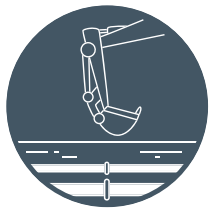


# Excavation

Excavation work commonly involves the removal of earth (e.g., soil or rock) from a site to form an open face, hole or cavity using hand tools or with mobile plant. This includes, trenches, shafts and tunnels. Excavation work also includes any ground penetrating activity below surface level.

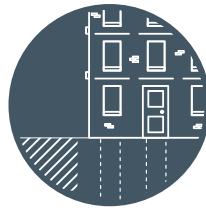
## Primary risks that may be encountered:



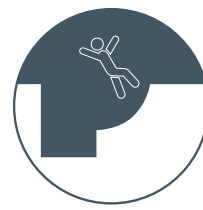
**Striking an underground service**



**Collapse of an excavation or trench**



**Undermining or collapse of a structure**



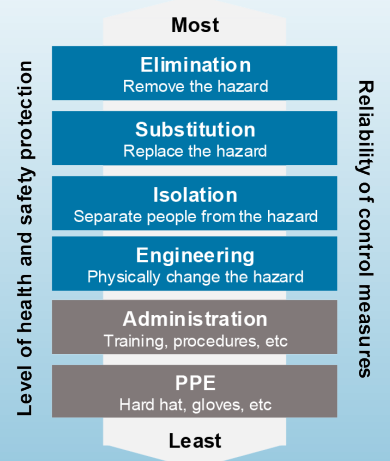
**A person or object falling into an excavation**

Additional hazards may be involved in excavation works, this could include mobile plant, work at heights, confined spaces, overhead services, contaminated land etc. These additional hazards and risks must be identified and controlled during planning as per FPA's HSE Management System.

## Planning

Prior to excavation works, the following must be completed:

- Determine whether the need to excavate can be eliminated
- Identify all services in the work area and document on a site services plan (ie., DBYD, service plans, visual inspection)
- Identify buildings and structures that may be impacted by the works
- Confirm emergency response procedures specific to the risks are documented
- Authorise an FPA Excavation Permit
- Review and accept the SWMS for the task
- Notify WorkSafe of excavation if not covered by a building permit (Victoria only)



## Control

The following control measures must be implemented when there is the potential of the risk being encountered. Additional controls must be documented in the SWMS.



### Striking an underground service

- Site services plan must be up to date
- Authorised excavation permit must be at the location of work (e.g., in cabin)
- All asset owner requirements must be complied with
- Known services within 5 meters of the planned excavation must be positively identified via nondestructive methods and physically marked
- A spotter must be present when excavating within 2 meters of a service (as a minimum)
- A minimum 500mm separation distance (or greater as per asset exclusion zone) must be maintained between any service and mechanical digging components.



### Collapse of an excavation or trench

- Excavations greater than 1.5m deep must be benched, battered, shored or shielded (or combination) to prevent collapse, unless certified in writing by a geotechnical engineer
- Excavations must be de-watered
- The zone of influence must be physically excluded (e.g., para-webbing)
- The storage or stockpiling of material must be located outside the zone of influence
- Mobile plant and equipment other than the excavator must remain outside the zone of influence



### A person or object falling into an excavation

- Safe entry and exit to the excavation must be provided by scaffold, ramps or ladders every 9m
- No items can be stored within 1m of the excavation edge
- Excavations must be backfilled as soon as reasonably practicable
- A hard barrier such as temporary fencing must be installed to prevent access by members of the public (this can be perimeter fencing around the entire site)
- A soft barrier such as para-web fencing must be installed 1m back from the top of benched or battered excavations
- When utilising trench shields or shoring system, they must be designed to extend 900mm above the top of the trench; or temporary edge protection (e.g., trench guardrails) installed
- For excavations greater than 1.5m a 'Danger - Deep Excavation' sign must be fixed to the selected barricading



### Undermining or collapse of a structure

- Excavations that could affect the stability of a structure or building must be assessed by a geotechnical engineer
- All controls determined by the engineer must be applied

## Monitoring

**The control measures for managing the risks associated with excavations must be inspected to ensure that they are correctly applied and are effectively managing the risk.**