

TUNNEL: *INB - NORTH* MACHINE: *TBM 1* DATE: *19/5-11* REF. N°: *132*
CHAINAGE: *8+559* RING: *1788* HOUR: *10:00*

Mapping performed: ☒ Yes ☐ No

Plan view

Face of the Excavation

**1 SOME DISPENSE CLAY AND ROCK PARTICLES WITH BROWN COLOR ARE OBSERVED ON THE SURFACES*

Schematic position of the cutter head while mapping

Schematic Rock Mass Structure

NO 3GSM CAMERA PERFORMED DUE TO AMOUNT OF WATER IN THE FRONT

Legend:

- Light Gneiss
- Dark Gneiss
- Pegmatite
- Amphibolite
- Foliation
- Joint Set (sub Vertical)
- Joint Set (Sub Horizontal)
- Joint Set (Strike/dip)
- Geological Contact
- Geological Contact (diffuse)
- Weakness zone < 1m
- Water
- Weakness zone > 1m (thickness)

DISCONTINUITIES						FACE CHARACTERISTICS			
Fracture set	1	S4	S0		W2		Quartz	Veins <input checked="" type="checkbox"/>	Masses <input type="checkbox"/>
Strike (α_s)	E-W	—	N-S		NW-SE		Garnets	Low <input type="checkbox"/>	High <input type="checkbox"/>
Dip (α_f)	90°	—	60-80		—		Water	Dry <input type="checkbox"/>	Moist <input type="checkbox"/>
Spacing (cm)	—	—	—		—			Dripping <input type="checkbox"/>	Flowing <input checked="" type="checkbox"/>
Length (m)	1-3	3-5	—		—			Quantity:	5-10cm
Aperture (mm)	<1.0	<1.0	—		—		Fracturing	RQD:	80-90
Roughness	R. P. R.	OND	—		—		Overbreak	Depth (cm):	5-10
Infilling	HARD + SOFT	HARD + SOFT	HARD		SOFT brown clay			Amount (%):	<1%
Weathering *1	W3	W3	—		W5		Mixed face	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

NOTES

MAJORITY GRAY LIGHT COLOR GRASS COARSE GRAINED. UPPER RIGHT
SIDE WITH INTERSECTION OF WORKED WITH EXTREMELY
WEATHERED ROCK AND CLAY, BROWNISH COLORED. SEVERAL
QUARTZ VEINS. WORKED ALSO AFFECTING ALSO THE CROWN OF THE
EXCAVATION. WATER ALSO FROM THE SHIELD.

AGJV Geologist			Bane NOR Geologist		
Date	Name	Signature	Date	Name	Signature
19/5-11	Tom	[Signature]	19/5-11		[Signature]

TUNNEL: INBOUND
CHAINAGE: 08+559
DIRECTION: NORTH

MACHINE: TBM 1
RING: 1788

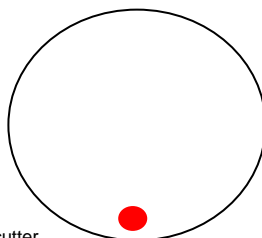
DATE: 19/05/2017
HOUR: 13:30

REF. Nº:
TBM1_20170519_08559_132

LEFT SIDE



RIGHT SIDE



Schematic position of the cutter
head while mapping

UPPER SIDE

FACE



AGJV Geologist

Date	Name	Signature
19/05/2017	JM	

Bane NOR Geologist

Date	Name	Signature