

BLAST MONITORING REPORT

HM4 Hard stone quarry at Tal-Faqqanija Ta' Zuta, I/o Dingli

13th September 2010

Details

Date	13-09-2010
Quarry number	HM4 – Hard stone Quarry at Tal-Faqqanija Ta' Zuta, I/o Siggiewi
Quarry operator	Polidano Bros. Ltd.
Shortfirer	Framegrip Ltd.
Police escort	PC1127 – F Bonello

Location and time of blasting

Four blasts were carried out at 12:53 and at 12:56 at the points as indicated on the attached site diagram.

Summary of blasting conditions

Max charge per delay: 50Kg

Recommended vibration limit: <8 mm/s at Ghar il-Kbir.

Site Specific Permit

Holes were within quarry boundaries and within the permitted depths.

The blasts were also within the maximum charge per delay of 50Kg.

Comments

All holes are at the top shelf of the quarry.

Blasts were grouped as two separate pairs and each pair was detonated by means of two short-circuit exploders in very quick sequence and captured as one event by our instrument.

Notes

Seismograph was placed at entrance of Ghar il-Kbir.

Seismograph was set to trigger at 0.51 mm/s. Seismograph used is a Vibrock V901, s/n 9001. This instrument is not equipped with an air overpressure sensor.

Readings

Blast number	1	2	3	4
Time	12:53		12:56	
No. of holes	10	7	10	7
No. of delays	10	7	10	7
Depth of holes (m)	18	18	18	18
Max. Charge per delay (kg)	37	37	37	37
Total charge (kg)	368	257	368	257
Dist. from seismograph (m)	280	280	280	280
PPV (mm/s)	2.93		1.88	
Frequency (Hz)	8.62		9.62	
Air Overpressure (dB)	N/a		N/a	
Scaled Distance (m kg^{-1/2})	46.0	46.0	46.0	46.0

Burden was an average of 2m and distance between holes is about 2.5m.

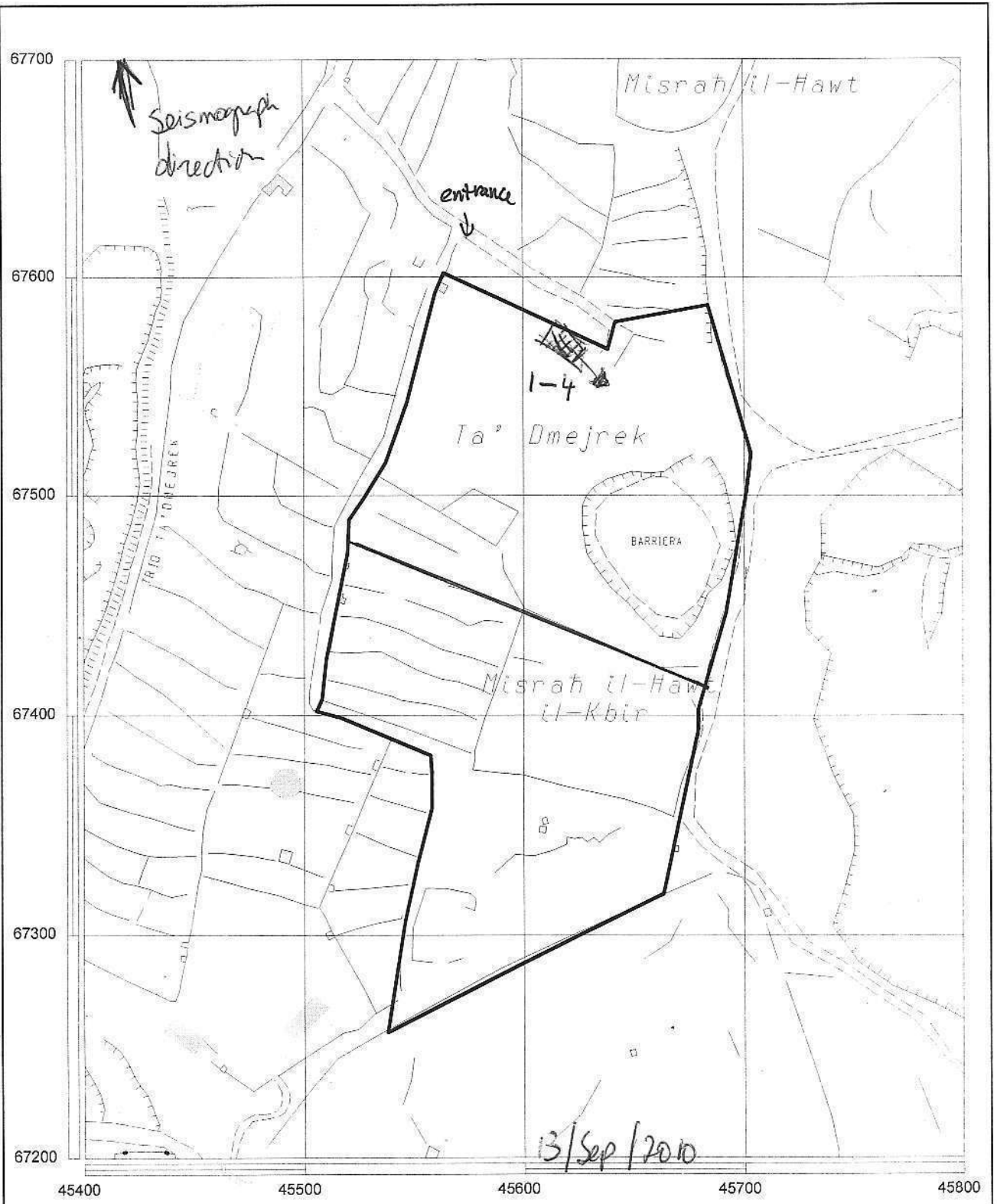
Weights in kilograms are rounded to the nearest half unit, and depths in metres are rounded to the nearest ½ unit.

Observations:

No flyrock was observed outside of quarry boundaries.

The blasts did not produce any visible damages to the surroundings of the quarry.

Anthony Cini B.Sc.



Malta Environment & Planning Authority
 Hardstone (UC) Quarry Site Plan

St. Francis Ravelin
 Floriana
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 Tel:240976 Fax:224846



Quarry No. :- HM 4	Location :- Misrah il-Hawt, ta' Zuta' Dingli
Scale :- 1:2500	Permitted Quarry Area :- 43780.46 sqm Permitted Quarry Depth :- 215 m amsl
Part of Survey Sheet(s): 4467	Date :- 6/5/03

DATA COLLECTION SHEET


Date:	13 Sep 2010	MIC for HM4 is 50kg 37.5kg
Quarry Name & Number:	HM4 - Misrah il-Hawt, Ta' Zuta Dingli	Quarry Operator: Tata Ltd. Polidano
Police Escort:	No: 1127 Name: F Bonello	
Blasting carried out by:	Company: Frangipani	Name: Mario Bellaja
Seismograph readings by:	A. Cini	


Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)	EWS
					(ft)	(m)	Bags	(kg)					
1	12:53	10	10	280	60	18		368	37	2.93	8.62	N/A	195
2	"	7	7	280	60	18		257	37	"	"	"	
3	12:56	10	10	280	60	18		368	37	1.88	9.62	"	196
4	"	7	7	280	60	18		257	37	"	"	"	
5			34					50	1250				
6													
7													
8													
9													


Location of Seismograph	<input checked="" type="checkbox"/> Entrance of Ghar il-Kbir (fragile site of archaeological interest) <input type="checkbox"/> Other location:	
Burden	Distance between boreholes: 2.05 m	Distance from rock face (burden): 2m m
Notes <small>Please expand in below section and/or overleaf if space provided is not enough.</small>	Any horizontal holes? No Any blast made up of holes of different-depth? No Why? ✓	
	Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? Yes Why? ✓	
	Any visitors before/during/after blast? Nobody (note names and organizations)	
	Any complaints from neighbours? None (note names, number of persons/households?)	
	Note levels of holes: current top level	
Further Comments	Flyrock observation: None outside Any damage to quarry surroundings? None observed Vibroc 901 SN 9001 (No Air overpressure sensor) * blast were groupd due to their organisation	

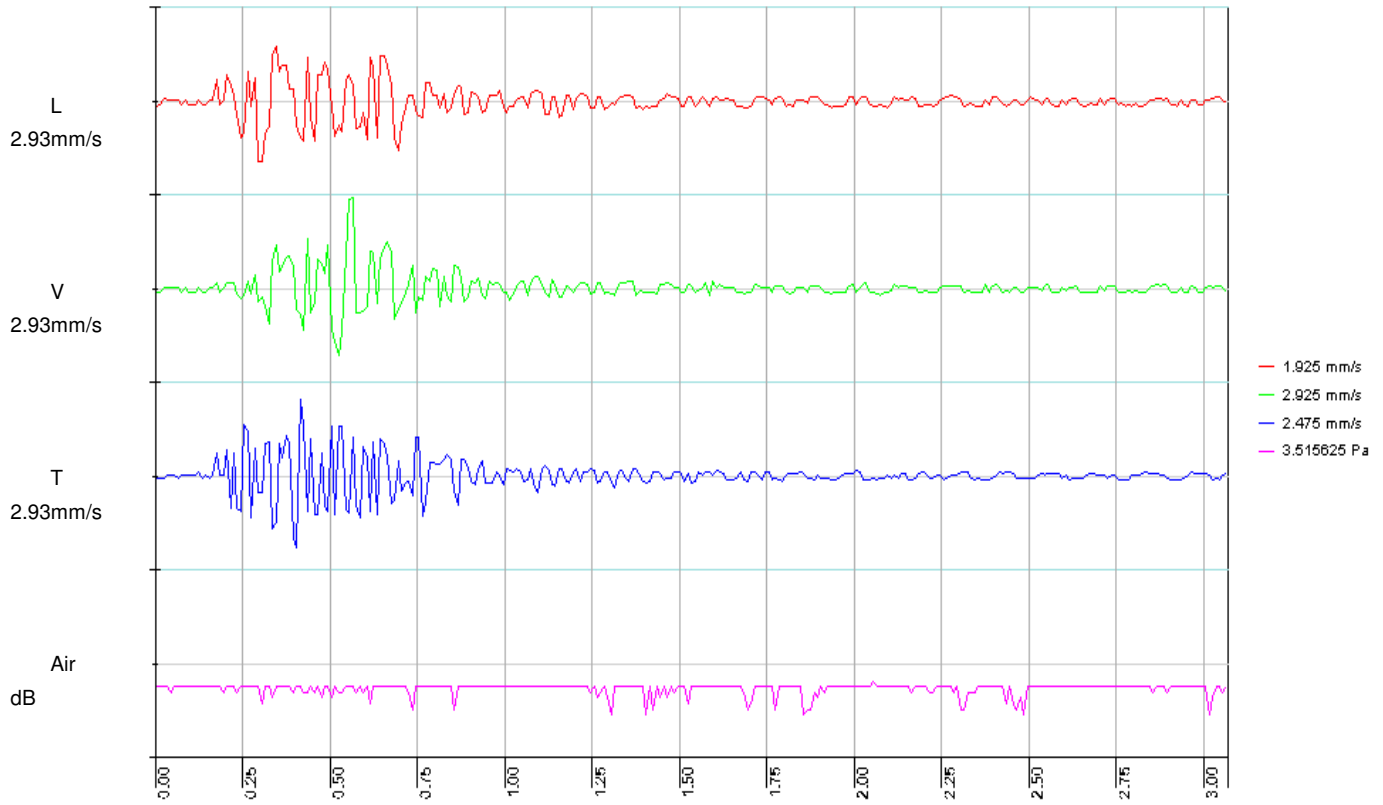
(use overleaf if more space is required)

Signatures

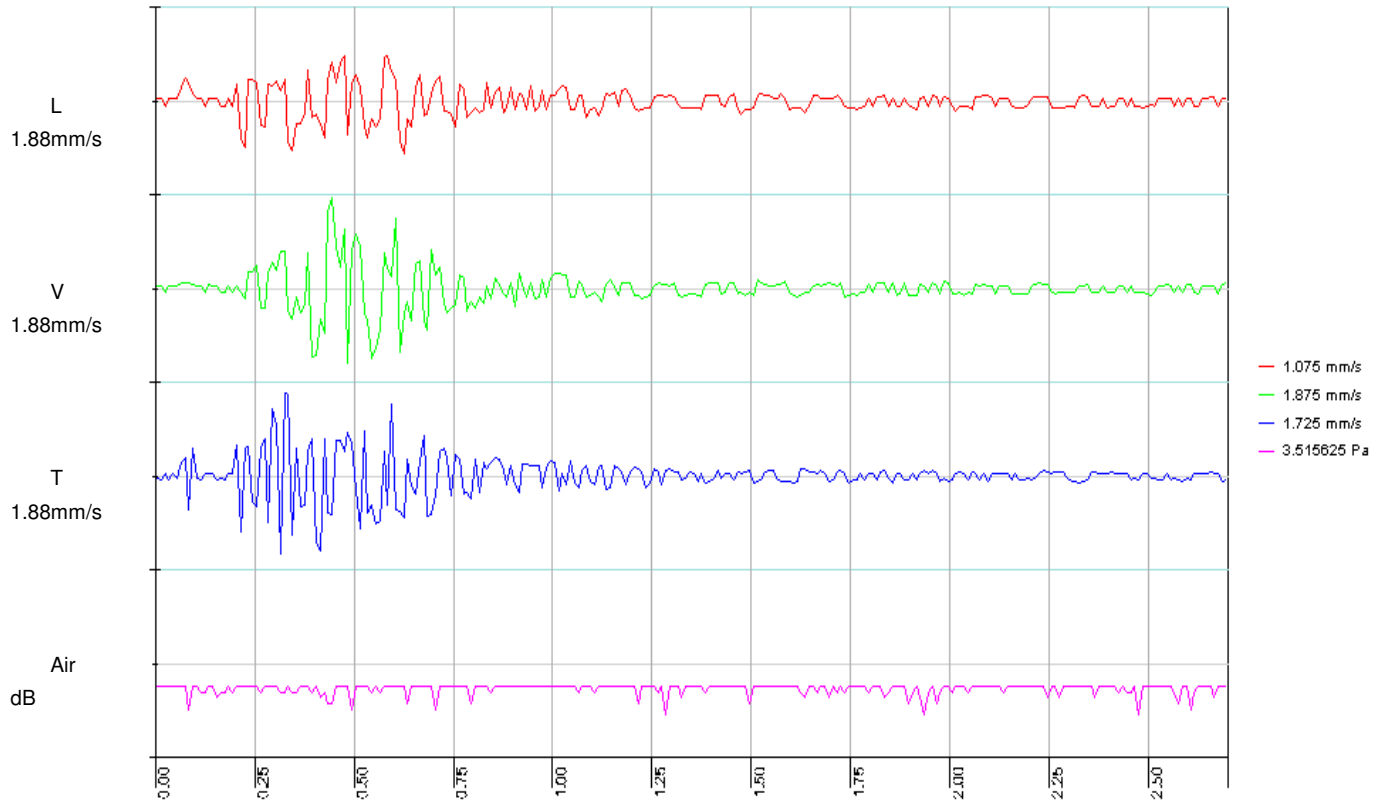

Police escort


f/ Quarry operator


f/ ems



EventNo	195	Plane		
Variable	L	V	T	
Bank A				
Max Vel (mm/s)	1.93	2.93	2.48	
Frequency (Hz)	25.0	8.62	31.3	
Max Acc (g)	.045	.038	.070	
Max Disp (mm)	.030	.034	.020	
Resultant Max A	3.08mm/s			
Air Overpressure	105dB			
Date	13/09/10			
Time	12:53:53			
Voltage	5.55			



EventNo	196	Plane		
Variable	L	V	T	
Bank A				
Max Vel (mm/s)	1.08	1.88	1.73	
Frequency (Hz)	20.8	9.62	41.7	
Max Acc (g)	.033	.028	.040	
Max Disp (mm)	.015	.028	.013	
Resultant Max A	2.10mm/s			
Air Overpressure	105dB			
Date	13/09/10			
Time	12:56:44			
Voltage	5.56			