


<b>STANDARD OPERATING INSTRUCTION</b>	<b>SOP-GVW-308</b>
<b>Working in Excavations – Trenches, and Shafts</b>	

## 1.0 Purpose

To detail the requirements for persons carrying out excavation works including: the excavation of trenches and shafts.

## 2.0 References

OH&S Act 1985; S 21

Code of Practice Safety Precautions in Trenching Operations 1988

## 3.0 Definitions

- Trench – opening whose length is greater than its depth and the width is less than its length.
- Shaft – any vertical opening whose dimension is less than its depth.
- Deep Excavation – means a trench which is deeper than 1.4 metres and a shaft deeper than 2.0 metres.
- Shallow Excavation – means a trench shallower than 1.4 metres and a shaft shallower than 2.0 metres.
- Excavation Supervisor – means a GVW employee who has been nominated by the District Manager to supervise trenching and excavation works after:
  - Completion of an accredited trenching and shoring course (or Mine Managers Certificate)
  - Demonstration of suitable experience in excavation works

## 4.0 Responsibilities and Authorities

### 4.1 DISTRICT MANAGER

- Monitor to ensure staff members are following appropriate excavation procedures.
- Ensure new staff members are provided with information regarding GVW's procedures for trenching.

<b>WORKING IN EXCAVATIONS – TRENCHES AND SHAFTS</b>		<b>Document: GVW-OH&amp;S-308</b>
Prepared: Luke Haines	January 2003	Page 1 of 6
Approved: Manager Operations – Bruce Anderson	August 2003	Final: 02
Modified By: Luke Haines	August 2003	Issue Date: 17 August 2003



- Hazardous Materials Hazards: working in confined spaces, exposure to welding gases, exposure to sealants, glues and solvents.
- Environmental Hazards: collapse of excavation walls

## 6.0 Training and Competency

- All deep excavations shall be supervised by an Excavation Supervisor who is required to be present at all times where persons are working in a deep excavation.
- All shallow excavations shall be supervised by a fully trained operator who has completed an accredited trenching and shoring course.
- All persons working in deep excavations shall have completed training in trenching and shoring.
- Operators of Loadshifting equipment including the following:
  - Front end loader / backhoe
  - Excavators
  - Dozers
  - Skid steer loaders
  - Draglines, cableways / flying foxes

Shall have completed and be issued with a qualification card issued by an accredited training provider, OR an equivalent licence (includes: a valid NSW Licence, Licence from another state, or old Victorian licence)

## 7.0 Procedure

### 7.1 General Requirements - All Excavations

- All persons on site (including those who may be inspecting or visiting) shall wear the following personal protective clothing and equipment:
  - Safety helmet (hard hat)
  - Safety footwear
  - High visibility vest for those working around mobile plant or near roadways.
- Where asbestos is present GVW's procedures for the safe removal and handling of asbestos shall be observed.
- Where an excavation is assessed as a confined space GVW's procedure, "Entry into Confined Spaces GVW-OH&S-305" shall be observed.

### 7.2 Shallow Excavations

<b>WORKING IN EXCAVATIONS – TRENCHES AND SHAFTS</b>		<b>Document: GVW-OH&amp;S-308</b>
Prepared: Luke Haines	January 2003	Page 3 of 6
Approved: Manager Operations – Bruce Anderson	August 2003	Final: 02
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- All shallow excavations must be supervised by a competent person (Site Supervisor) who has completed an accredited training course in trenching and shoring.
- All shallow excavations must be assessed for risks:
  - Where mobile plant is used to excavate a documented site safety assessment using GVW’s “Site Safety Risk Assessment and Record of Excavation Inspection” shall be carried out by the Site Supervisor.
  - Where hand excavation occurs an informal (does not need to be documented) risk assessment must be carried out. GVW’s “Site Safety Risk Assessment and Record of Excavation Inspection” may be used as a guide.

### 7.3 Deep Excavations

- All deep excavations must be supervised by an Excavation Supervisor
- The Excavation Supervisor shall notify the Victorian WorkCover Authority of any excavation deeper than 1.4 metres for trenches and 2.0 metres for shafts.
  - Planned works - notification is required to be provided 3 days before excavation works are carried out.
  - Emergency works – notification shall be provided as soon as possible after the works have commenced but must be within 24 hours of completion of the works.
- A current copy of the WorkSafe “Notice of Intention to Commence Excavation Operations in Trenches, Shafts and Tunnels” is available on Sharepoint ⇒ OH&S ⇒ Hazards ⇒ Trenching and Excavation
- A documented risk assessment shall be undertaken by the Excavation Supervisor before works commence using GVW’s “Site Safety Risk Assessment and Record of Excavation Inspection”.
- Operators shall not enter a deep excavation until the excavation supervisor has assessed the excavation as safe to enter.
- Ladders shall be provided and used for access and egress from all deep excavations. For long trenches additional ladders shall generally be required to be provided every 30 metres.
- Ground support systems or benching / battering shall always be used for deep excavations unless the Excavation Supervisor certifies that they are not required.

## 8.0 Appendices

- GVW’s “Site Safety Risk Assessment and Record of Excavation Inspection”.

<b>WORKING IN EXCAVATIONS – TRENCHES AND SHAFTS</b>		<b>Document: GVW-OH&amp;S-308</b>
Prepared: Luke Haines	January 2003	Page 4 of 6
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**SITE RISK ASSESSMENT AND RECORD OF EXCAVATION INSPECTION (QF:GVW-OH&S-308)**

Site Address / Location: ..... Date of works: .....

Type of Excavation: Trench  Shaft  Tunnel / Bore  Open Cut  WorkSafe Notified: Yes  No  N/A

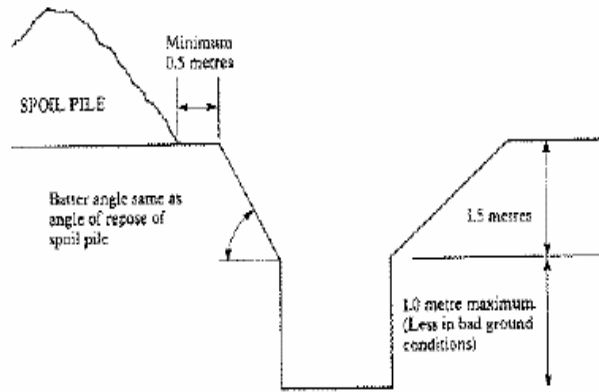
Excavation Depth: .....m Width: .....m Length: .....m

<b>Excavation / Trench Hazards</b> <b>Nature of Ground</b> Yes No N/A Clay(stiff, form, soft, greasy) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Shale <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Loam <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sandy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Rock <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Previous Excavations</b> Yes No N/A Other trenching works <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Old excavations <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Possibility of Flooding</b> Yes No N/A Storm water runoff <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Surface runoff <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Swamp/Dam/Reservoir/Lake <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Drains <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Water courses <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pumps required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Ground Vibration</b> Yes No N/A Other construction works <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Explosives used <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Heavy traffic <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Excavation machinery <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Close by  <b>Services Located Nearby</b> Yes No N/A Underground power <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Gas line <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Optic cable <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Telephone cable <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Dial B4 You Dig required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  Locator required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Type of Trench Protection</b> Yes No N/A Battering / Benching <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Trench shields <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Soldier sets and jacks <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sheeting <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> No support required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				<b>Mobile Plant Near Overhead Power Lines</b> Yes No N/A Plant working in No Go Zone <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pant working in Yellow Spotters Zone <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Plant working in Green Open Area zone <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Spotter required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Power Company Notified <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Permission from Power Company provided <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Complete below if working in No Go Zone</b> <b>Plant Information</b> Max reach of boom or bucket: .....m  Proposed working envelope for works: ▪ Height: .....m ▪ Extension:.....m ▪ Slewing width:.....m  Plant position from power lines: ▪ Directly below:.....m ▪ N/E/S/W:.....m  Estimate distance plant will be working from power lines: Vertical: .....m Horizontal: .....m  <b>Terrain</b> Yes No N/A Flat (no slope) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Minor Slope (10 degrees) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Severe Slope (10 – 20 degrees) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Weather Conditions</b> Yes No N/A No wind <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Slight wind <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Strong wind <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Gusty Unpredictable <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Name of Spotter:</b> .....				<b>Other Safety Controls</b> Yes No N/A Observer at top of trench <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Barricading required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Traffic signage required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Traffic management required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Entry to confined space <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Access ladder required <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Asbestos pipe removal <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Asbestos control plan completed <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Contractors Employed</b> Yes No N/A  Contractors Inducted <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Contractors licensed <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Contractors equipment Inspected & OK <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Personal Protective Equipment (PPE)</b> Yes No N/A  Hard hats <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Safety boots <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High visibility vests <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Fire extinguisher <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Gloves <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Respiratory Protection <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <b>Chemicals</b> Yes No N/A  Chemicals Used <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MSDS Provided <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Correct PPE provided <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
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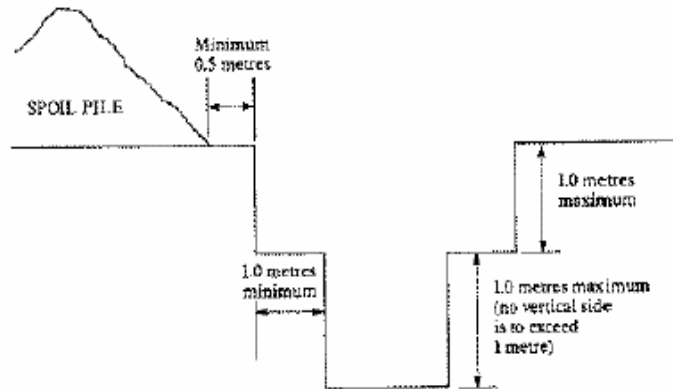
Site Inspection Record	Morning			Noon			Afternoon		
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
Excessive Water in Trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports Damaged / Over Stressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tension Cracks in Surrounding Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subsidence in Surrounding Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Undercutting of Trench Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vandalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PPE Being Worn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic Management / Signage in Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:.....

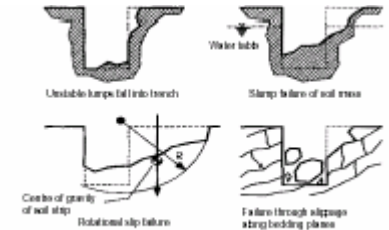
Signature of Foreman or Excavation Supervisor: ..... Date Completed: .....



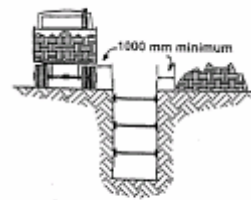
**BATTERING THE SIDES OF TRENCHES**  
**EXAMPLE 2.5 METRES DEEP IN STIFF CLAY**



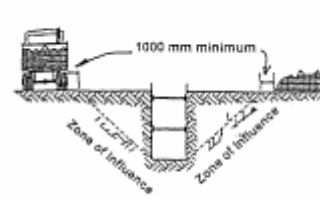
**STEP BATTERING VERTICAL SIDED TRENCHES**  
**EXAMPLE 2.0 METRES DEEP STIFF CLAY**



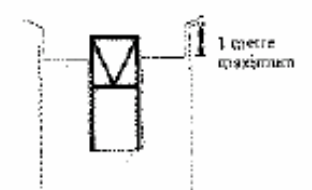
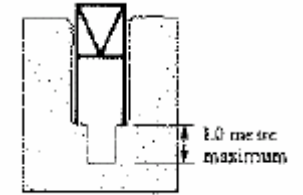
**Fig. 1 Soil failure modes.**



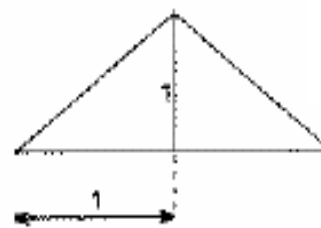
**5a. Shoring designed for surcharge loads**



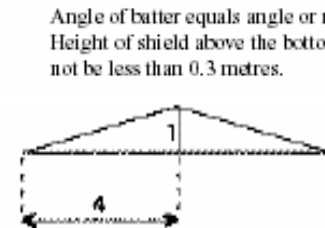
**5b. Shoring designed for soil loads only**



ROCEL  
 - Bruce



**Dry Clay**



**Wet Clay**

Angle of batter equals angle or repose of the spoil pile.  
 Height of shield above the bottom of the batter should not be less than 0.3 metres.

**Figure 22**  
**SHIELD IN STEP BATTERED TRENCH**