any underground services by:
    - Reviewing site plans and Before you Dig Australia (DBYD) info.
    - Physically inspecting the worksite and asking locals about underground services.
    - Using non-destructive methods (vacuum excavation, radar, cable locators, etc.) to confirm the location of underground services within 5m of the work area.

    - Conducting potholing (using vacuum excavation or hand digging) for any services within 300mm of the work area.
- A 300mm distance must be maintained between the object being driven and any underground services.

4.5. Managing Updates to Drawings and Plans

When new underground services are installed, unknown services are identified or existing services are changed, the following steps must be followed:

- Trenching and Backfilling: Services must be buried in sand or soft soil without sharp stones.
- Marker Tape/Wire: Place color-coded marker tape or wire about 200mm above the service
- Update Plans: After excavation, update the site service information on the plans, including any new or modified "As Built" drawings. Follow Seqwater's Drawing and Spatial Data Standards (PRO-02187).
- Submit Drawings: Send the updated "As Built" drawings and supporting details to Seqwater's Standards and Specifications Team at engineering@seqwater.com.au.
- Unknown Services at Non-Seqwater Sites: If you find unknown services at a non-Seqwater site, notify the site owner if known. If the owner is unknown, contact Before You Dig Australia.

5. Third Party Excavations Near Seqwater Underground Assets

If a third party (not working for Seqwater) wants to do mechanical excavation within 5 meters of a Seqwater underground asset, they need to follow these steps:

1. Submit Documentation: The third party must send the following documents to consents@seqwater.com.au:

- A work methodology statement to assess risks like vibration and load impact on underground assets.
- A Safe Work Method Statement (SWMS) with controls to identify and protect Seqwater's underground assets. Minimum controls must include:
    - A review of all site plans, drawings, and Before You Dig Australia information for the excavation area.
    - A site inspection to check for visible signs of buried services and consult with people familiar with the Seqwater assets.
    - Visually verify Seqwater assets within 5 meters of the excavation by potholing (vacuum excavation or hand digging). Potholes should be no more than 5 meters apart, and if needed, reduce this distance to check for changes in the service depth or direction. If potholing isn't possible, other methods must be used to identify the assets, but potholing is required if the asset is within 300mm of the excavation.
    - Keep a minimum distance of 300mm from any buried Seqwater asset when using mechanical equipment like buckets or augers. If closer, non-destructive methods like vacuum excavation or hand digging must be used.

2. Approval and Access: After Seqwater reviews the work method and SWMS, the third party must manage site access using the Permit Access Safety System (PASS) Procedure (PRO-01820)

For more details on Seqwater's consent processes, refer to the Seqwater Engineering Standard D-GDE-STD-001 Seqwater Network Consent Guideline (GDE-00348)

6. Emergency Management

Site response to an incident must be planned and prepared for to Initiate initial rescue and first response by workers in the case of an incident.

A High Risk Work Rescue Plan (TEM-00027) must be developed if a worker will be entering an excavation or trench greater than 1.5 metres in depth or where there is a risk of engulfment due to poor ground conditions. Safe access to excavations and trenches must be considered. As a minimum, ladders must be placed every 9 meters, extending 1 meter above the edge.

7. Definitions

Term	Definitions
Battering	Where the wall of an excavation is sloped back to a predetermined angle.
Benching	The creation of stepped sides to an excavation, by forming a series of vertical and horizontal planes on either side of the excavation site.
Cable locator	An instrument used to locate underground cables, wiring and pipes. Cable locators can be used not only to locate the cabling but to estimate the depth of the wiring.
Contractor	The person conducting a business or undertaking appointed by Seqwater as a contractor for any works on a Seqwater site or location and given the management and control of the workplace at which the works will be carried out and who discharges the duties of a contractor under the Work Health Safety Act 2011 Qld and Work Health Safety Regulation 2011 (Qld). A contractor is to be appointed by Seqwater for works to the value of less than $250,000.
Digging	Any activity involving the use of hand tools to move soil or other materials. Digging does not include the digging or movement of material stockpiles, the digging of garden beds, cleaning of culverts around drains to the natural ground shape etc.
Excavation	A hole in the earth, or a face of earth, formed after rock, sand, soil or other material is removed e.g. a trench, ditch, well, tunnel, pier hole, cutting, caisson, cofferdam or a hole drilled in the earth. This includes driving objects into the ground such as stakes, star pickets or bollards.
Excavation Work	Work to make, fill or partly fill an excavation. This does not include a bore to which a relevant water law applies.

Term	Definitions
Greenfield site	Undeveloped land in a city or rural area either used for agriculture, landscape designs, or left to evolve naturally and which is free of services or contaminated soils. Where there is uncertainty regarding the classification of a worksite, the area should be treated as a WTP, Network Site or a site within 5 metres of a Seqwater water mains/infrastructure
Ground penetrating radar	A geophysical method that uses radar pulses to image the subsurface. This non-destructive method uses electromagnetic radiation in the microwave band (UHF/VHF frequencies) of the radio spectrum and detects the reflected signals from subsurface structures.
Mechanical excavation / digging	Excavation / digging undertaken using powered plant such as excavators, backhoes, directional drilling equipment, augers or similar attachments. It does not include the use of non-destructive methods such as vacuum excavation.
PASS	Permit Access Safety System – System used to monitor site access and works at Seqwater sites
Personal Protective Equipment (PPE)	Any clothing, equipment or substance designed to protect a person from risks of injury or illness.
Plant	Includes any machinery, equipment, appliance, container, implement and tool, and includes any component or anything fitted or connected to any of those things. Plant includes items as diverse as lifts, cranes, computers, machinery, conveyors, forklifts, vehicles, power tools, playground equipment and cathodic protection equipment. Plant that relies exclusively on manual power for its operation and is designed to be primarily supported by hand (e.g. a screwdriver) is not covered by the *Work Health and Safety Regulation 2011* (Qld). The general duty of care under the *Work Health and Safety Act 2011* (Qld) applies to this type of plant. Certain kinds of plant, such as forklifts, cranes and some pressure equipment, require a licence from the WHS regulator to operate and some high-risk plant must also be registered with the WHS regulator.
Potholing	The excavation of small areas of soil to locate underground services. Potholing is generally undertaken by hand, using vacuum excavation or other non-destructive methods.
Positive identification	Positive identification includes the use of non-destructive methods to confirm the location, depth and direction of underground services. Such methods include the use of vacuum excavation, ground penetrating radar/technology, insulated prodder, cable locators or hand digging.

Term	Definitions
Principal Contractor	The person conducting a business or undertaking appointed by Seqwater as the principal contractor for a construction project and given the management and control of the workplace at which the construction project will be carried out and who discharges the duties of the principal contractor under the *Work Health Safety Act 2011 Qld* and *Work Health Safety Regulation 2011 (Qld)*. A principal contractor is to be appointed by Seqwater for a construction project to the value of $250,000 or greater.
RPEQ Engineer (Registered Professional Engineer Queensland)	An engineer registered under the *Professional Engineers Act 2002 (Qld)* with the Board of Professional Engineers of Queensland. In relation to excavation advice, the person must hold a professional engineering qualification relevant to geo-technology.
Safe Work Method Statement (SWMS)	A SWMS sets out steps to enable supervisors, workers and any other persons at the workplace to understand the requirements that have been established to carry out the high-risk construction work in a safe and healthy manner. It sets out the work activities in a logical sequence and identifies hazards and describes control measures.
Shoring	A system of temporary supports and sheeting material used to maintain the stability of the sides of an excavation. Shoring may also be known as shielding.
Sine	Method of signing in to a Seqwater site electronically through a mobile app.
Spotter	A suitably qualified worker who is tasked with maintaining visual contact with equipment and its proximity to potential hazards, such as underground or overhead services, and providing immediate warnings to operators to prevent incidents or breaches of exclusion zones.
Trench or Trenching	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
Underground Service	A cable, pipe or other thing buried, laid or installed underground for the transmission, transportation or storage of electricity or a substance
Vacuum excavation	A means of soil extraction using a vacuum. Water or air jet devices are commonly used for breaking the soil to allow for extraction.

8. Roles and Responsibilities

Role	Responsibility
Catchment, Land & Heritage Team	• Provide advice, guidance and support on managing any biosecurity or cultural heritage risks.
Environment Team	• Provide advice, guidance and support on the management of any environmental risks associated with trenching or excavation work, including any requirements for environmental permits or licences.
Health, Safety and Quality Team	• Provide HSW support and advice to all Seqwater employees or representatives undertaking excavation, trenching or penetration work activities. • Undertake regular audits, inspections and safety observations of workers, PCs, contractors and sub-contractors.
Managers	• Complete workplace monitoring of excavation work activities within their area of responsibility to verify that identified hazards are being effectively managed and the requirements of this Procedure are being consistently complied with.
Permit Recipient	• Complete relevant sections of the Excavation and Trenching Permit (FRM-00413) This includes obtaining sign-off on 'hold points' as specified in permits before proceeding with work. • Select, document and implement appropriate risk controls prior to commencing any work that involves excavation, trenching or penetration. • Ensure all workers undertaking the task have read and understand the conditions of the relevant permit and any associated SWMS. • An Excavation and Trenching Permit (FRM-00413) may be used by Seqwater stakeholders to verify performance standards of contractors (not PCs).
Person with management or control of the excavation site (Works Coordinator)	• Take all reasonable steps to obtain current underground essential services' information relating to the workplace and areas adjacent to it before any excavation work starts and provide this information to any person engaged to carry out excavation work. • Develop and provide workers with a SWMS for high-risk excavation work. • Undertake a risk assessment in consultation with workers. • Identify and implement appropriate risk controls. • Provide information and instruction to all workers engaged in the excavation. • Secure the excavation work area from unauthorised access (including inadvertent entry). • Ensure regular inspections are completed of the excavation site for the duration of the excavation period • Develop a High Risk Work Rescue Plan (TEM-00027) for work to be undertaken if a worker will be entering an excavation or trench greater than

Role	Responsibility
	1.5 metres in depth or where there is a risk of engulfment due to poor ground conditions.
Principal Contractor	• Maintain a Safe Work Management that includes the management of excavation risk that delivers standards that align as a minimum with Seqwater standards as outlined in this Procedure • Use Seqwater Excavation and Trenching Permit
Spotter	• Monitor the excavation work so that services that have been positively identified are not impacted by the excavation work. • Ensure any exclusions zones that have been established are not breached. • Maintain clear communications with person operating excavation equipment at all times. • When a person is appointed as a spotter, they are not permitted to perform other duties at the same time.
Third Pary Works Team	• Provide advice, guidance and support on managing the risks associated with Third Pary excavations near any Seqwater services.
Workers	• Follow any instructions in relation to undertaking excavation, trenching or penetration work activities. • Request a worker, PC or contractor to stop work if there is an imminent risk to HSW, until that risk is eliminated or mitigated to an acceptable level as approved by the relevant manager. • Utilise a SWMS to identify and implement risk control measures prior to commencing any excavation, trenching or penetration work activities. • Wear and maintain Personal Protective Equipment (PPE) as per training and instruction.

9. Training and Competency

Requirement	Description	Refresher Timeframe	Target Audience
RIICPL401A - Apply the principles for the installation of underground service using open excavation	This unit covers the supervision for the installation of underground service using open excavation tasks in Civil Construction. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting for the installation of underground service using open excavation tasks are carried out in accordance with the accepted industry principles.	Nil	Seqwater employees who are supervising excavation works Seqwater employees who are performing excavation or trenching work at Seqwater sites
RIIRTM203E – Work as a Safety Observer/Spotter	This unit describes the skills and knowledge required to work safely as a safety observer/spotter in civil construction. This includes identifying and managing worksite hazards, establishing exclusion zones and observing work activities to monitor the safety of the work environment.	Two Years	Any Seqwater employees who are performing the role of spotter.

Contractors engaged by Seqwater to excavate on Seqwater sites must be able to demonstrate that:

- People performing excavation work completed RIIMPO320F - Conduct civil construction excavator operations or an equivalent qualification.
- Spotters have completed RIIRTM203E – Work as a Safety Observer/Spotter or an equivalent qualification.

10. References and Related Materials

10.1. Legal and other requirements

Description
Excavation Work Code of Practice

10.2. Seqwater documents

Description	Location
D14/18349 Aboriginal Cultural Heritage Field Guide	REX
ERP-00079 Emergency Preparedness and Response Procedure	REX
FRM-00413 Excavation and Trenching Permit Form	REX
FRM-00649 The Small & Medium Scale Works Checklist	REX
FRM-00795 Health, Safety and Wellbeing Management System Deviation Approval Form	REX
GDE-00348 Engineering Standard D-GDE-STD-001 Seqwater Network Consent Guideline	REX
GDE-00368 Principal Contractor Minimum Health, Safety and Environmental Requirements Guideline	REX
MAN-00313 Critical Control Handbook	
PRO-00006 Electrical – High and Low Voltage Procedure	REX
PRO-00015 Working at Heights Procedure	REX
PRO-00443 Confined Space Management Procedure	REX
PRO-00657 Hazard Identification and Risk Management Procedure	REX
PRO-00793 Incident Investigation Procedure	REX
PRO-00867 Safe Work with Plant Procedure	REX
PRO-01752 Asbestos Management Procedure	REX
PRO-01820 Permit Access Safety System (PASS) Procedure	REX
PRO-02187 Drawing and Spatial Data Standards (X-PRO-STD-007)	REX
PRO-02644 Barriers and Demarcation Procedure	REX
RSK-00475 Excavation Generic SWMS	REX
RSK-00481 Combined Generic SMWS	REX
TEM-00027 High Risk Work Rescue Plan Template	REX