

BLAST MONITORING REPORT

HM33 Hard stone quarry at Ta' Bellula, I/o Siggiewi

9th September 2010

Details

Date	09-09-2010
Quarry number	HM33 – Hard stone Quarry at Ta Bellula, Ghar Lapsi, I/o Siggiewi
Quarry operator	Polidano Bros. Ltd
ANFO Supplier	Framegrip Ltd
Police escort	PC1168 – S Pawney

Location and time of blasting

Seven blasts were carried out between 13:46 and 13:57 at approximately the points as indicated on the attached site diagram.

Summary of blasting conditions

Maximum charge per delay: 25Kg

Recommended vibration limit: <8 mm/s at the nearest residential/commercial areas.

Site Specific Permit

All holes were within quarry boundaries and within maximum depth.

Maximum charge per delay of 25Kg was not exceeded.

Comments

Holes of blasts 1 to 4 are at the lower shelf of the quarry and blasts 5 to 7 are at the middle shelf of the quarry.

Blasts 1 to 4 were grouped in two pairs and each pair was detonated by means of two short-circuit-exploders, in a very quick sequence. Similarly blasts number 5, and 6, and 7 were grouped together and detonated by three short-circuit exploders in a similar fashion. Multiple-explosions are used at this site to minimise the risk of one blast damaging the wiring of the other, but also to speed up the process.

Notes

Seismograph was placed in front of the nearest residential area marked as "Ta' Skallec" on the way down to Ghar Lapsi Bay.

Seismograph was set to trigger at 0.50 mm/s. Seismograph used is a Vibrock V901, serial number 9001. This instrument is not equipped with an air overpressure sensor.

Readings

Blast number	1	2	3	4	5	6	7
Time	11:50		12:00		12:06		
No. of holes	15	15	15	15	15	15	10
No. of delays	15	15	15	15	15	15	10
Depth of holes (m)	15	15	15	15	15	15	15
Max. Charge per delay (kg)	25	25	25	25	25	25	25
Total charge (kg)	375	375	375	375	375	375	250
Dist. from seismograph (m)	360	360	360	360	350	350	350
PPV (mm/s)	1.75		2.25		1.63		
Frequency (Hz)	N/a		50.0		35.7		
Air Overpressure (dB)	N/a		N/a		N/a		
Scaled Distance (m kg^{-1/2})	72.0	72.0	72.0	72.0	70.0	70.0	70.0

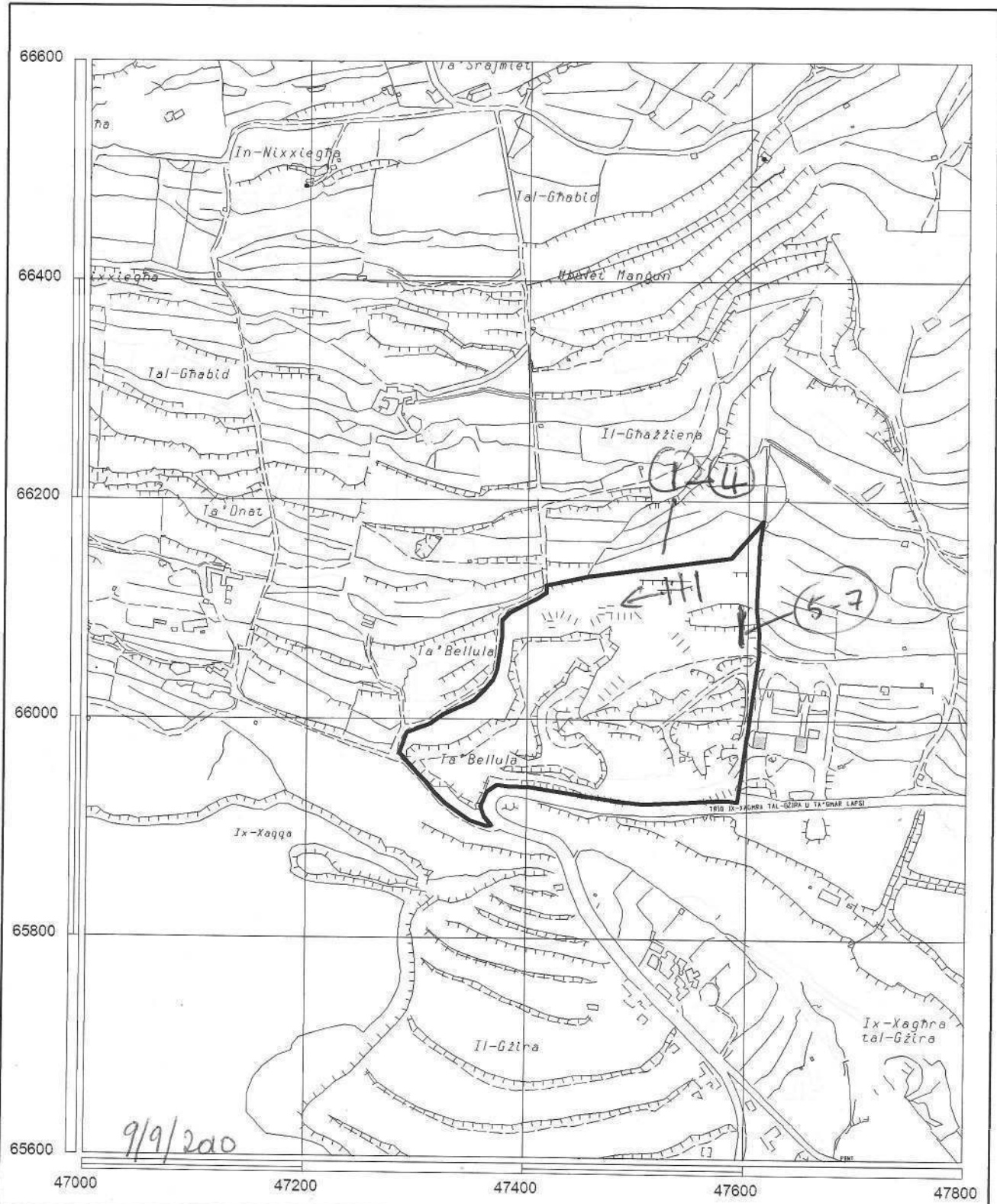
Burden is an average of 2 metres, and distance between bore-holes is an average of 2.5 metres.

Weights in kilograms are rounded-up to the nearest unit, and depths in metres are rounded to the nearest ½ unit. Distance between holes and seismograph is accurate to the nearest 10 metres.

Observations:

There was no flyrock outside the quarry boundaries. From a brief visual inspection after the blast, no damage to the surroundings of the quarry was observed.

Anthony Cini B.Sc.



Malta Environment & Planning Authority

Hardstone (LC) Quarry Site Plan

St. Francis Ravelin
 Floriana
 PO Box 200, Valletta
 Tel:240976 Fax:224846



Quarry No. :- HM 33	Location :- Ta' Bellula, Siggiewi
Scale :- 1:5000	Permitted Quarry Area :- 53851.47 sqm Permitted Quarry Depth :- 40 m amsl
Part of Survey Sheet(s): 4665 4666 Date :- 6/5/03	

D A T A C O L L E C T I O N S H E E T

Date:	9/9/2010	MIC for HM33 is 25Kg
Quarry Name & Number:	HM33 - Ta' Bellula, I/o Siggiewi	Quarry Operator: Polidano Bros. Ltd.
Police Escort:	No: 1168 Name: Sharon Pawsey	
Blasting carried out by:	Company: Framegrip Ltd. Name: Maria	
Seismograph readings by:	J. Bin V. Brock V901 s/n 9001	

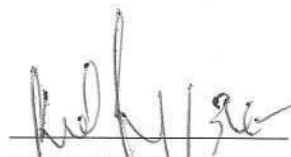
Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
					(ft)	(m)	Bags	(kg)				
1	13:46	15	15	360	50	15	15	375	25	1.75	N/A	N/A
2	—	15	15	360	50	15	15	375	25	—	—	—
3	13:47	15	15	360	50	15	15	375	25	2.25	50.0	N/A
4	—	15	15	360	50	15	15	375	25	—	—	—
5	13:57	15	15	380	50	15	15	375	25	1.63	35.7	N/A
6	—	15	15	350	50	15	15	375	25	—	—	—
7	—	10	10	350	50	15	10	250	25	—	—	—
8							100		25			
9												
10												
11												
12												

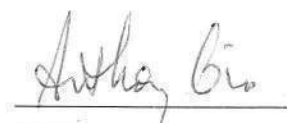
Location of Seismograph	<input checked="" type="checkbox"/> In front of nearest residential area marked as "E. Scidluna" on the way down to Ghar Lapsi Bay	<input type="checkbox"/> Garage Area of Dar Tal-Providenza (hospital)	<input type="checkbox"/> Other: _____
Burden	Distance between boreholes: 1.5 m Distance from rock face (burden): 2 m		
Notes <small>Please expand in below section and/or overleaf if space provided is not enough.</small>	Any horizontal holes? <u>N</u> Any blast made up of holes of different-depth? <u>N</u> Why? <u>—</u> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>Y</u> Why? <u>—</u> Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations) Any complaints from neighbours? <u>None</u> (note names, number of persons/households?) Note levels of holes: <u>1-4 at lower 5-7 @ middle level</u> Flyrock observation: <u>None</u> Any damage to quarry surroundings? <u>None</u>		
Further Comments	<u>* Speed up the process</u>		

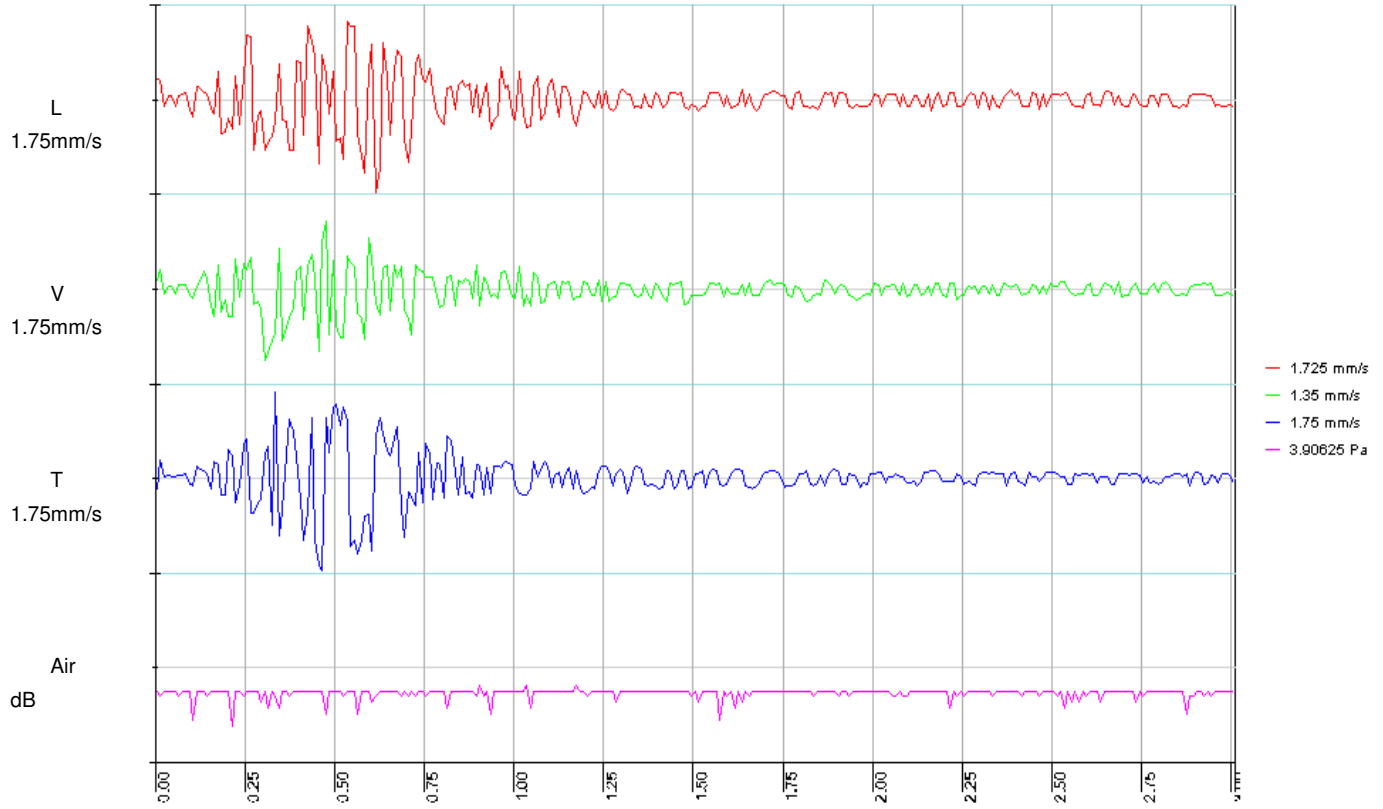
(use overleaf if more space is required)

Signatures

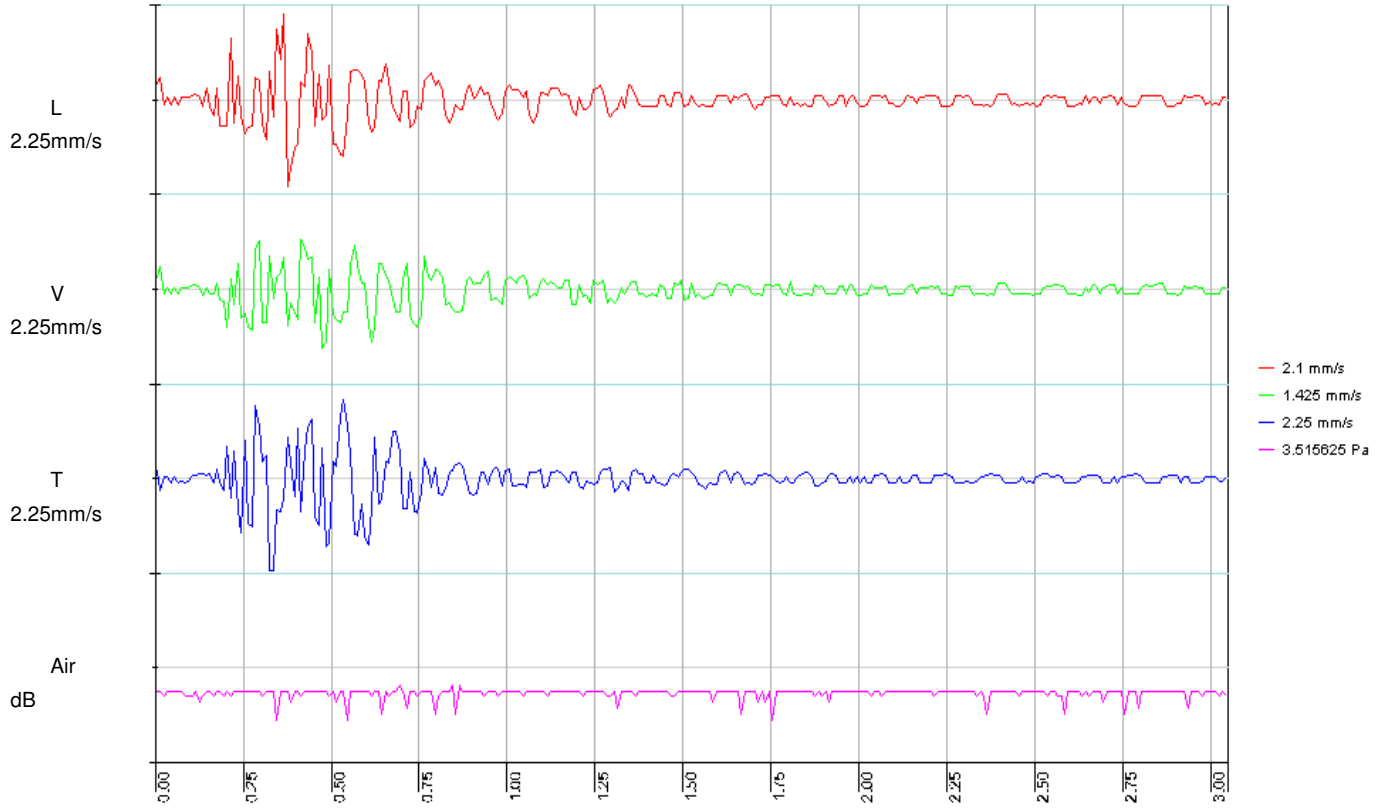

Police escort


f/ Quarry operator

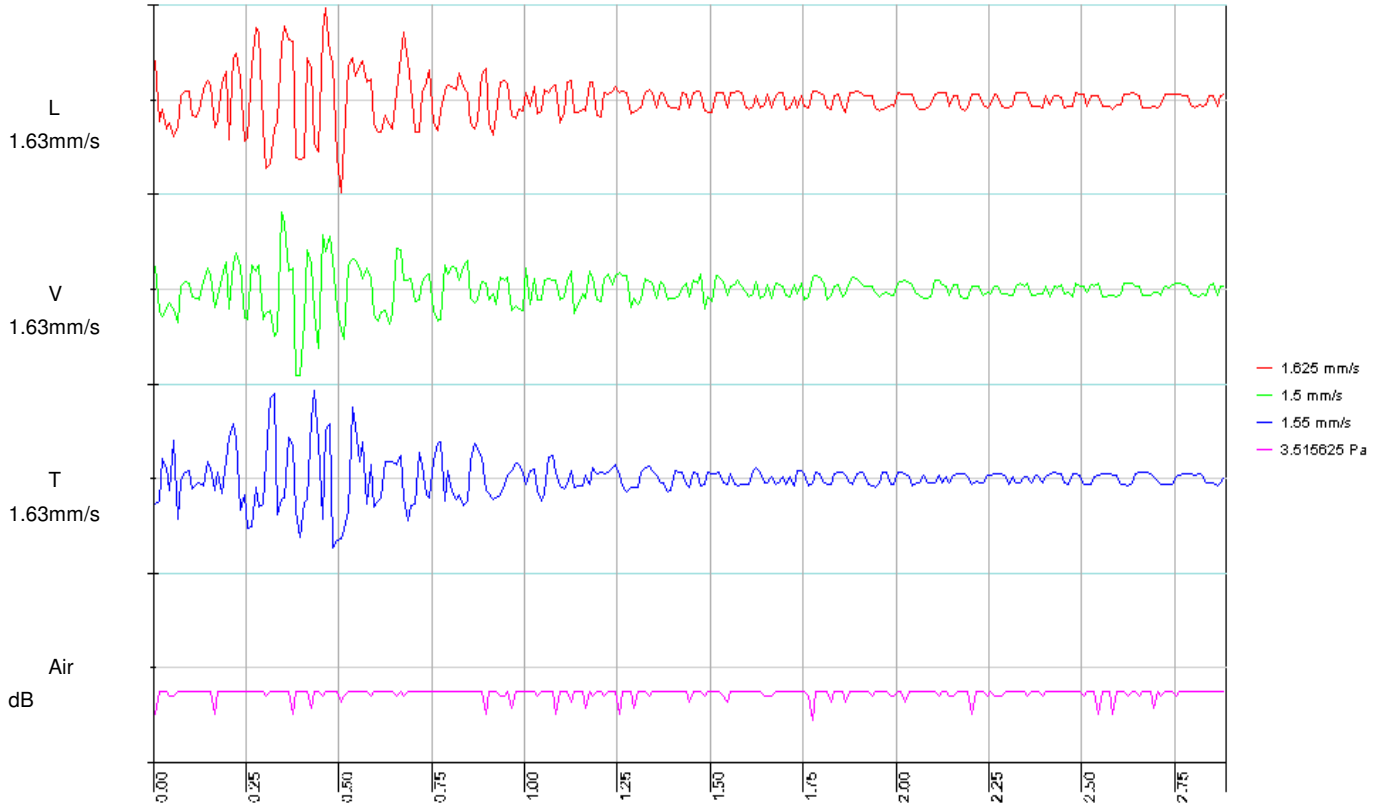

f/ ems



EventNo	184	Plane	
Variable	L	V	T
Bank A			
Max Vel (mm/s)	1.73	1.35	1.75
Frequency (Hz)		22.7	
Max Acc (g)	.053	.033	.075
Max Disp (mm)	.012	.016	.021
Resultant Max A	2.00mm/s		
Air Overpressure	106dB		
Date	09/09/10		
Time	13:46:40		
Voltage	5.54		



EventNo	185	Plane	
Variable	L	V	T
Bank A			
Max Vel (mm/s)	2.10	1.43	2.25
Frequency (Hz)	10.0	20.8	50.0
Max Acc (g)	.053	.030	.058
Max Disp (mm)	.028	.019	.030
Resultant Max A	2.30mm/s		
Air Overpressure	105dB		
Date	09/09/10		
Time	13:47:23		
Voltage	5.64		



EventNo	186	Plane	
Variable	L	V	T
Bank A			
Max Vel (mm/s)	1.63	1.50	1.55
Frequency (Hz)	35.7	15.6	17.9
Max Acc (g)	.043	.025	.043
Max Disp (mm)	.021	.018	.019
Resultant Max A	1.98mm/s		
Air Overpressure	105dB		
Date	09/09/10		
Time	13:57:49		
Voltage	5.63		