

Earth Pressure Balance TBM Excavation - JSA - C

en-US · Supervision, records, handover · v1.0 · 2026-10-14 · Sources: article section 9

Site: | Item ID: | Work area:

1. Job details and team signatures

Date / time	Location / area			Assessor		Supervisor	
Team signatures							

2. Conditions and hold points

Stage	Time	Location / area	Environment / readings	Item / condition	Controls	Plant / tools	Approval / signature
HP-0 Start							
HP-1 Connect and commission							
HP-2 Launch and begin advance							
HP-3 Erect ring and grout							
HP-4 Transfer and approve restart							

Complete after actual checks. Recheck after changes, defects or shift handover.

3. JSA risk assessment

Job stage	Hazards and effects	Failure factors	Technical and procedural controls	Site verification	P	S	R	A
1. Ground and machine basis	1. Face-support loss 2. Launch inflow 3. Adjacent damage	1. Geology and water unresolved 2. TBM method copied 3. Alarm response undefined	1. Accept actual ground model 2. Use machine-specific envelope 3. Assign monitoring response owners	1. Ground and water records 2. Launch and reaction design 3. Alarm and response plan				
2. Underground readiness	1. Gas or fire exposure 2. Delayed evacuation 3. Missing worker count	1. Air controls incomplete 2. Communications untested 3. Entry tracking absent	1. Confirm required air controls 2. Test communication and escape 3. Maintain personnel accounting	1. Monitoring and ventilation 2. Communication and rescue readiness 3. Entry and exit records				
3. Production trend review	1. Ground loss 2. Excessive face pressure 3. Undiagnosed blockage	1. One gauge treated as proof 2. Records use different times 3. Settings changed by trial	1. Correlate operating and ground data 2. Align ring time and position 3. Escalate unexplained changes	1. Pressure thrust and muck 2. Ground and structure trends 3. Change reason and approver				
4. Ring acceptance	1. Segment release 2. Tail leakage 3. Unfilled support void	1. Erector release premature 2. Seal damage ignored 3. Grout data detached from ring	1. Enforce support-release sequence 2. Inspect joints and seals 3. Link backfill to ring identity	1. Segment and erection inspection 2. Seal connection and leakage 3. Ring-specific grout evidence				
5. Maintenance boundary	1. Unexpected movement 2. Loss of face support 3. Unapproved pressure entry	1. Stop accepted as isolation 2. Essential systems shut blindly 3. Chamber access treated as routine	1. Separate safe stop and isolation 2. Preserve required support systems 3. Require specialist entry procedure	1. Energy and access boundary 2. Support drainage and air 3. Entry limits and lead				
6. Shift and restart gate	1. Recurring alarm 2. Unresolved ground effect 3. Lost setting restriction	1. Verbal summary lacks location 2. Alarm history omitted 3. New settings not reviewed	1. Transfer linked trend history 2. Identify unresolved locations 3. Record bounded restart decision	1. Ring and time-linked actions 2. Open ground and plant holds 3. Settings owner and surveillance				

P/S/R/A: Complete only after actual site assessment using the site risk method.

4. Pre-work checklist

☐ Ground and water records	☐ Monitoring and ventilation	☐ Pressure thrust and muck
☐ Segment and erection inspection	☐ Energy and access boundary	☐ Ring and time-linked actions
☐ Alarm and response plan	☐ Ring-specific grout evidence	☐ Settings owner and surveillance