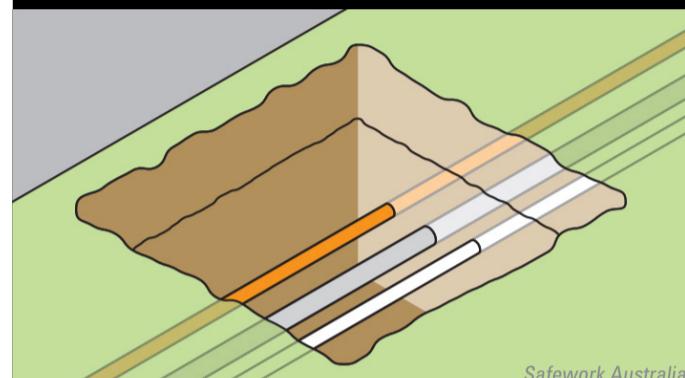


HYER STANDARDS

Ground Works

The Hansen Yuncken HYer Standards provide guidance on the minimum level of compliance expected for high risk activities on all projects.

Services



- Ensure a groundworks permit is issued prior to any ground penetrating or excavation works commencing
- Location of all essential services (underground, adjacent & overhead) are to be positively identified, and where possible, any services in close proximity to the excavation are to be isolated
- Essential services must be protected from mechanical damage

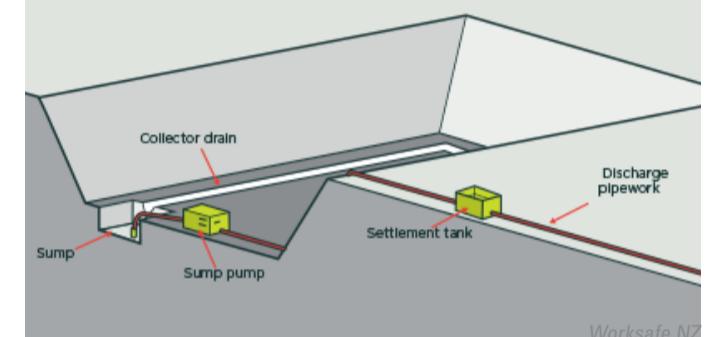
Preventing Instability



Safework Australia

- Controls to ensure the integrity of adjacent buildings/structures must be implemented and maintained (based on engineer's assessment)
- Geotechnical Engineer advice is required wherever there is risk of ground collapse
- Shoring and benching/battering must be implemented as per geotechnical design
- Regular inspections are to be conducted to confirm the excavation's integrity

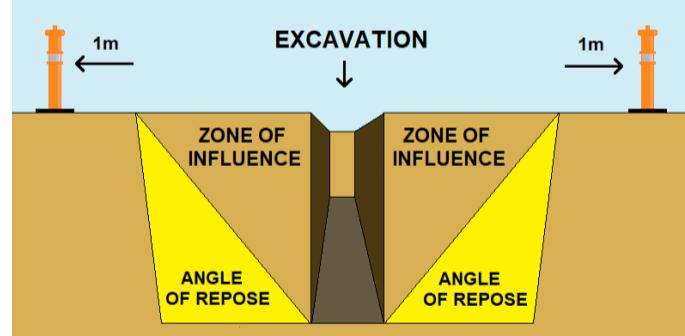
Ingress/Contamination



Worksafe NZ

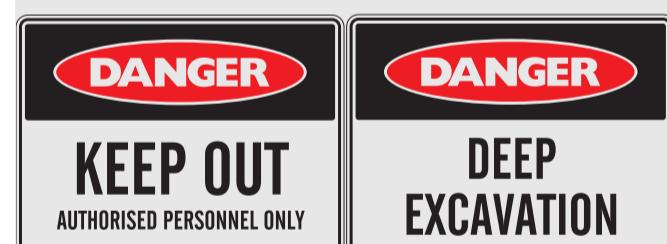
- Processes must be in place to manage contaminated spoil (e.g. asbestos, hydrocarbons etc.) including preventing exposure to workers
- Risk of atmospheric contamination in excavation must be identified and controlled (including build-up of gases and fumes)
- Possible water sources must be identified and controls are to be implemented

Working Near Excavations



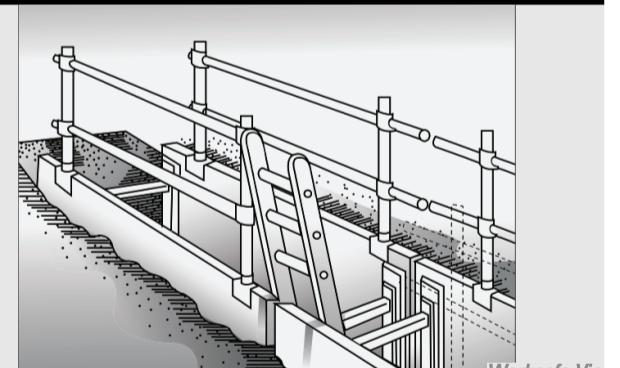
- Plant, materials, and spoil should be excluded from at least 1m beyond the 'zone of influence' of excavations (unless appropriate ground support systems are installed)
- Only plant, equipment, and materials contributing to the excavation works should enter the zone of influence
- Controls ensuring mobile plant maintains a safe distance from live services must be in place (including overhead power lines)
- Barriers are to be used in areas adjacent to excavations with frequent mobile plant or pedestrian movement

Establishing Work Zones



- Work zones preventing unauthorised access to excavation work areas are to be in place
- Site conditions and nature of works are to be considered to determine barrier type:
 - Bunting/flagging, or barrier mesh is suitable for excavations up to 1m deep
 - Crowd control barriers, water-filled barriers, or 1.8m high interlockable hard fencing required for excavations greater than 1m deep
- All barriers must have appropriate signage and be at least 1m from the edge of the excavation (regardless of depth)
- Excavations must be isolated and made safe when not in use and at the end of each day

Deep Excavations



Worksafe Vic

- Signage for excavations >1.5m deep stating "DANGER DEEP EXCAVATION" must be in place
- Safe access/egress into excavations deeper than 1.5m must be provided
- Controls preventing objects from falling on workers in deep excavations must be in place. Controls may include, but are not limited to:
 - Trench box sheets extending beyond the trench depth
 - Covers or guard rails and toe boards installed onto the top of the trench box sheets or into the ground at the top of the trench



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**GROUND WORKS
PROCEDURE**