



WORK INSTRUCTIONS FOR ENGINEERS

Compiled by : _____ LPT

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**OP-3-48. CHECKLIST FOR PULL OUT TEST
(ROCK BOLT)**

CHECKLIST FOR PULL OUT TEST (ROCK BOLT)

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No.	CHECKLIST ITEMS	CHECKED BY G&P GEOTECHNICS
1.0	TESTING SETUP	
1.1	Independent Reference Beam (IRB) [distance, rigid, IRB legs shall be firmly installed, not too close to the anchor head (minimum distance 1.0m)]	
1.2	Hydraulic Jack: i) Calibration: _____ ii) Serial no.: _____ iii) Technical Specs: _____ iv) Ram Area: _____	
1.3	No compressible material between the hydraulic jack and the anchor head	
1.4	The seating preparation for the hydraulic jack shall be directly contacted on the rock surface. [If concrete is used as the seating platform, the concrete shall achieve enough required strength as the rock]. The contact face should be even and perpendicular to the bolt.	
2.0	LOAD MEASURING DEVICE	
2.1	Load Cell: i) Calibration: _____ ii) Serial no.: _____ iii) Technical Specs: _____	
2.2	Hydraulics Pressure Gauge: i) Calibration: _____ ii) Serial no.: _____ iii) Technical Specs: _____	
2.3	Instrumentation (if any): Strain gauges: _____	
3.0	MOVEMENT MONITORING DEVICE	
3.1	Dial Gauges (2 numbers): - Calibration - Attachment to rigid IRB - Initial base reading - Seating on glass plate	
4.0	LOADING SEQUENCE	
4.1	Follow loading sequence procedure (Refer to BS 8081 : 1989 for different classes of pull out tests)	
4.2	Maximum test load: _____ kN (1.5 times working load for working bolt, 0.8 times steel characteristic strength for preliminary bolt)	
4.3	Permanent displacement less than 20mm and 5mm for mechanical expansion and grouted fixed anchors respectively	

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5.0	RECORDS	
5.1	Take and record readings before and after load increment/decrement and record all necessary info. Actual readings of load cell and pressure gauge shall be recorded, not the calculated values from the loading schedule.	
5.2	Client and engineer representative to sign on field record sheet.	
6.0	MISCELLANEOUS	
	Ensure the following are provided at site: <ul style="list-style-type: none">- Stop watch and clock- Additional dial gauges- Torch light (if continue until evening or night)	



