MRT

EARTH PRESSURE BALANCING, CUT AND COVER TUNNELING TECHNIQUE

AND

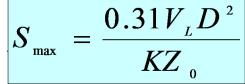
THE INDUCED SETTLEMENT







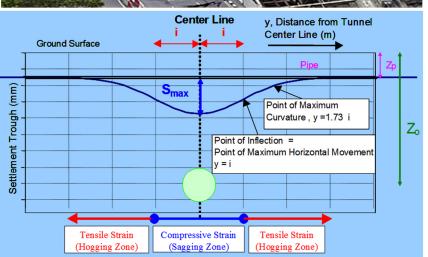




$$S_{v} = S_{\text{max}} e^{-\frac{y^2}{2i^2}}$$

$$S_h = \frac{y}{\left(Z_0 - Z_p\right)} S_v$$

$$\left| S_h \right| = \frac{y}{Z_0} S_v$$



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MRT EARTH PRESSURE BALANCING, CUT AND COVER TUNNELING TECHNIQUE AND THE INDUCED SETTLEMENT

NDU(CED SETTLEMENT T02-1
1.	MRT
	MRT tunneling
	Singapore MRT and LRT system
	Bangkok transit
	Taiwan transit
	Tokyo MRT
	Miami transit
	MRT tunneling between Kovan and Hougang
2.	Tunneling by Earth Pressure Balancing (EPB) Method T02-7
	Earth Pressure Balance shield machine
	The drilling process
	In the tunnel
3.	Tunneling Induced Ground Movement
	Settlement due to groundwater depression
	Settlement due to ground loss
	Transverse settlement through – circular tunnel
	Longitudinal settlement through – circular tunnel
	Case study on tunneling induced settlement
4.	Monitoring the Ground Movement
	Geotechnical instrument installed
	Monitoring data
	Settlement contour
5.	Criteria for Evaluating the Potential Damage to Utilities Induced by Tunneling. T02-37
	Transverse and longitudinal through
	The deformation of utilities
	Pipe damage criteria
6.	Building Construction above Existing Tunnel
7.	Tunneling below Existing Building
8.	Ground Improvement to Limit Soil Movement
	Jet grouting
	Deep mixing method
	Hybrid soil mixing
9.	Tunneling by Cut and Cover MethodT02-54
	Possible technical issues
	Non technical issues