

BLAST MONITORING REPORT

HM13A Hard Stone Quarry at Tat-Tomna, I/o Mellieħa

16 June 2011

Details

| | |
|-----------------|--|
| Date | 16-06-2011 |
| Quarry number | HM13A – Hard stone Quarry at Tat-Tomna, I/o Mellieħa |
| Quarry operator | A Vella Borg & Sons Ltd. |
| Shortfirer | Framegrip Ltd. |
| Police escort | PC1127 – F Bonello |

Location and time of blasting

One blast was carried out at 09:44 approximately 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 the nearest WSC Reservoir

Site Specific Permit

Holes were within the quarry's new boundaries and within the permitted depths.

Maximum charge per delay of 50Kg was not exceeded.

Comments

All holes are at the bottom shelf of the quarry.

Notes

Seismograph is placed opposite the quarry, on the entrance to Tat-Tomna water reservoir (WSC).

Seismograph was set to trigger at 0.51 mm/s. Seismograph used is a MiniMate Plus, serial number BE9488.

Readings

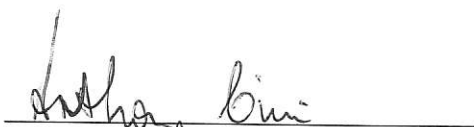
| | |
|--|-------|
| Blast number | 1 |
| Time | 09:44 |
| No. of holes | 11 |
| No. of delays | 11 |
| Depth of holes (m) | 12 |
| Max. charge per delay (kg) | 28 |
| Total charge (kg) | 300 |
| Dist. from seismograph (m) | 230 |
| PPV (mm/s) | 2.21 |
| Frequency (Hz) | 36.6 |
| Air Overpressure (dB) | 104.9 |
| Scaled Distance (m kg^{-1/2}) | 43.5 |

Burden is an average of 2 metres.

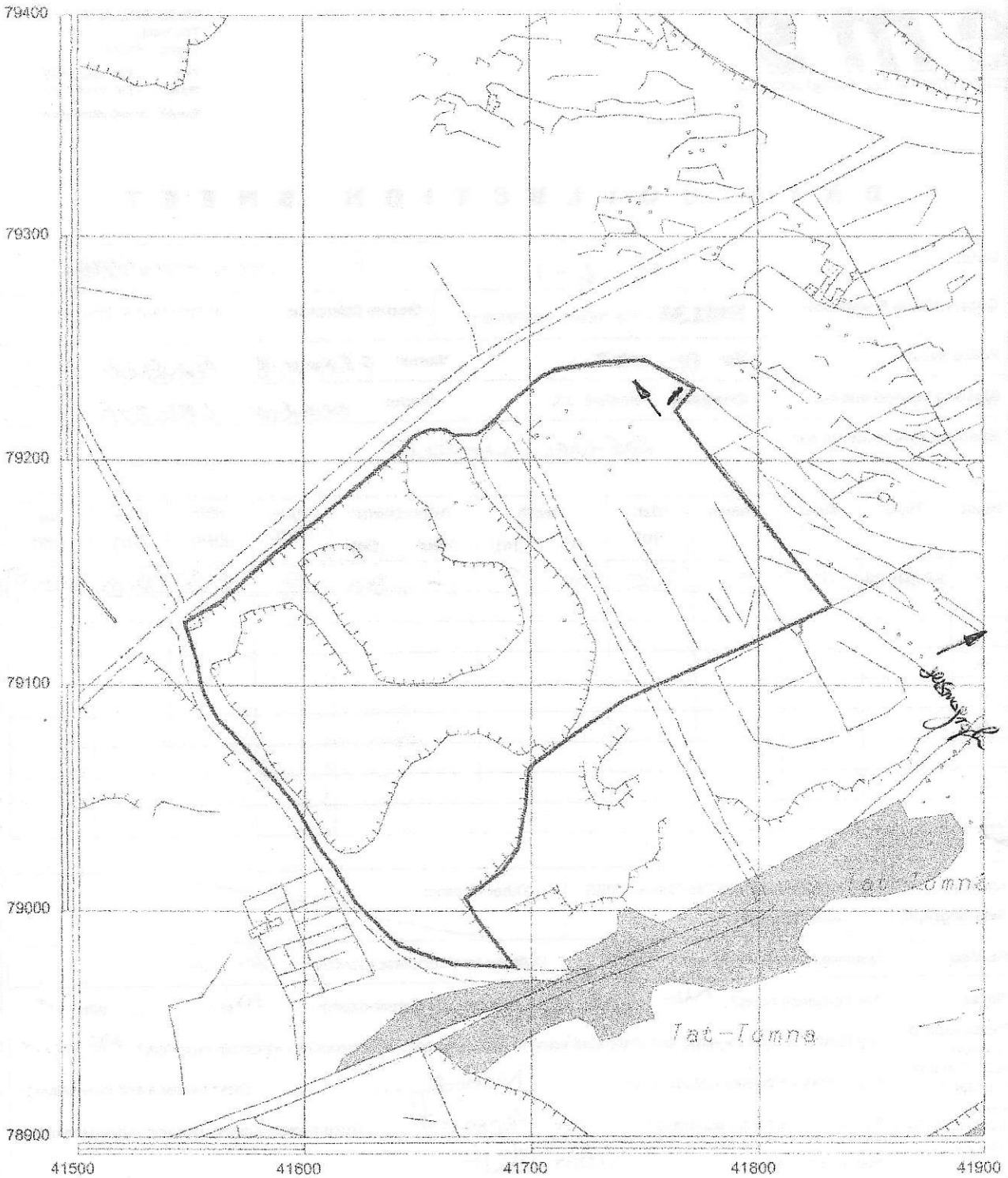
Weights in kilograms are rounded-up to the nearest unit, and depths in metres are rounded to the nearest ½ unit. Displacement between holes and instrument is accurate to the nearest 10 metres.

Observations:

No damage to the surroundings was observed after the blast.



Anthony Cini B.Sc



Malta Environment & Planning Authority

Hardstone (LC) Quarry Site Plan

St. Francis Ravelin
Floriana
PO Box 200, Vaffletta
Tel:22900000 Fax:21224846



Quarry No. :-

HM 13A

Location :- Tat-Tomna l/o Mellicha

Permitted Quarry Area :- 38130 sqm

Scale :- 1:2500

Permitted Quarry Depth :- 100 m amsl

16-6-11
[Handwritten signature]

Part of Survey Sheet(s): 4078 4079

Date :- 12/7/04

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

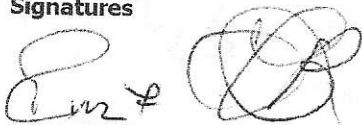
| | | | |
|----------------------------------|--|------------------------------|--------------------------|
| Date: | 16-6-11 | MIC for HM13A is 50Kg | |
| Quarry Name & Number: | HM13A - Tat-Tomna, l/o Mellieha | Quarry Operator: | A Vella Borg & Sons Ltd. |
| Police Escort: | No: PC 1127 | Name: FRANKIE BONELLO | |
| Blasting carried out by: | Company: FrameGrip Ltd. | Name: MARIO CALLESA | |
| Seismograph readings by: | RAPHAEL MICALIEF | | |

| Blast | Time | Holes | Delays | Dist. (m) | Depth | | Total charge | | Max. Chrg. | PPV mm/s | Freq. (Hz) | Air (dB) |
|-------|----------|-------|--------|--------------|-------|-----|--------------|------|---------------|-------------|---------------|-------------|
| | | | | | (ft) | (m) | Bags | (kg) | | | | |
| 1 | 07:44:04 | 11 | 11 | 230 | 30 | 9 | 12 | 300 | 28 | 2.21 | 36.6 | 104.9 |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |

| | | |
|--|--|---------------------------------------|
| Location of Seismograph | <input checked="" type="checkbox"/> At the entrance to Tat-Tomna (WSC) water reservoir () Other location: _____ | |
| Burden | Distance between boreholes: 2.5 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>No</u> Any blast made up of holes of different-depth? <u>No</u> Why? <input checked="" type="checkbox"/> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>No</u> Why? <input checked="" type="checkbox"/> Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations) Any complaints from neighbours? <u>None Reported</u> (note names, number of persons/households?) Note levels of holes: <u>Bottom Shelf</u> Flyrock observation: <u>None Outside</u> Any damage to quarry surroundings? <u>None Observed</u> | |
| Further Comments | | |

(use overleaf if more space is required)

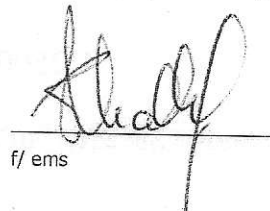
Signatures



Police escort



f/ Quarry operator



f/ ems

Date/Time Tran at 09:44:04 June 16, 2011
Trigger Source Geo: 0.500 mm/s
Range Geo :31.7 mm/s
Record Time 2.0 sec at 4096 sps

Serial Number BE9488 V 8.01-8.0 MiniMate Plus
Battery Level 5.9 Volts (Battery Low)
Calibration September 9, 2010 by Datum Monitoring
File Name K488DT1C.DG0

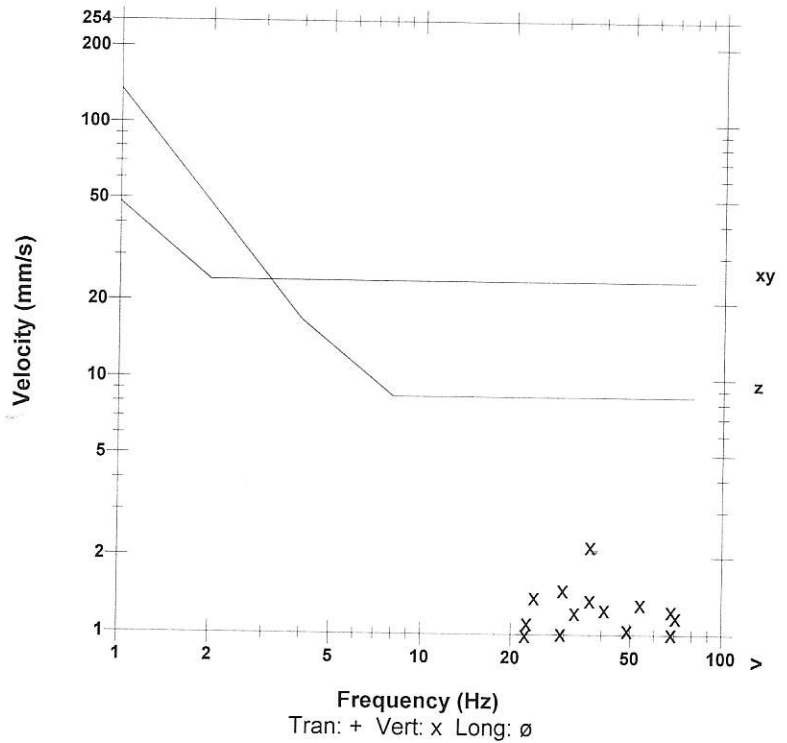
Notes

Location: Quarry Blasting
 Client:
 User Name: ems
 General:

BS 6472:1992 CURVE 60

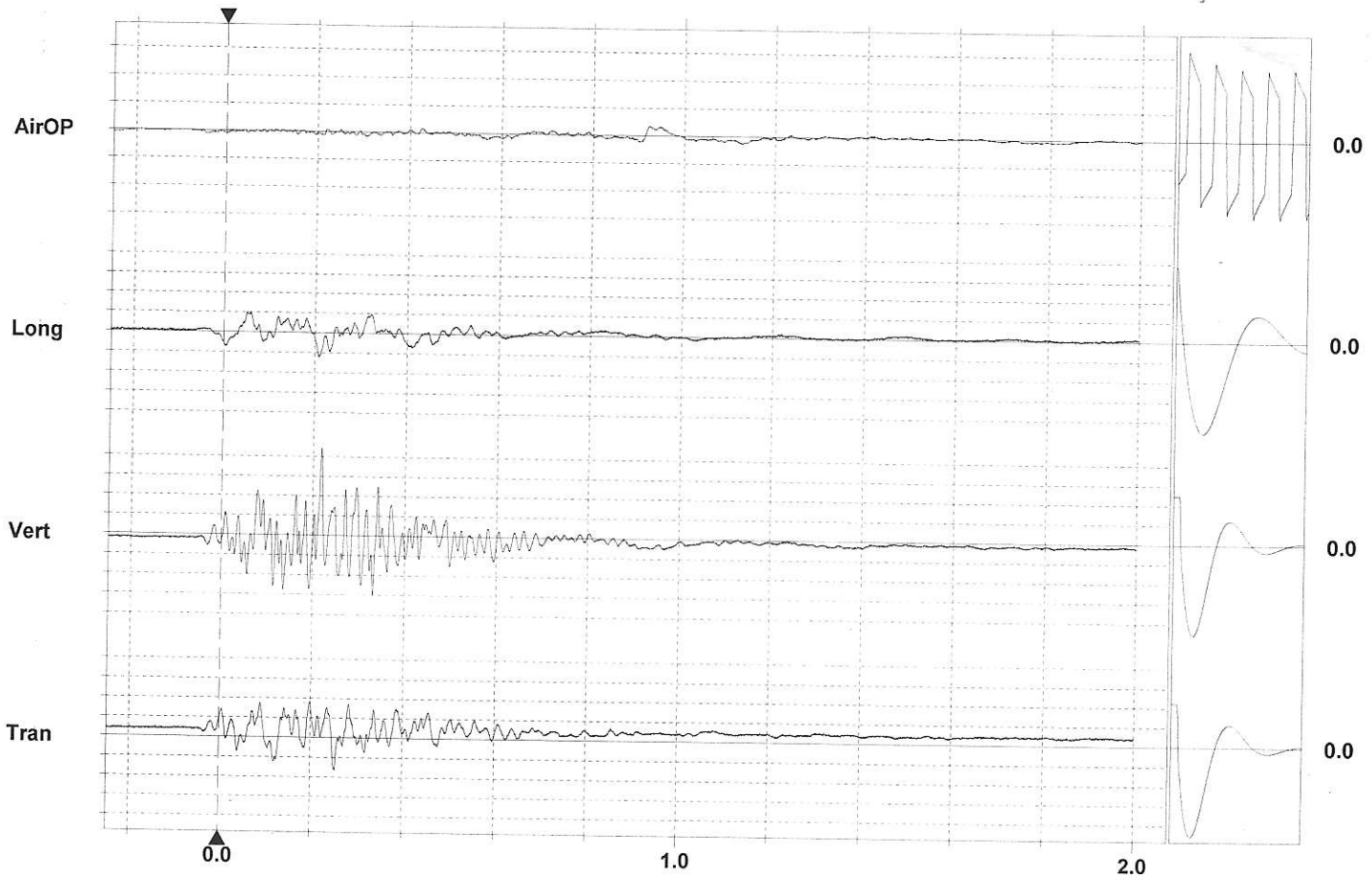
Post Event Notes

Microphone Linear Weighting
PSPL 104.9 dB(L) at 0.923 sec
ZC Freq 7.8 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 570 mv)



| | Tran | Vert | Long | |
|---------------------|--------|--------|---------|------|
| PPV | 0.921 | 2.21 | 0.619 | mm/s |
| ZC Freq | 15.9 | 36.6 | 11.1 | Hz |
| Time (Rel. to Trig) | 0.198 | 0.218 | 0.208 | sec |
| Peak Acceleration | 0.0331 | 0.0597 | 0.0265 | g |
| Peak Displacement | 0.0293 | 0.0151 | 0.00843 | mm |
| Sensorcheck | Passed | Passed | Check | |
| Frequency | 7.2 | 7.4 | 4.9 | Hz |
| Overswing Ratio | 3.9 | 3.7 | 3.3 | |

Peak Vector Sum 2.26 mm/s at 0.218 sec



Time Scale: 0.20 sec/div Amplitude Scale: Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div
 Trigger =

Sensorcheck