Stockpiles

Each stockpile on site is to be risk assessed by the site Temporary works Supervisor / Co-ordinator based on its potential to cause harm or damage.

The risks to be considered are:

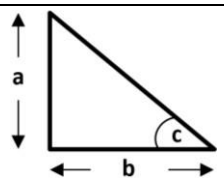
- Material used and the correct angle of repose / compaction of the slopes
- The height / size of the stockpile
- Duration the stockpile will be left in place
- Weather conditions that may affect the stability of the stockpile
- Ground conditions beneath the stockpile – S.I Report / Borehole logs / Groundwater details etc.
- Presence of services within loaded zone e.g., drainage, utilities, excavations etc.
- Presence of underground structures within proximity e.g., chambers, pits, basements, retaining walls etc.
- Prevention of unauthorised plant accessing the stockpile (Dumpers etc.)
- Stability of the stockpile when accessed by an Excavator to load lorries.

If any of the above pose an increased risk of collapse of the stockpile, then a temporary works design will be required.

Control Measures

The Temporary works Supervisor / Co-ordinator will plan the location of the stockpile taking into consideration the above risks and site programme.

The following angles of repose guide by material type is not to be exceeded:

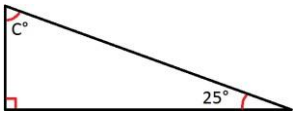
Material Stockpile Chart		
Material Type	**Angle of slope (c) not to be exceeded**	
Moist earth	50 degrees	For every 1m high (a) the distance of (b) must be a minimum of 0.8m to avoid exceeding the maximum slope of 50 degrees
Dry Clay / Rubble	45 degrees	For every 1m high (a) the distance of (b) must be a minimum of 1m to avoid exceeding the maximum slope of 45 degrees
Dry Sand	38 degrees	For every 1m high (a) the distance of (b) must be a minimum of 1.3m to avoid exceeding the maximum slope of 38 degrees

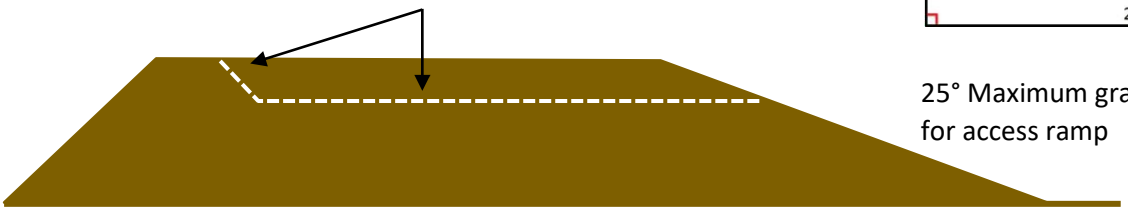
Where necessary (based on risk assessing the potential to cause harm or damage) an exclusion zone with barriers will be used.

All stockpiles to have 'No dumpers to access onto spoil heap AT ANY TIME' signage placed in a position that is clearly visible. Material to be tipped at ground level for the excavator to move/construct the stockpile.

Only Excavators and Dozers are allowed to form stockpiles, Excavators on completed stockpiles for the purpose of loading lorries. The Temporary works Supervisor / Co-ordinator will risk assess the stockpile before allowing the Excavator to access and work on the stockpile. Safe working gradients for Excavators & Dozers can be found in Risk Assessment RA027, access ramps are not to exceed 25°.

When accessing stockpiles with the excavator for loading lorries, excavator to form edge protection by reducing the spoil in the centre of the stockpile creating barriers on either side and end of stockpile.





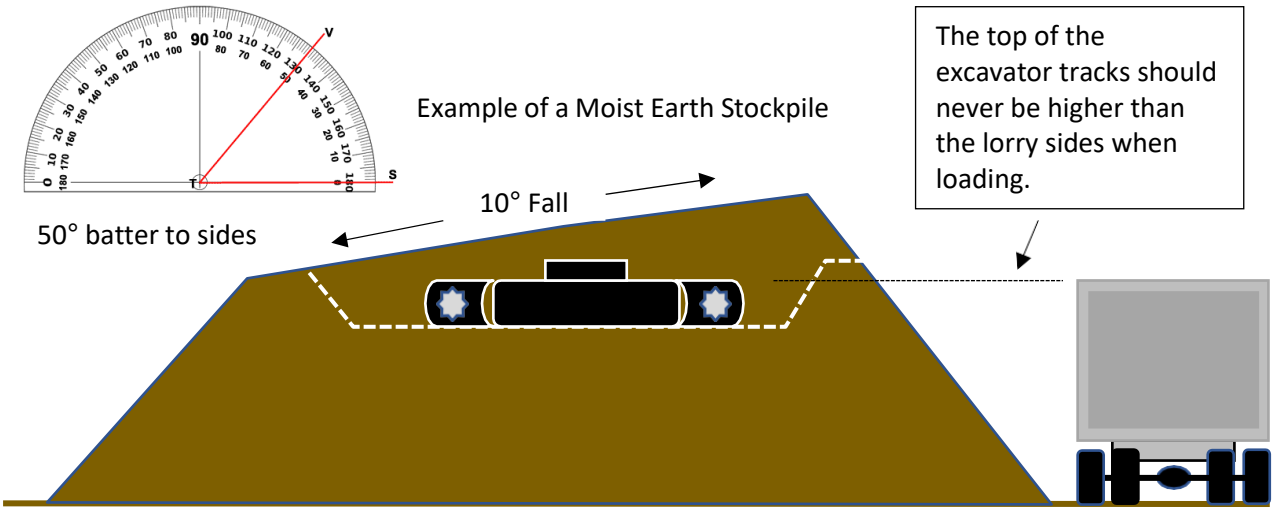
25° Maximum gradient for access ramp

Daily visual checks will be completed by the Temporary works Supervisor / Co-ordinator, weekly stockpile checks will be documented in the Temporary Works Register. Location of the stockpiles to be drawn on the TM plans and regularly updated.

There will be times where small stockpiles are accumulated and frequently moved due to the nature of our work, some of these will not need recording, the Temporary works Supervisor / Co-ordinator will however risk assess these requirements in line with the above control measures.

Environmental Impacts / Loading Lorries

When constructing stockpiles consideration of water run-off must be controlled. Below is a diagram of a stockpile of moist earth following the principals of the gradient chart (50° batter to sides) as well as water saturation / ponding prevention (10° fall across the stockpile).



To minimise the effects of spalling (earth coming away from the stockpile) the top and sides are to be compacted by the excavator bucket. Water run-off and silt protection to be controlled as per risk assessment of the local conditions / weather etc.

RA118 Control of Stockpiles			Rev: 1	RISK FACTOR
				0-9 LOW
Client:		Site:	Page: 1 of 2	10-15 MEDIUM
				16-25 HIGH

HAZARD	CONSEQUENCE	AT RISK		ASSESSMENT Severity x Probability = Risk Factor			CONTROL MEASURES	RESIDUAL RISK Severity x Probability = Risk Factor		
		PUBLIC	OPERATIVE	SEVERITY 0-5	PROBABILITY 0-5	RISK BEFORE		SEVERITY 0-5	PROBABILITY 0-5	RISK WITH CONTROLS
Location of Stockpile	Collapse, potential bearing / slip failure causing harm or damage		✓	5	5	25	TW Supervisor / Co-ordinator will review location of proposed stockpiles taking into consideration the S.I Report / Borehole logs / Groundwater details. Presence of underground structures and existing services within proximity of the proposed stockpile such as chambers, pits, basements, retaining walls, drainage, utilities and excavations.	5	1	5
Incorrect stockpile construction	Collapse, potential bearing / slip failure causing harm or damage		✓	5	5	25	The material used to form the stockpile will be assessed by the TW Supervisor / Co-ordinator using the 'material stockpile chart', the stockpile will then be formed using the appropriate angle of repose for that material.	5	1	5
Time the stockpile will be left in the location	Collapse, potential bearing / slip failure causing harm or damage		✓	5	5	25	If stockpiles are to be left longer than 1 week a weekly check will be carried out by the TW Supervisor / Co-ordinator for stability and documented in the TW Register. The TW Supervisor / Co-ordinator will assess any changes that may be caused by the weather that may alter the stability of the stockpile and re-risk assess if deemed necessary.	5	1	5
Unauthorised Plant accessing the stockpile	Plant tipping over causing harm or damage		✓	5	5	25	All stockpiles to have 'No dumpers to access onto spoil heap AT ANY TIME' signage placed in a position that is clearly visible. Dumpers / Dump Trucks to tip spoil at ground level where the excavator will be used to form the stockpile.	5	1	5
Excavators / Dozers accessing stockpiles	Plant tipping over causing harm or damage		✓	5	5	25	Only Excavators / Dozers to be allowed on stockpiles for the purpose of constructing the stockpile (Dozers & Excavators) and loading lorries (Excavators). Excavators to use spoil from stockpile to form edge protection (dig themselves in). The TW Supervisor / Co-ordinator will risk assess the stockpile before allowing the Excavator to access the stockpile for loading lorries. Top of excavator tracks must not exceed the height of the lorry when loading. See RA027 for maximum Plant gradients for access slope.	5	1	5

RA118 Control of Stockpiles		Rev: 1	RISK FACTOR
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Client:	Site:	Page: 2 of 2	10-15 MEDIUM
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HAZARD	CONSEQUENCE	AT RISK		ASSESSMENT Severity x Probability = Risk Factor			CONTROL MEASURES	RESIDUAL RISK Severity x Probability = Risk Factor		
		PUBLIC	OPERATIVE	SEVERITY 0-5	PROBABILITY 0-5	RISK BEFORE		SEVERITY 0-5	PROBABILITY 0-5	RISK WITH CONTROLS
Contaminated material stockpiles	Health issues from contact / dust pollution / run off to water sources	✓	✓	5	5	25	Contaminated material stockpiles to be sheeted and located away from water sources. Further control measures will be determined by the material contents and may require a separate assessment completed by a specialist contractor.	5	1	5
Topsoil stockpiles	Health issues from dust	✓	✓	3	4	12	During the summer / drier months topsoil stockpiles may require sheeting or dampening down with water to reduce dust entering the atmosphere.	3	1	3
Silt run off from stockpiles	Pollution of water courses	✓	✓	4	4	16	Stockpiles to be located away from water courses, gullies etc. All stockpiles to have the top and sides compacted to help water run off (10° gradient from top centre to each side). The need for silt protection to be assessed and used when necessary which may include silt fences/straw bales at the toe of the slope to reduce silt transport or collection of run-off into lagoons to allow suspended solids to settle before disposal.	4	1	4