South Coast Concrete Crushing and Recycling Pty Ltd

Annual Environmental Management Report 2012

Name of mine:- **NOWRA BRICKWORKS & FLAT ROCK Quarries**

Titles/Mining Leases:- **ML 5087 / ML 6322 / ML 531**

MOP Commencement Date:- 01/09/2010 **MOP Completion Date 31/08/2017**

AEMR Commencement Date:- 1/12/2011 **AEMR End Date 1/12/2012**

Name of leaseholder:- **Abib Pty Ltd**

Name of mine operator:- South Coast Concrete Crushing and Recycling P/L

Reporting Officer:- **Budd Green**
Title:- **Manager**

Signature ……

Contents

1. INTRODUCTION.

This AEMR has been prepared to cover a period from 1st December 2011 to 1st December 2012
The operations of this mine are controlled by the Mining Operations Plan which covers mining operation for 7 years from 1 September 2010 and provides the relevant information on the mining, processing and rehabilitation operations necessary for compliance with the collective conditions imposed upon the mining development at the Nowra Brickworks Quarry by the applicable mineral authorities and other licences required to be held by SCCCR.
This report should be read in conjunction with the current mining operations plan.

1.1 Consents, Leases and Licences

1.1.1 Mineral Authorities.

Table 1.1 presents the details of the mineral authorities covered by the MOP.

Title	Act	Expiry Date	Area (ha)	Group
ML 5087	1906	08 January 2019	7.36	Group 5
ML 6322	1906	08 March 2020	14.67	Group 5
ML 531	1906	05 Nov 2019	16.68	Group 5

The area covered by these mineral authorities is referred to hereafter as “the quarry site”.

NO ACTIVITIES WERE CARRIED OUT IN FLAT ROCK QUARRY DURING THE REPORTING PERIOD

1.1.2 Licences

The Nowra Brickworks Quarry is operated in accordance with Environment Protection Licence No. 11765. This licence covers “Hard-Rock Gravel Quarrying” of between 100 000t and 500000t per annum and “Crushing, Grinding or Separating Works” between 100 000t and 500 000t per annum.

1.1.3 Development Consents

Development Consent under Section 75J of The Environmental Planning and Assessment Act 1979. Application No. 07_0123. Approved by the Minister for Planning 1st December 2009.

1.2 Mine Contacts

SCCCR personnel responsible for operational and environmental performance at the Nowra Brickworks Quarry and their relevant contact details are as follows.

- John Green – Mine Manager and sole director of SCCCR, retains overall responsibility for all activities and performance on site. Contact: 02 4421 7766. Fax 02 4421 7988. Postal Address PO Box 192, OAK FLATS NSW 2529

1.3 Actions Required at Previous AEMR Review

Further address waste management in AEMR. Not enough discussion in regards to actual waste associated with running of the quarry not just the processing side of the operations.

2. Operations During Reporting Period

2.1 Exploration

No exploration was carried out within the mine area during the period.

2.2 Land Preparation

No Land preparation was required during the reporting period.

2.3 Construction

The following construction was noted in the previous AEMR (2010-2011)

"A weighbridge has been installed along with a new office building adjacent to the truck wheel wash bay installed under previous AEMR. Once approval for the weighbridge construction has been completed then the original weighbridge will be relocated as a second weighbridge adjacent to the new one."

A section 75W has been lodged in relation to the above improvements. The location of the weighbridge was slightly different to what was proposed in the project approval this was due to the late inclusion from the RTA now RMS for the need for a turning bay into the property which affected the location of the existing weighbridge and office. As such the locations had to be moved approximately 50m south west to accommodate the new works and enable the new weighbridges and offices to be constructed.

2.4 Mining

All mining activities were carried out in accordance with the current MOP.

*(from MOP **3.4.2 Mining Methods***

Weathered shale material would be extracted from below the base of the subsoil to a depth where the material becomes too hard to be extracted using an excavator. The weathered shale material would be loaded into trucks for transportation to customers, stockpiled for subsequent sale and despatch, or used for rehabilitation-related purposes within the quarry (Mining Operations Plan for the Nowra Brickworks Quarry, Corkery & Co. Pty Ltd, 2007).

(From Mining Operations Plan Corkery 2007
Description of Activity

The following materials are likely to be stockpiled:

- *Virgin Excavated Natural Material (VENM) for blending and processing into quarry products*
- *VENM, top-soil, subsoil and weathered shale for quarry backfilling operations*
- *Blending materials, such as crusher dust and road base, for processing into quarry products*
- *Recyclable materials, such as select construction waste, concrete and bitumen for processing and blending into quarry products Quarry products))*

MOP Continued..

Once the hardness of the shale becomes too great to be ripped, drill and blast techniques would be used to extract the material which would be direct loaded into the processing plant using an excavator. All drilling and blasting-related activities will be conducted in accordance with the Drilling and Blasting procedures set out in GHD (2010).

(From Environmental Management GHD 2010

- *All drilling and blasting-related activities will be supervised by a suitably qualified and experienced blasting engineer or shot-firer. Blasting is to be designed to:*
  - *Achieve the required degree of fragmentation*
  - *Satisfy all environmental criteria (especially noise and vibration, refer to Section 14)*
  - *Contain all blast flyrock within the nominated blast envelope)*

14.3 Blasting Monitoring Criteria and Levels

14.3.1 Methodology

Blasting is to be designed to:

- *Achieve the required degree of fragmentation;*
- *Satisfy all environmental criteria (especially noise and vibration,); and*
- *Contain all blast flyrock within the nominated blast envelope.*

Blast emissions will be quantified using a portable blast emissions monitor (measurement of airblast and vibration , which will be positioned at the nearest potentially affected residences and other blast emission sensitive receivers to the plant operations as identified in the Project Approval. Blast monitoring instrumentation will be employed to meet the primary specifications presented in the Noise Monitoring Program/Blast management Plan.

The Blast Design Record Sheet is to be filled in for individual blast events.

In accordance with the mining leases, mining is planned to a depth of 30 metres with the maximum amount of shale material to be extracted while ensuring no resource sterilisation. The extraction area would then be backfilled with VENM to create a final, rehabilitated landform that would mimic the adjacent environment.

All material imported onto the quarry will be as per the Importation and use of Virgin Excavated Natural
Material procedures as set out in GHD (2010).

Importation of VENM Environmental Management GHD 2010

VENM is to be imported to the site for processing and blending to produce quarry products. VENM not used to make quarry products will also be placed within the 'exhausted' extraction area for rehabilitation purposes and to ultimately establish a final landform which mimics the pre-extraction landform.

The use of VENM as part of the rehabilitation process will be restricted to the use of VENM as defined in the NSW Protection of the Environment Operations Act 1997, i.e.: Natural material (e.g. clay, gravel, sand, soil and rock) that is not mixed with any waste that:

a) has been excavated from areas that are not contaminated, as the result of industrial, commercial, mining or agricultural activities, with manufactured chemicals and that does not contain sulphidic ores or soils, or

b) consists of excavated natural materials that meet such criteria as may be approved by the EPA"

Certificate and Receipt Procedures

- *All imported VENM will be certified at its source and certification verified by the Mine Manager (or delegated authority) on receipt in accordance with relevant guidelines current at the time of VENM importation. This is likely to include a visual inspection for signs of contamination and the presence of any other waste material.*
- *A VENM certification sheet will be prepared, dated and signed by the person certifying the material.*
- *The history of the site from which the material is to be excavated will be determined and recorded on the VENM certificate sheet. The following procedures will be implemented depending on the previous land uses.*
  - *Where the site has been used for commercial, industrial, mining or agricultural purposes at any time, or if the site contains fill material, or there is potential for chemical contamination from past or current uses, a testing regime will be implemented to establish that the material sourced from the site can be classified as VENM.*
  - *Where the site is, and has always been, used for residential or agricultural purposes then excavated material from the site, with the exception of surface layers that may be contaminated with physical debris, vegetation, chemicals, fertilisers or asbestos, will be presumed to be classified as VENM.*
- *Upon arrival, the Mine Manager (or delegated authority) will require the drivers delivering the VENM material to complete and sign a VENM record sheet. The Mine Manager (or delegated authority) will direct the driver to the receival area where the load will be inspected to ensure it corresponds with the description of the material included on the certificate sheet before it is accepted.*

- *Any unsuitable loads (i.e. loads that do not meet the description of VENM) will not be accepted and the supplier/driver will be advised to deliver the load to a licensed waste facility.*

VENM Stockpiling

- *When VENM is being processed, it will be placed in the stockpiling and processing area.*
  The environmental management measures for stockpiles detailed in Section 9 of this EMS
  will be applied.
- *All surface waters will be diverted into the water storage or sump within the extraction area.*

VENM Placement and Compaction

When VENM is to be used to backfill the quarry, the following procedures will be undertaken:

- *Compaction of VENM will not occur within approximately 3.5 m of the proposed final landform .*
- *Between approximately 3.5 m and 1.0 m of the final landform VENM comprising weathered material is to be placed without compaction.*
- *Between 1.0 and 0.5 below the final landform, weathered shale material will be placed without compaction.*
- *Sub-soil and top-soil will be placed over the VENM/weathered shale in accordance with the Landscape and Biodiversity Management Plan.*
- *Soils will be handled only when they are moist (neither wet, nor dry) to minimise the risk of soil structural decline.*

VENM On-site Operations

- *Water sprays and water trucks will be used in all areas of potential dust lift-off to minimise potential dust emissions.*
- *A maximum speed limit of 10 km/hour will be maintained within the quarry site.*
- *The width of haul roads will be limited to that which is safe for heavy vehicle passage to minimise soil erosion hazards.*

Monitoring and Reporting

During all VENM importation operations, records will be kept for each site where imported VENM is to be sourced and for each load of material received.
Record sheets must be filled out at the source of VENM for transport to the quarry, and at the quarry for the receiving of VENM.
Completed record sheets are to be stored and filed in a suitable location to facilitate the reporting, auditing, and "access to information" requirements specified in the Project Approval and EPL.

2.5 Mineral Processing

All materials mined were processed in accordance with the current MOP

> ***(From MOP Mineral Processing***
>
> *The quarry maintains the following infrastructure to carry out its operations:*
>
> - *Mobile crushing plant;*
> - *Excavator;*
> - *Mobile screening plant*
> - *Front end loader.*
>
> *The shale extracted from the quarry undergoes crushing, shaping, screening and blending with imported construction waste material.)*

2.6 Waste Management

As the facility is designed to minimise waste production long term there is minimal waste produced at the facility however the following waste is dealt with onsite and managed in accordance with current environmental guidelines

2.6.1 Scrap steel (ferrous metal) from concrete recycling.

The bulk scrap steel from the concrete is separated during pre-processing of the concrete, this material is then stored in bulk storage bins. During final processing of the concrete the steel is separated using a magnet to remove the final small amounts and stored in the same bulk storage bins. Once full the bin is replaced with an empty bin and the full bin is taken to the metal recyclers.

2.6.2 Waste timber, plastic, non ferrous metals

During processing of imported concrete and brick/masonary products there can be other unwanted products in the final processed material, such as plastic, timber, ferrous and non ferrous metals. However there is an allowable amount of this type of material in the final processed product (RTA T276 – Foreign Material content of Recycled Crushed concrete). With our products we try to have 100% of foreign material removed from our end product, we do this by a process of sorting and picking prior to crushing and sorting and picking after crushing. These materials are then sorted into various metal bins (copper, aluminium, steel) and or rubbish bin. The recycled metal products are transported to the metal recyclers for recycling while the rubbish (plastic, timber etc) is removed and disposed of at an approved waste disposal facility.

2.6.3 Lunch Waste and Food Scraps

All lunch waste and food scraps are placed in bins around the facility, those bins are then consolidated into a waste bin provided by Cleanaway. This bin is then removed and disposed of by Cleanaway.

2.6.4 Asbestos Materials

All materials imported to site for disposal are handled according to our asbestos management guidelines.

1. The load is visually checked at the weighbridge for signs of asbestos contamination. **If any asbestos is detected the load is refused and sent away. The date, time, truck and rego are all recorded.**
2. The load is then taken down to the unloading station in preparation for tipping.
3. The load is then directed for tipping away from the main stockpile of material to be processed, to prevent any cross contamination.
4. The load is then tipped in the presence of quarry personnel who again inspect the tipped load for any signs of potential asbestos. **If any asbestos is detected the load is reloaded and sent away. The date, time, truck and rego are all recorded.**
5. The tipped load is then pulled up into the main stockpile while again checking for any signs of asbestos.

2.6.5 Ablutions

All human waste is controlled using pump out systems. 3 smaller portable toilets were used for ablutions. These were pumped out on 2 weekly period or as required.

2.6.6 Waste Oils, Batteries

Waste oil from servicing is stored in 2, 205L drums located in the sea container bund within the maintenance area. These drums are pumped out regularly with local oil recycling contractors. Batteries that are no longer functioning are removed and stored on pallets. A local recycling contractor for batteries attends site and disposes of the batteries.

2.7 Ore and Product Stockpiles

All stockpiled material is managed in 4000t stockpiles. These stockpiles are situated on the floor of the current blasting area and all material is transported from this area only for sales. This area is not exposed to winds and dust generation. There are numerous stockpiles onsite that are stored in preparation for sales in meeting our clients demands.

2.8 Water Management

Any water from the main extraction zone is pumped up to the main water storage buffer dam.

2.9 Hazardous Material Management

No hazardous materials are stored on the mine site, fuel for machinery is brought in as required, and explosives are only brought to site by contractor on the day required.

No variations to the MOP were carried out within the reporting period.

Table 2.1 Production and Waste Summary

	Cumulative Production (all cubic metres)		
Process	Start of Reporting Period	At end of Reporting Period	End of next reporting (estimated)
Topsoil Stripped	16480	16480	16480
Topsoil Used/Spread	16480	16480	16480
Waste Rock	Nil	Nil	Nil
Ore	759315	794518	819518
Processing Waste	0	3	6
Product	759315	794518	819518

Table 2.2 Stored Water

	Volumes held (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	Storage Capacity
Clean water	10000 est.	10000 est.	103000
Dirty water	Nil	Nil	Nil
Controlled discharge water	Nil	Nil	Nil
Contaminated water	Nil	Nil	Nil

3. ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

3.1 Air pollution

Airborne dust within the quarry site is generated predominantly through crushing and screening activities, vehicle movement on haul roads, stockpiles and exposed surfaces on the site.
A range of air quality controls are currently undertaken at the Nowra Brickworks Quarry and will continue to be implemented for the term of the MOP.(2017)

- The processing plant is currently fitted with dust suppression equipment and this equipment would continue to be used whenever the plant is operational.
- On-site roads, hardstand areas, stockpiles and exposed surfaces are and will continue to be regularly watered using a water cart or sprinklers. Water for this purpose is sourced from water within the extraction area or the Water Storage Dam.
- The loads of trucks carrying material to or from the quarry site on public roads are and will continue to be covered.
- Progressive rehabilitation of disturbed areas no longer required for mining related activities will continue.

3.2 Erosion and Sediment

An erosion and sedimentation control at the Nowra Brickworks Quarry revolves around:

- diversion of ‘clean’ surface water runoff away from disturbed areas; and
- capture and retention of ‘dirty’ water flowing from disturbed areas of the quarry site.
- Sedimentation fencing around soil stockpiles
- Sedimentation fencing to Nowra Creek Riparian protection zone

3.3 Surface water pollution

The two main potential contaminants of surface water at the Nowra Brickworks Quarry are suspended sediment and hydrocarbon material.
In order to minimise the potential for hydrocarbon (fuel, oil, grease etc.) contamination of surface and groundwater, all routine maintenance of mobile equipment will take place within the “dirty” water management area.

On-site hydrocarbon storages are limited to four jerry cans of petrol, two 205L drums of waste oil and two 205L drums of fresh oil. The jerry cans are and would continue to be stored in a steel tray and the 205L waste oil containers would continue to be stored within a sea container with internal steel bunding, located in the “maintenance area of the quarry”

3.4 Ground water pollution

Quarrying operations at the Nowra Brickworks Quarry currently intersects only a small amount of groundwater. As a result, no groundwater specific management controls are considered necessary under the MOP.
With the exception of fuel for equipment operation, no substances capable of contaminating groundwater will be used within quarry site.
Piezometers and the results of water level monitoring and water quality testing are attached. No significant changes to the water quality or levels occurred.

3.5 Contaminated polluted land

No contamination or pollution occurred during the reporting period
The principal potential sources of soil or land contamination at the Nowra Brickworks Quarry is from spillage or leaks of hydrocarbon material. In the event of any hydrocarbon spillage or leak, the spillage will be cleaned up immediately as follows.

- The source of the spill will be located and the cause of the spill will be addressed to prevent additional material spilling on the ground.
- Bunding material will be used or earth bunds constructed to limit the area of the spill.
- Absorption material would be spread over the area of the spill to absorb as much spilt hydrocarbon material as possible.
- The ground on which the spillage or leak occurs would be ripped and excavated by bulldozer, front-end loader, excavator or other suitable mobile equipment.
- Contaminated soil removed during the cleanup process will be spread out in a thin layer within the quarry site to encourage biological breakdown.
- Superphosphate may be added to the contaminated material to assist the breakdown process.

3.6 Threatened flora and fauna

Not withstanding the fact that no threatened flora or fauna have been identified within the quarry site, the following management strategies and safeguards will, where practicable, be implemented during the term of the MOP.

- As much native vegetation as possible within the quarry site will be maintained, with progressive rehabilitation of disturbed areas undertaken.
- Direct replacement of topsoil and subsoil on surfaces to be rehabilitated and the use of freshly removed branches to provide mulch to the topsoiled surface will be maximised. Only when inadequate areas are available to be rehabilitated will stockpiling be undertaken.
- Weed and pest control programs will be undertaken regularly.

- Where possible, the use of seed collected in the local area in the rehabilitation
- activities will be maximised

3.8 Weeds

Our weed management program continued throughout the year with half yearly inspections carried out by our consultant. Reports attached.

3.9 Blasting

Five blasts were recorded in the reporting period. All blasts were monitered according the the blast management plan, blast controls and project approval. No results were recorded outside the approved limits for vibration and overpressure.

Blasting controls include the following.

- The police, Shoalhaven City Council, NSW Roads and Traffic Authority, Environmental Protection Agency and the resident occupying the house immediately to the south of the quarry site are notified verbally at least 24 hours prior to the initiation of each blast.
- The drill hole spacing, burden distance, stemming length, maximum instantaneous charge are carefully designed and implemented by the blasting contractor to ensure that ground vibration and air blast do not exceed the Project Approval Controls criteria and that there is no danger to motorists using the Princes Highway.
- Each blast is monitored at the nearest residence, adjacent to jail, adjacent to commercial premises and north of brickworks and subsequent blast designs are modified if required in light of the blast monitoring.
- Records of each blast monitored have been stored for future reference, and are attached to this report.

3.10 Operational noise

The Company's objective is to not cause unreasonable intrusive noise levels an residences and other premises surrounding the quarry site. Taking into account the limited amount of noise generated by mining-related activities, the noise generated by traffic on the Princes Highway and the predominantly industrial land uses surrounding the quarry few specific noise controls are considered necessary. This notwithstanding, the following controls have been enforced.

- The allowed hours of operation were adhered to.
- All vehicles and plant are fitted with effective exhaust mufflers.
- All trucks used are maintained in good condition to ensure both body noise and engine noise is within acceptable limits.
- All speed restrictions are adhered to.

3.11 Visual, stray light

The following design and operational safeguards will minimise the visual impact of the Nowra Brickworks Quarry.

- The perimeter bunds were maintained and extended where practicable to limit the visual impacts associated with the quarry from vantage points in the vicinity of the quarry site.
- Progressive rehabilitation of disturbed areas is undertaken as required.
- The quarry site has been maintained in clean and tidy conditions at all times.
- Dust suppression activities have been undertaken over all disturbed or exposed surfaces.

3.12 Aboriginal heritage

No sites or items of Aboriginal heritage significance have been identified within the quarry site. In addition, all proposed works within the mineral authorities covered by the MOP will be undertaken in areas of existing disturbance. As a result, no Aboriginal heritage-specific management controls are required. Notwithstanding this, however, should any Aboriginal site or artefact be identified, it will be reported to National Parks and Wildlife Service and work will be stopped in the vicinity of the site until such time as advice is obtained. No new areas of work were opened up as a result no new topsoil was stripped or underlying soils exposed

3.13 Natural heritage

No sites or items of natural heritage significance have been identified within the quarry site. As a result, no natural heritage-specific management controls are required.

3.14 Spontaneous combustion

There are no risks associated with spontaneous combustion within the quarry site. As a result, no spontaneous combustion-specific management controls are required.

3.15 Bushfire

The following bushfire-specific management controls have been implemented and enforced.

- On-site bushfire fighting facilities have been provided and maintained.
- Bushfire fighting equipment is operational for fire fighting purposes at all times.
- Fire breaks and fire tracks have been maintained.
- Sufficient water resources have been maintained within the quarry site for fire fighting purposes.
- Fuel loads are monitored and fuel reduction programs will be implemented where necessary.

3.16 Mine subsidence

There are no risks associated with mine subsidence within the quarry site. As a result, no mine subsidence-specific management controls are required.

3.17 Hydrocarbon contamination

Management controls for preventing or minimising hydrocarbon contamination of water and/or land were carried out in accordance with the MOP

(From MOP..

Existing and Additional Control Strategies

Control strategies to manage hydrocarbon contamination at the quarry are defined in the following sections of GHD (2010):

- *4 – Emergency Response; and*
- *10.2 – Loading, Despatch and Transportation.*

The main controls to reduce the impacts of hydrocarbon contamination from site activities are:

- *Implementation of a Nowra Brickworks Quarries Mine Safety Plan;*
- *Training of employees in the Safety Plan;*
- *Notification of environmental harm to the DECCW hotline; and*
- *Maintenance of all mobile equipment to manufacturer's specifications.)*

(Environmental Management GHD 2010..

4. Emergency Response

Response to an emergency is to be in accordance with the Nowra Brickworks Quarries Mine Safety Plan, prepared in accordance with the NSW Mine Health and Safety Act 2004. Emergency procedures are located in the SCCCR main office.

The following procedures relate to environmental emergencies which are not covered by the quarry's emergency plan and procedures, i.e. spills and environmental harm.

4.1 Spills

The principal potential sources of soil or land contamination at the quarry is from spills or leaks of hydrocarbons (fuel, oil, grease, etc). The following pollution control measures will be implemented during the life of the Project:

- *Employees will read the quarry's Environmental Response Plan (attached as Appendix C) for fuel and oil spills, and will refer to the Material Safety Data Sheets (MSDS) located next to the first aid kit located in SCCCR main office.*
- *During fuelling, the following will be observed: – Fuelling will be undertaken carefully to minimise drips on the ground;*

– Fuelling will be undertaken in a suitable area away from access areas and drainage lines or water courses;

– Persons undertaking the fuelling will remain present during the entire fuelling operation; – If necessary, the emergency shut off switch for plant and machinery is to be used; – A spill kit will be kept at or near each fuelling area and on the fuel truck; – Spills and dirty absorbent materials will be cleaned up; – Fuelling equipment will be inspected for cracks, leaks, corrosion or failure; and – Small equipment will be fuelled over a paved or concrete area, away from any stormwater drains or ditches, and a funnel will be used when pouring fuel from a portable can.

- *Any stormwater drains on site will be located and blocked. Spilled fuel will be prevented from reaching drains or waterways.*
- *Any spills will be cleaned up thoroughly and promptly. The Dry Method (refer to the Emergency Response Plan attached as Appendix C) will be used for cleaning up fuel spills (die sel or kerosene).*

- *If fuels are leaking or have spilled on an impermeable surface, the nearest down gradient drain will be diked or bermed to prevent fluids from flowing. Absorbent material from the spill kit will be applied on the spill area, and after cleaning up the contaminated absorbent material will be swept up, and the berm or dike will be removed from the stormwater drain.*
- *If fluids are leaking or have spilled on a permeable surface, the area will be marked and assistance will be sought to clean up.*
- *Spills or leaks will never be hosed down.*
- *Any spill kit materials will be disposed of in accordance with EPA guidelines.*
- *Any spill or discharge of any pollutant will be reported to the Mine Manager. If a spill or leaks of a hazardous substance that exceeds 500 mL, is an unknown substance of any amount, or a spill is too great to control, the NSW Fire Brigade will be called on 000.*
- *All applicable employees will be trained in general water pollution prevention and spill response, and a record of the employees trained will be kept.*
- *A current copy of the Spill Response Plan will be maintained in the SCCCR main office.*

3.18 Methane drainage/ventilation

There are no risks associated with methane drainage and ventilation within the quarry site. As a result, no methane-specific management controls are required.

3.19 Public safety

The Nowra Brickworks Quarry is located in an area with extensive industrial development and adjacent to a major public road. As a result, public safety, including the safety of employees and contract truck drivers, is an important issue for the proper management of the quarry. The following management controls have been implemented and enforced to manage this safety issue.

- The front gate is locked outside the hours of operation and whenever the quarry site is not occupied.
- The perimeter bunding is maintained to ensure that the only vehicular access to the quarry site is via the front gate.
- Warning signs will continue to be prominently displayed around the perimeter and within the quarry site.
- Concrete blocks will continue to be placed adjacent to the perimeter of the extraction area in areas where vehicles or people may be working.
- 10km/h speed signs have been erected and speed limits are enforced by site management.
- All employees and contractors working within the quarry site will be required to complete a site induction.
- Visitors are required to complete a visitor's induction and sign a visitors book indicating their time of arrival and departure.
- All employees, contractors and visitors are required to wear personal protective equipment, namely hard hats, safety glasses, steel cap boots and reflective vests. This equipment will be supplied to individuals who do not have their own.
- All communication between mobile equipment within the quarry site is by UHF radio. All mobile equipment owned or operated by SCCCR are fitted with a UHF radio. A handheld UHF radio is supplied to any transport contractor who does not have a UHF radio fitted to their vehicle.

- No truck drivers are permitted to leave the cab of their truck while the vehicle is within the extraction or processing areas. A designated area for covering loads will continue to be provided.
- All trucks carrying material to or from the quarry site on public roads will have their loads covered to prevent material falling from trucks.
- The quarry entrance and adjoining highway shoulder are continually monitored and any spillage is removed immediately.
- The Company maintains a register of any complaints it receives from the public, such as speeding trucks or generally unsafe or discourteous driving or quarry vehicles.

4. COMMUNITY RELATIONS

During the reporting period there were no community complaints or feedback to the quarry management.

4.1. Community Consultative Committee

Expressions of interest for a community consultative committee were advertised with no responses or expressions of interests fielded after Project Approval. This was managed by our consultant engaged to prepare our Project Approval documents. No requests have been made since to form a committee. As such there were no meetings during the reporting period.

4.2. Complaints

There was only 1 complaint during the reporting period that we are aware of, this complaint was not made direct to SCCCR but to the Department of Environment Climate Change and Water (DECW). We were notified by DECCW of the complaint and responded in kind. The complaint was made by Shoalhaven City Council. The complaint was in relation to our ongoing rehabilitation works in relation to the bund fronting the highway. Information attached surrounding complaint, our response and additional correspondence.

5. REHABILITATION

During this reporting period all mining works were contained within a small area of previously disturbed ground.
This primarily was expanding and deepening the stage 1 working area as a consequence no undisturbed area was affected.

TABLE 3: Rehabilitation Summary

		Cumulative Area Affected (hectares)		
		To date	Last report	Next Report (estimated)
A:	**MINE LEASE AREA**			
A1	**Mine Lease(s) Area**	**22.028ha**		
B:	**DISTURBED AREAS**			
B1	**Infrastructure area** other disturbed areas to be rehabilitated at closure including facilities, roads	**1.3 ha**	**1.3 ha**	**1.3 ha**
B2:	**Active Mining Area** excluding items B3 - B5 below	**3.5 ha**	**3.5 ha**	**3.5 ha**
B3	**Waste emplacements**, active/unshaped/in or out-of-pit	**0.27 ha**	**0.27 ha**	**0.27 ha**
B4	**Tailings emplacements,** active/unshaped/uncapped	**0.60 ha**	**0.60 ha**	**0.60 ha**
B5	**Shaped waste emplacement** (awaits final vegetation)	**0.80 ha**	**0.80 ha**	**0.80 ha**
ALL DISTURBED AREAS		**6.47 ha**	**6.47 ha**	**6.47 ha**
C	**REHABILITATION PROGRESS**			
C1	**Total Rehabilitated area** (completed)	**1.5 ha**	**1.50 ha**	**1.50 ha**
D:	**REHABILITATION ON SLOPES**			
D1	**10 to 18 degrees**	**1.0 ha**	**1.0 ha**	**1.0 ha**
D2	**Greater than 18 degrees**	**Nil**	**Nil**	**Nil**
E:	**SURFACE OF REHABILITATED LAND**			
E1	**Pasture and grasses**			
E2	**Native forest/ecosystems**	**2.0 ha**	**2.0 ha**	**2.0 ha**
E3	**Plantations and crops**			
E4	**Other** (include non vegetative outcomes)			

TABLE 4: Maintenance Activities On Rehabilitated Land

(This period's activities and activities proposed in the next reporting period)

NATURE OF TREATMENT	Area Treated (ha)		Comment/control strategies/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection**)**			**None required at this stage**
Re-covering (detail - further topsoil, subsoil sealing etc)	**1.00ha**	**1.00 ha**	**As backfilling/restoration reaches part completion those areas will be soiled over.**
Soil treatment (detail - fertiliser, lime, gypsum etc)			**Nil**
Treatment/Management (detail - grazing, cropping, slashing etc)			**No treatment will be required**
Re-seeding/Replanting (detail - species density, season etc)	**2.0 ha**	**2.0 ha**	**Backfilling covers will contain sufficient endemic native seed to self establish as can been seen from some of the revegetated areas.**
Adversely Affected by Weeds (detail - type and treatment)			**No weed infestations are present**
Feral animal control (detail - additional fencing, trapping, baiting etc)			**No feral animals have been observed on the site**

Appendix A – Project Approval

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent and/or minimise adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

SHaddad

Sam Haddad
Director-General
as delegate for the Minister for Planning

Sydney 1st December 2009

SCHEDULE 1

Application No:	07_0123
Proponent:	South Coast Concrete Crushing and Recycling
Approval Authority:	Minister for Planning
Land:	Lot 464, DP1058778
Project:	Nowra Brickworks Quarry

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DEFINITIONS

AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
CCC	Community Consultative Committee
Council	Shoalhaven City Council
Day	The period between 7am and 6pm on Monday to Saturday and between 8am and 6pm on Sunday and Public Holidays
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DI&I	Department of Industry and Investment
EA	Environmental Assessment prepared for SCCCR entitled *Environmental Assessment for the Continuation and Expansion of Extractive Operations at the Nowra Brickworks Quarry, South Nowra* (February 2009), including the response to submissions
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued under the *Protection of the Environment Operations Act 1997*
Evening	The period between 6pm and 10pm
Land	The whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Material harm to the environment	Material harm to the environment as defined in *Protection of the Environment Operations Act 1997*
Minister	Minister for Planning, or delegate
Night	The period between 10pm and 7am, Monday to Saturday and between 10pm and 8am on Sunday and Public Holidays
NOW	NSW Office of Water of DECCW
Privately-owned land	Land that is not owned by a public agency, or a quarry company (or its subsidiary)
Proponent	South Coast Concrete Crushing and Recycling or any other person or persons who rely on this approval to carry out the project
Quarrying operations	Extraction of clay/shale, structural clay and associated materials, processing of quarry products and transport of quarry products from the site
Quarry products	Clay/shale, structural clay and associated materials extracted from the site, whether or not blended with recycled and/or blending materials
Reasonable and feasible	*Reasonable* relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements. *Feasible* relates to engineering considerations and what is practical to build
Response to submissions	The Proponent's response to issues raised in submissions, dated August 2009
RTA	Roads and Traffic Authority, now part of the Department of Transport and Infrastructure
SCCCR	South Coast Concrete Crushing and Recycling
Site	Land to which the project application applies (see Schedule 1 and Appendix 1)
Statement of Commitments	The Proponent's Final Statement of Commitments for Site Operations and Management, as set out in Appendix 2

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
   (a) EA;
   (b) Statement of Commitments; and
   (c) conditions of this approval.

   Notes:
   - *The general layout of the project is shown in Appendix 1; and*
   - *The Statement of Commitments is reproduced in Appendix 2.*

3. If there is any inconsistency between the above documents, the latter document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.

4. The Proponent shall comply with any reasonable requirements of the Director-General arising from the Department's assessment of:
   (a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with the conditions of this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans, programs, strategies or correspondence.

5. The Proponent shall prepare revisions of any strategies, plans or programs required under this approval if directed to do so by the Director-General. Such revisions shall be prepared to the satisfaction of, and within a timeframe approved by, the Director-General.

6. By 30 June 2010, the Proponent shall surrender all existing development consents for the site to the relevant consent authority, to the satisfaction of the Director-General.

Limits on Approval

7. The Proponent may undertake quarrying operations on the site until 31 December 2039.

   Note: Under this approval, the Proponent is required to rehabilitate the site to the satisfaction of the Director-General. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been rehabilitated to a satisfactory standard.

8. The Proponent shall not:
   (a) extract more than 364,000 tonnes per year of clay/shale, structural clay and associated materials (in total) from the site;
   (b) import more than 50,000 tonnes per year of recycling materials to the site;
   (c) import more than 125,000 tonnes per year of blending materials to the site;
   (d) import more than 200,000 tonnes per year of VENM to the site; or
   (e) despatch more than 500,000 tonnes per year of quarry products from the site.

Management Plans / Monitoring Programs

9. With the approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

Structural Adequacy

10. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

Demolition

11. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

Operation of Plant and Equipment

12. The Proponent shall ensure that all plant and equipment used on site is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

NOISE

Noise Impact Assessment Criteria

1. The Proponent shall ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 1:

Table 1: Operational noise impact assessment criteria dB(A)

Location and Locality	Day $L_{Aeq(15\ min)}$	Evening $L_{Aeq(15\ min)}$	Night $L_{Aeq(15\ min)}$
1 80 Links Road	39	35	35
2 371 Old Southern Road	45	35	35
4 243 Princes Highway	49	38	38
5 South Coast Correctional Facility	51	37	37

Notes:

- *To interpret the locations in Table 1, see Appendix 3.*
- *Location 3 in Appendix 3 is project related.*
- *Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.*
- *The noise limits do not apply if the Proponent has an agreement with the landowner to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.*

Operating Hours

2. The Proponent shall comply with the operating hours in Table 2.

Table 2: Operating hours

Activity	Day	Time
Quarrying Operations	Monday – Friday	7.00am to 6.00pm
	Saturday	7.00am to 4.00pm
	Sunday and Public Holidays	None

Notes:

- *Maintenance activities may be conducted outside weekday hours in Table 3 provided that the activities are not audible at any privately-owned residence, or until 6pm on Saturdays.*
- *Up to three unladen trucks are permitted to arrive at the site between 6.00am to 7.00am on Monday to Saturday; and up to three unladen trucks are permitted to return to the site between 6.00pm to 8.00pm on Monday to Friday and between 4.00pm to 6.00pm on Saturday.*
- *This condition does not apply to delivery of material if that delivery is required by police or other authorities for safety reasons, and/or the operation or personnel or equipment are endangered. In such circumstances, notification is to be provided to DECCW and the affected residents as soon as possible, or within a reasonable period in the case of emergency.*

Continuous Improvement

3. The Proponent shall:
   (a) implement all reasonable and feasible noise mitigation measures;
   (b) investigate ways to reduce the noise generated by the project; and
   (c) report on these investigations and the implementation and effectiveness of these measures in the AEMR,

   to the satisfaction of the Director-General.

Monitoring

4. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. The Program must:
   (a) be prepared in consultation with DECCW and be submitted to the Director-General for approval within 6 months of the date of this approval;
   (b) include annual attended noise monitoring;
   (c) include details of how the noise performance of the project would be monitored; and
   (d) include a noise monitoring protocol for evaluating compliance with the noise criteria in this approval.

BLASTING AND VIBRATION

Airblast Overpressure Limits

5. The Proponent shall ensure that the airblast overpressure level from blasting at the project does not exceed the criteria in Table 3.

Table 3: Airblast overpressure impact assessment criteria

Receiver	*Airblast overpressure level (dB(Lin Peak))*	*Allowable exceedance*
Residential & South Coast Correctional Facility	115	5% of the total number of blasts in any 12 month period
	120	0%
Commercial	125	0%

Ground Vibration Impact Assessment Criteria

6. The Proponent shall ensure that the ground vibration level from blasting at the project does not exceed the levels in Table 4.

Table 4: Ground vibration impact assessment criteria

Receiver	*Peak particle velocity (mm/s)*	*Allowable exceedance*
Residential & South Coast Correctional Facility	5	5% of the total number of blasts in any 12 month period
	10	0%
Commercial	25	0%

Blasting Hours and Frequency

7. The Proponent shall carry out blasting on site only between 9 am and 3 pm Monday to Friday. No blasting is allowed on weekends and Public Holidays.

8. The Proponent shall not carry out more than one blast per week on site.

Note: In the case of a documented misfire, the Proponent may carry out a second blast in the relevant week.

Operating Conditions

9. The Proponent shall not undertake blasting within 200 metres of any privately-owned land, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property and to human safety to the satisfaction of the Director-General.

Property Inspections

10. Prior to 30 June 2010, the Proponent shall advise all landowners within 500 m of proposed blasting activities, and any other landowner nominated by the Director-General, that they are entitled to a property inspection to establish the baseline condition of the property.

11. If the Proponent receives a written request for a property inspection from any such landowner, the Proponent shall:
    (a) commission a suitably qualified person, whose appointment has been approved by the Director-General, to inspect and report on the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
    (b) give the landowner a copy of this property inspection report.

Note: It is preferable for the property inspection to be carried out prior to the commencement of blasting activities on the site, and the Proponent should facilitate this occurring wherever possible.

Property Investigations

12. If any landowner within 500 m of proposed blasting activities, or any other landowner nominated by the Director-General, claims that his/her property, including vibration-sensitive infrastructure such as water supply or underground irrigation mains, has been damaged as a result of blasting at the project, the Proponent shall within 3 months of receiving this request:
    (a) commission a suitably qualified person whose appointment has been approved by the Director-General to investigate the claim and prepare a property investigation report; and
    (b) give the landowner a copy of the report.

    If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the Director-General.

    If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Management

13. Prior to 30 June 2010, the Proponent shall prepare and implement a detailed Blast Management Plan for the project to the satisfaction of the Director-General. The Plan must
    (a) be prepared in consultation with DECCW;
    (b) substantiate blast design to ensure compliance with blast criteria;
    (c) include protocols for communicating with all neighbouring landholders regarding scheduled blasts;
    (d) include details of how and at what locations blasting performance would be monitored; and
    (e) include a blast monitoring protocol for evaluating compliance with the blast criteria in this approval.

AIR QUALITY

Continuous Improvement

14. The Proponent shall:
    (d) implement all reasonable and feasible dust mitigation measures;
    (e) investigate ways to reduce the dust generated by the project; and
    (f) report on these investigations and the implementation and effectiveness of these measures in the AEMR,
    to the satisfaction of the Director-General.

Impact Assessment Criteria

15. The Proponent shall ensure that dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 5 to 7 at any residence on privately owned land, or on more than 25 percent of any privately-owned land.

Table 5: Long term impact assessment criteria for particulate matter

Pollutant	***Averaging period***	***Criterion***
Total suspended particulate (TSP) matter	Annual	90 $\mu g/m^3$
Particulate matter < 10 µm (PM_{10})	Annual	30 $\mu g/m^3$

Table 6: Short term impact assessment criterion for particulate matter

Pollutant	***Averaging period***	***Criterion***
Particulate matter < 10 µm (PM_{10})	24 hour	50 $\mu g/m^3$

Table 7: Long term impact assessment criterion for deposited dust

Pollutant	***Averaging period***	***Maximum increase in deposited dust level***	***Maximum total deposited dust level***
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

Air Quality Monitoring

16. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. This program must:
    (a) be prepared in consultation with DECCW, and be submitted to the Director-General for approval prior to 30 June 2010; and
    (b) include details of how the air quality performance of the project will be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.

WATER MANAGEMENT

Discharge

17. Except as may be expressly provided for by an EPL, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the project.

18. The Proponent shall manage on-site sewage to the satisfaction of the Council and DECCW. The facility must comply with the requirements of the *Environment and Health Protection Guidelines – On-site Sewage Management for Single Households (1998).*

Water Management Plan

19. The Proponent shall prepare and implement a Soil and Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with DECCW and NOW, and be submitted to the Director-General for approval prior to 30 June 2010; and
    (b) include a:
        - Site Water Balance;
        - Erosion and Sediment Control Plan;
        - Surface Water Monitoring Program;
        - Ground Water Monitoring Program; and
        - Surface and Groundwater Response Plan.

Site Water Balance

20. The Site Water Balance must:
    (a) include details of:
        - sources and security of water supply;
        - water make and use on site;
        - water management on site;
        - any off-site water transfers; and
        - reporting procedures; and
    (b) investigate and describe measures to minimise water use by the project.

Erosion and Sediment Control

21. The Erosion and Sediment Control Plan must:
    (a) be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004* (Landcom);
    (b) identify activities that could cause soil erosion and generate sediment;
    (c) describe measures to minimise soil erosion and the potential for the transport of sediment downstream in Nowra Creek;
    (d) describe the location, function, and capacity of erosion and sediment control structures; and
    (e) describe what measures would be implemented to maintain the structures over time.

Surface Water Monitoring

22. The Surface Water Monitoring Program must include:
    (a) detailed baseline data on surface water flows and quality in Nowra Creek and any other waterbodies that could potentially be affected by the project;

(b) surface water and stream health impact assessment criteria;
(c) a program to monitor the impact of the project on surface water flows in Nowra Creek, water quality and stream health, including monitoring for major cations and anions; and
(d) reporting procedures for the results of the monitoring program.

Groundwater Monitoring

23. The Ground Water Monitoring Program must include:
(a) detailed baseline data on ground water levels and quality, based on statistical analysis;
(b) ground water impact assessment criteria, including trigger levels for investigating any potentially adverse ground water impacts;
(c) a program to monitor ground water levels and quality;
(d) a protocol for further ground water modelling to confirm the limits to excavation depth across the site would not adversely affect ground water availability for the environment or local users; and
(e) a protocol for the investigation, notification and mitigation of identified exceedances of the ground water impact assessment criteria.

Surface and Groundwater Response Plan

24. The Surface and Groundwater Response Plan must describe the measures and/or procedures that would be implemented to:
(a) investigate, notify and mitigate any exceedances of the surface water, stream health and ground water impact assessment criteria, including an increase in salinity levels for Nowra Creek; and
(b) mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

REHABILITATION AND LANDSCAPE MANAGEMENT

Biodiversity Offset Strategy

25. The Proponent shall:
(a) review its proposed Biodiversity Offset Strategy (see Table 8), in consultation with DECCW and the Director-General, to seek to identify a replacement for the proposed Southern Biodiversity Offset Area that:
- is located in the vicinity;
- is not affected by identified future public infrastructure proposals; and
- has equivalent (or better) biodiversity values;

(b) implement the Biodiversity Offset Strategy (as amended under (a) above, if applicable);
(c) ensure that adequate resources are dedicated towards the implementation of the strategy;
(d) provide appropriate long term security for the offset areas; and
(e) provide a timetable for the implementation of the offset strategy prior to the clearing of any forested area of the site, or as otherwise agreed by the Director-General,
to the satisfaction of the Director-General.

Table 8: Biodiversity Offset Strategy

Offset Areas	**Minimum Size**
Northern Biodiversity Offset Area	21.5 hectares
Southern Biodiversity Offset Area	16.19 hectares
Total	37.69 hectares

Landscape and Biodiversity Management Plan

26. The Proponent shall prepare and implement a Landscape and Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:
(a) be prepared by suitably qualified person(s), approved by the Director-General;
(b) be submitted to the Director-General for approval prior to the 30 June 2010; and
(c) include a:
- Rehabilitation and Biodiversity Offset Strategy Management Plan; and
- Long Term Management Strategy.

Note: The Department accepts that the initial Landscape and Biodiversity Management Plan may not include the detailed Long Term Management Strategy. However, a conceptual strategy must be included in the initial plan, along with a timetable for augmentation of the strategy with each subsequent review of the plan.

27. The Rehabilitation and Biodiversity Offset Strategy Management Plan must include:
    (a) the rehabilitation objectives for the site and offset areas;
    (b) a description of the measures that would be implemented to:
        - rehabilitate and stabilise the site;
        - minimise the removal of mature trees;
        - implement the Biodiversity Offset Strategy; and
        - manage the remnant vegetation and habitat on the site and in the offset areas;
    (c) detailed performance and completion criteria for the rehabilitation and stabilisation of the site;
    (d) a detailed description of how the performance of the rehabilitation of the quarry areas would be monitored over time to achieve the stated objectives;
    (e) a detailed description of what measures would be implemented to rehabilitate and manage the landscape of the site including the procedures to be implemented for:
        - progressively rehabilitating and stabilising areas disturbed by quarrying;
        - implementing revegetation and regeneration within the disturbance areas;
        - protecting areas outside the disturbance areas, including the Biodiversity Offset Strategy areas;
        - vegetation clearing protocols, including a protocol for clearing any trees containing hollows and the relocation of hollows from felled trees;
        - managing impacts on fauna, in particular threatened species;
        - controlling weeds and pests;
        - controlling access;
        - bushfire management; and
        - reducing the visual impacts of the project;
    (f) a description of the potential risks to successful rehabilitation and a description of the contingency measures that would be implemented to mitigate these risks; and
    (g) details of who is responsible for monitoring, reviewing, and implementing the plan.

28. The Long Term Management Strategy must:
    (a) define the objectives and criteria for quarry closure and post-extraction management;
    (b) be prepared in consultation with NOW, DII and Council;
    (c) investigate and/or describe options for the future use of the site;
    (d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
    (e) describe how the performance of these measures would be monitored over time.

Rehabilitation

29. Backfilling of the quarry void and water storage facility is restricted to the use of materials which are "Virgin Excavated Natural Materials" as defined in the *Protection of the Environment Operations Act 1997*, to the satisfaction of the Director-General. The Proponent must consult with the Council to identify the proposed alignment of the link road from Warra Warra Road to the Flinders Industrial Estate. Backfilling within the proposed alignment must use materials and a compaction standard suitable for the future construction of the link road, to the satisfaction of the Director-General.

    Note: the conceptual final landform is shown in Appendix 4.

HERITAGE

Aboriginal Cultural Heritage Management Plan

30. The Proponent shall prepare and implement an Aboriginal Cultural Heritage Management Plan to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with DECCW and local Aboriginal communities;
    (b) be submitted to the Director-General for approval prior to 30 June 2010; and
    (c) include a description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the project.

VISUAL

Visual Amenity

31. The Proponent shall minimise the visual impacts of the project to the satisfaction of the Director-General.

WASTE MANGEMENT

Waste Minimisation

32. The Proponent shall minimise the amount of waste generated by the project to the satisfaction of the Director-General.

TRAFFIC AND TRANSPORT

33. The Proponent shall make a monetary contribution of $174,000 to the RTA for the construction of the following elements of the proposed Princes Highway upgrade between Central Avenue and Warra Warra Road:
    - the central median for a length of 60m; and
    - a left turn deceleration lane on the southbound approach to the quarry access road.

34. The Proponent shall pay the monetary contribution required by condition 33 according to the following schedule:
    (a) $54,000 paid prior to 30 June 2010; and
    (b) $40,000 paid prior to 30 June in each of the years 2011, 2012 and 2013,
    unless the RTA commences the proposed upgrade prior to the completion of these payments, in which case any remainder of the contribution not yet paid is payable immediately.

35. The Proponent shall upgrade the access to the development and land shall be dedicated generally in accordance with the RTA's preliminary concept design (see Appendix 5) to ensure the access accommodates swept paths for B-doubles and the future Princes Highway alignment, prior to the completion of the proposed Princes Highway upgrade and to the satisfaction of the RTA.

Road Haulage

36. The Proponent shall ensure that:
    (a) all loaded vehicles entering or leaving the site are covered;
    (b) all loaded vehicles leaving the site are cleaned of materials that may fall on the road, before they leave the site; and
    (c) a truck wheel wash facility is constructed on the site prior to to 30 June 2010,
    to the satisfaction of the Director-General.

EMERGENCY AND HAZARDS MANAGEMENT

Dangerous Goods

37. The Proponent shall ensure that the storage, handling, and transport of fuels and dangerous goods are conducted in accordance with the relevant *Australian Standards*, particularly AS1940 and AS1596, and the *Dangerous Goods Code*.

Safety

38. The Proponent shall secure the project to ensure public safety to the satisfaction of the Director-General.

Bushfire Management

39. The Proponent shall:
    (a) ensure that the project is suitably equipped to respond to any fires on-site; and
    (b) assist the rural fire service and emergency services, if safe to do so, if there is a fire on-site.

PRODUCTION DATA

40. The Proponent shall:
    (a) provide annual production data to the DII using the standard form for that purpose; and
    (b) include a copy of this data in the AEMR.

SCHEDULE 4
ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. If the results of monitoring required in schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria, then the Proponent shall notify the Director-General and affected landowners and tenants, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the relevant criteria.

INDEPENDENT REVIEW

2. If a landowner of privately-owned land considers that the project is exceeding any of the impact assessment criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.

   If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 3 months of the Director-General advising that an independent review is warranted:
   (a) consult with the landowner to determine his/her concerns;
   (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to determine whether the project is complying with the relevant criteria in schedule 3, and identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and
   (c) give the Director-General and landowner a copy of the independent review.

3. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

4. If the independent review determines that the project is not complying with the relevant criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:
   (a) implement all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria; and
   (b) conduct further monitoring to determine whether these measures ensure compliance; or
   (c) secure a written agreement with the landowner to allow exceedances of the relevant criteria in schedule 3,

   to the satisfaction of the Director-General.

   If the additional monitoring referred to above subsequently determines that the project is complying with the relevant criteria in schedule 3, or the Proponent and landowner enter into a negotiated agreement to allow these exceedances, then the Proponent may discontinue the independent review with the approval of the Director-General.

5. If the landowner disputes the results of the independent review, either the Proponent or the landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 6).

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
   (a) be submitted to the Director-General for approval by 30 June 2010;
   (b) provide the strategic framework for environmental management of the project;
   (c) identify the statutory approvals that apply to the project;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the project;
      - respond to any non-compliance; and
      - respond to emergencies; and
   (f) include:
      - copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and
      - a clear plan depicting all the monitoring currently being carried out within the project area.

INCIDENT REPORTING

2. Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval or the occurrence of an incident that causes (or may cause) material harm to the environment, the Proponent shall notify the Department and other relevant agencies of the exceedance/incident.

3. Within 6 days of notifying the Department and other relevant agencies of an exceedance/incident, the Proponent shall provide the Department and these agencies with a written report that must:
   (a) describe the date, time, and nature of the exceedance/incident;
   (b) identify the cause (or likely cause) of the exceedance/incident;
   (c) describe what action has been taken to date; and
   (d) describe the proposed measures to address the exceedance/incident.

ANNUAL REPORTING

4. Within 12 months of the date of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and relevant agencies. This report must:
   (a) identify the standards and performance measures that apply to the project;
   (b) describe the works carried out in the last 12 months, and the works that will be carried out in the next 12 months;
   (c) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
   (d) include a summary of the monitoring results for the project during the past year;
   (e) include an analysis of these monitoring results against the relevant:
      - impact assessment criteria/limits;
      - monitoring results from previous years; and
      - predictions in the EA;
   (f) identify any trends in the monitoring results over the life of the project;
   (g) identify any non-compliance during the previous year; and
   (h) describe what actions were, or are being, taken to ensure compliance.

INDEPENDENT ENVIRONMENTAL AUDIT

5. Within 3 years of the date of this approval, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
   (a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been approved by the Director-General;
   (b) assess the environmental performance of the project, and its effects on the surrounding environment;
   (c) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;
   (d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
   (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.

6. Within 1 month of completion of each Independent Environmental Audit, the Proponent shall submit a copy of the audit report to the Director-General and relevant agencies, with a response to any of the recommendations in the audit report.

7. Within 3 months of submitting a copy of the audit report to the Director-General, the Proponent shall review and if necessary revise the:
   (a) strategies/plans/programs required under this approval; and
   (b) rehabilitation bond, to consider the:
      - effects of inflation;
      - changes to the total area of disturbance; and
      - performance of the rehabilitation against the completion criteria of the Landscape and Biodiversity Management Plan,

   to the satisfaction of the Director-General.

COMMUNITY CONSULTATIVE COMMITTEE

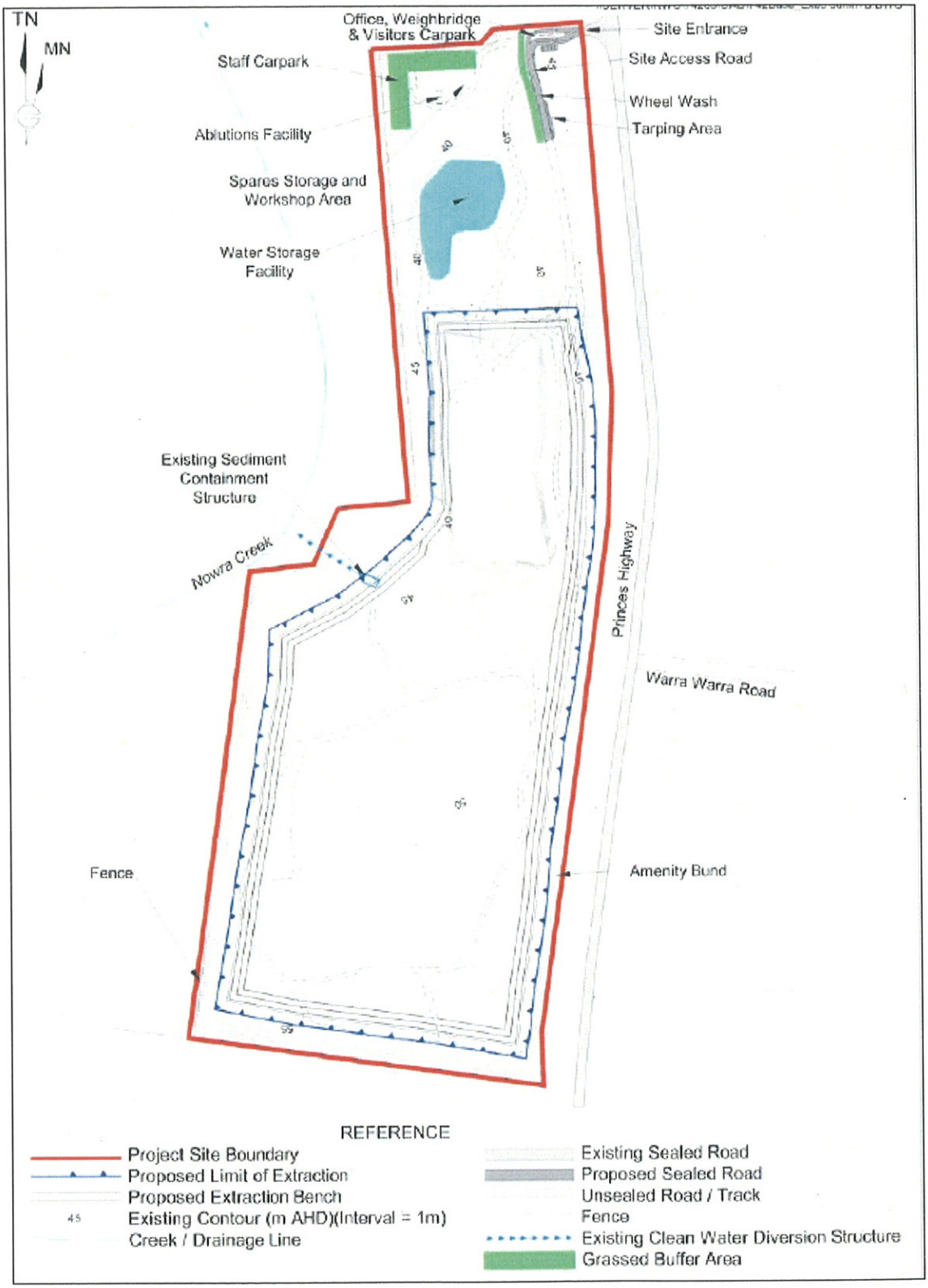
8. Within 3 months of the commencement of quarrying operations, the Proponent shall establish a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in accordance with the Department's *Guideline for Establishing and Operating Community Consultative Committees for Mining Projects*.

ACCESS TO INFORMATION

9. Within 1 month of the approval of any strategies/plans/programs required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMR required under this approval, the Proponent shall:
   (a) provide a copy of the relevant document/s to the relevant agencies and to members of the general public upon request; and
   (b) ensure that a copy of the relevant document/s is made publicly available on its website and at the site.

10. During the project, the Proponent shall:
   (a) make a summary of monitoring results required under this approval publicly available on its website; and
   (b) update these results on a regular basis (at least every 6 months).

APPENDIX 1
PROJECT MAP



APPENDIX 2
STATEMENT OF COMMITMENTS
Final Statement of Commitments for the Nowra Brickworks Quarry

Desired Outcome	Action	Timing
1. Environmental Management		
Compliance with all conditional requirements in all approvals, licences and leases.	1.1 Comply with all commitments recorded in **Table 5.1** 1.2 Comply with all conditional requirements included in the: Project Approval; Environment Protection Licence; Mining Leases; and any other approvals.	Continuous and as required.
All operations conducted in accordance with all relevant documentation.	1.3 Undertake all activities in accordance with the accepted Mining Operations Plan, environmental procedures, safety management plan and/or site-specific documentation. 1.4 provide annual production data to DPI	Continuous and as required.
2. Area of Activities		
All approved activities are undertaken generally in the location(s) nominated on the figures shown in Sections 2 and 4.	2.1 Mark, and where appropriate, survey the boundaries of the areas of proposed disturbance.	Prior to the commencement of the relevant activity.
3. Hours of Operation		
All operations are undertaken within the approved operating hours.	3.1 Extraction, processing and VENM backfilling-related activities. • 7:00am to 6:00pm, Monday to Friday. • 7:00am to 4:00pm, Saturday 3.2 Product despatch. • 7:00am to 6:00pm, Monday to Saturday. • Up to three unladen trucks would arrive at the Project Site between 6:00am and 7:00am, Monday to Saturday and may return to the Project Site between 6:00pm and 8:00pm, Monday to Friday and between 4:00pm and 6:00pm Saturday. • 3.3 Maintenance-related activities • 7:00am to 6:00pm, Monday to Saturday.	Continuous

(Cont'd)
Statement of Commitments for the Nowra Brickworks Quarry

Desired Outcome	Action	Timing
4. Hydrology (Surface Water and Groundwater)		
All surface water and ground water managed such that water to be discharged from the Project Site complies with all assessment criteria	4.1 Maintain and progressively relocate the existing surface water diversion and sediment containment structures.	As required
	4.2 Construct, maintain and relocate, as required, surface water diversion structures to ensure that all surface water flows within disturbed sections of the Project Site are directed to the extraction area. The maximum catchment area would be required to be less than 5.9ha. To achieve this, the Proponent would ensure that progressive rehabilitation is undertaken as soon as practicable on sections of the Project Site no longer required for extraction-related operations.	
	4.3 Construct temporary surface water diversion structures on the upslope side of all soil stockpiles or other disturbed areas to limit erosion.	
	4.4 Install sediment fencing adjacent to the down-slope toe of all soil stockpiles or other disturbed areas.	
	4.5 Regularly inspect all surface water and sediment control structures for adequacy and repair or upgrade, where required.	Six monthly and following significant rainfall events
	4.6 Install and maintain a suitably sized sump within the active extraction area to collect all surface water runoff and groundwater inflows to the extraction area.	Following receipt of project approval
	4.7 Preferentially use water within the extraction area sump for dust suppression-related activities. Surplus water within the extraction area sump would be pumped to the water storage facility.	As required
	4.8 Preferentially use water within the water storage facility for rehabilitation-related activities or for irrigation within the irrigation area.	
	4.9 Construct 'grassed buffer areas' adjacent to the site access road and other sealed sections of the Project Site.	Within 6 months of receipt of project approval

Desired Outcome	Action	Timing
5. Ecology		
Minimise Project-related impacts on flora and fauna within and surrounding the Project Site.	5.1 Stage extraction activities such that they preferentially progress from disturbed sections of the Project Site to undisturbed sections.	Continuous
	5.2 Remove native vegetation only from those areas required for operational purposes during the subsequent 12 months.	
	5.3 Mark hollow-bearing trees to ensure they are readily identifiable.	
	5.4 Mark the boundaries of areas of native vegetation to be cleared.	Prior to clearing operations
	5.5 Erect cage traps in the vicinity of hollow-bearing trees for three consecutive nights.	
	5.6 Keep any trapped animal in captivity by animal for the period of clearing of native vegetation.	During clearing operations
	5.7 Clear non-hollow-bearing trees before clearing other vegetation.	During clearing operations
	5.8 Ensure a qualified fauna consultant is present during clearing of hollow-bearing trees.	
	5.9 Release any trapped animal adjacent to the Project Site.	Following clearing operations
	5.10 Break or cut cleared vegetation into manageable sections to be placed on areas undergoing rehabilitation or within other areas of native vegetation surrounding the Project Site.	Following clearing operations
	5.11 Undertake weed control programs within the Project Site.	Annually
	5.12 Strip, stockpile and spread topsoil and subsoil in accordance with Section 2.3.5.	During soil stripping programs
	5.13 Progressively rehabilitate all areas of disturbance no longer required for extraction or placement activities.	Following completion of extraction operations
	5.14 Implement the proposed biodiversity offset strategy	

Desired Outcome	Action	Timing
6. Traffic and Transportation		
Limit the impact of Project-related traffic	6.1. Adhere to the approved hours of operation.	Continuous
	6.2. Adhere to all speed limits.	
Allow concerned residents or motorists to report any traffic-related incidents, unsafe operation or general concerns.	6.3. Establish a complaints register, advertised in the local telephone directory.	On receipt of project approval
	6.4. Investigate all complaints and act decisively on substantiated incidents.	
Ensure all weight restrictions are adhered to	6.5. Weigh all entering and exiting laden trucks.	Continuous
Limit the tracking of material onto the Princes Highway to minimise dust, particulate matter and debris emissions.	6.6. Seal a 150m section of the site access road from the entrance gate and construct a wheel wash facility.	Prior to the amount of quarry products despatched from the Project Site exceeding 250 000t per year
	6.7. Ensure all loads are covered.	Continuous
	6.8. Provide a safe area for covering loads.	
Ensure all drivers adhere to the Projects Code of Conduct	6.9. Require all truck drivers to sign a Driver's Code of Conduct.	Prior to each driver leaving site for the first time
7. Air Quality		
Site activities are undertaken without exceeding DECC air quality criteria or goals.	7.1. Utilise water sprays and water trucks in all areas of potential dust lift-off to minimise potential dust emissions.	Continuous
	7.2. Utilise a chemical dust lift-off suppression system along unsealed roads, tracks and working areas, as well as with the mobile processing plant(s).	
	7.3. Utilise efficient mist sprays and wind sheltering equipment on processing equipment.	
	7.4. Maintain a maximum speed limit within the Project Site of 10km/h.	
	7.5. Stabilise the unsealed shoulders of the site assess road.	Prior to the amount of quarry products despatched from the Project Site exceeding 250 000t per year
	7.6. Install a wheel wash on the site access road to limit tracking of material onto the Princes Highway	
	7.7. Disturb only the minimum area required for operation of the quarry during the subsequent 12 months.	Continuous
	7.8. Stabilise soil stockpiles to be in place for more than 10 days through the application of cleared vegetation, hydroseeding, hydromulching or equivalent.	Following soil stripping activities

Desired Outcome	Action	Timing
7. Air Quality (Cont'd)		
Site activities are undertaken without exceeding DECC air quality criteria or goals. (Cont'd)	7.9. Minimise the creation of minor roads and access tracks.	Continuous
	7.10. Utilise dust aprons, dust extraction systems and/or water injection or sprays during drilling operations.	During drilling operations
	7.11. Adequately stem all blast holes with aggregates.	During blasting operations
	7.12. Commence rehabilitation as soon as practicable.	Once an area is no longer required for extraction or placement-related operations
8. Noise		
Project-related noise impacts on surrounding residences minimised.	8.1. Adhere to the approved hours of operation.	Continuous
	8.2. Use noise-mitigated mobile and processing equipment.	
	8.3. Undertake all processing operations within the deepest section of the quarry.	
	8.4. Maintain all mobile and processing equipment in accordance with the manufacturer's specifications.	
	8.5. Preferential selection of equipment with lower sound power levels over equipment with higher sound power levels.	As equipment renewal is required
	8.6. Progressively install frequency modulated reversing alarms on mobile equipment.	
9. Blasting		
Project-related blasting impacts within assessment guidelines.	9.1. Design and implement blasts by a suitably qualified blasting engineer and experienced shot-firer.	Each blast
	9.2. Design blasts to ensure the assessment criteria described in Section 4.7.4.5 are complied with at all residential and commercial receivers.	
	9.3. Modify blast designs, mitigation measures and operating procedures on the basis of monitoring results.	As required
	9.4. Limit blasting operations to between the hours of 9:00am and 4:00pm, Monday to Saturday.	Each blast
	9.5. Negotiate an appropriate arrangement with the owner of Residence A.	Prior to completion of Stage 1 of the Project

Desired Outcome	Action	Timing
9. Blasting (Cont'd)		
Project-related blasting impacts within assessment guidelines. (Cont'd)	9.6. Notify the following organisations verbally of each blast. • Shoalhaven City Council. • NSW Police. • NSW Roads and Traffic Authority. • The owner of Residence A. • Environment Protection Authority. • The South Coast Correctional Facility (when constructed).	On the working day prior to the blast being initiated
	9.7. Maintain the existing main telephone number (02 4421 7766) for the quarry as an environmental complaints line.	Continuous
	9.8. Maintain a register of complaints.	
	9.9. Respond promptly to any issue of concern.	
10. Aboriginal Cultural Heritage		
Unidentified Aboriginal sites are not disturbed by the Proponent's activities.	10.1. Ensure representatives of the Aboriginal community are present during activities that would disturb the upper 10cm of soil in the area marked on **Figure 5.1.**	During soil stripping operations in the area indicated
	10.2. Cease all work in the event that an item of suspected Aboriginal cultural heritage is discovered, establish a 20m x 20m buffer around the item and consult with the Department of Environment, Climate Change and Water.	As required
	10.3. Cease all work in the event that suspected human remains are discovered, establish a 50m x 50m buffer around the item(s) and consult with NSW Police and the Department of Environment, Climate Change and Water.	As required
11. Soils		
The Proponent's activities do not result in soil degradation or loss.	11.1. Strip soils only when they are moist.	During soil stripping operations
	11.2. Strip topsoils using a scraper, excavator or bulldozer to a depth of between 180mm and 250mm below the surface.	
	11.3. Strip subsoils to a depth of between 175mm and 500mm below the base of the topsoil.	
	11.4. Place soils directly on areas undergoing progressive rehabilitation, where practicable.	During rehabilitation operations

Desired Outcome	Action	Timing
11. Soils (Cont'd)		
The Proponent's activities do not result in soil degradation or loss. (Cont'd)	11.5. Place Virgin Excavated Natural Material (VENM) in the manner described in Section 2.9.5.	During VENM placement operations
	11.6. Place subsoil over the VENM to a thickness of approximately 250mm.	During soil placement operations
	11.7. Place topsoil to a thickness of approximately 200mm.	
	11.8. Apply biosolids to the topsoil at a rate of less than 20 dry tonnes per hectare.	
	11.9. Spread between 20mm to 40mm of mulched native vegetation, broken tree debris or bitumen sprayed straw mulch over the topsoil.	
	11.10. Locate soil stockpiles, where required, at least 2m from existing vegetation, areas of concentrated surface water flows, roads or other hazardous areas.	During soil stockpiling operations
	11.11. Construct soil stockpiles as low (less than 2m high), flat, elongated mounds with side slopes no greater than 1:3(V:H). Where practicable, topsoil stockpiles would be less than 1m high.	
	11.12. Stabilise stockpiles to be in place for more than 10 days through the application of mulched or broken vegetation, hydroseeding, hydromulching or equivalent.	During soil stockpiling operations
	11.13. Erect a sediment fence approximately 1m from the toe on the downslope side of soil stockpiles.	
	11.14. Use stockpiled soil material for rehabilitation-related operations within 6 months of being stockpiled.	
Ensure sediment-laden surface water is not permitted to flow off site.	11.15. Maintain and relocate an earth bank to divert all 'clean' surface water to a sediment retention structure and level spreader.	Continuous
	11.16. Divert all surface water flows from disturbed areas to the water storage facility where practicable.	
	11.17. Divert all other potentially sediment-laden surface water flows to a sump within the extraction area.	

Desired Outcome	Action	Timing
11. Soils (Cont'd)		
Ensure sediment-laden surface water is not permitted to flow off site. (Cont'd)	11.18. Preferentially use water from the extraction area sump for dust suppression and watering of roads and other areas.	
	11.19. Construct a bio-infiltration facility in accordance with the specifications in Section 4.9.3.	Prior to discharge of surface water to Nowra Creek
	11.20. Preferentially use water within the water storage facility for rehabilitation-related activities.	Continuous
	11.21. Pump excess water from the extraction are sump to the water storage facility.	As required
	11.22. Pump water from the water storage facility to a bio-infiltration facility when the concentration of total suspended solids within the water storage facility is less than 50mg/L.	
	11.23. Pump water from the bio-infiltration facility to Nowra Creek.	
12. Visibility		
Limit impacts to the visual amenity of the area surrounding the Project Site.	12.1. Maintain the existing perimeter bunds.	Continuous
	12.2. Maintain the existing mature trees on the eastern boundary of the Project Site.	
	12.3. Adopt a high standard of house keeping.	
13. Socio-Economic		
Ensure Project-related adverse impacts are minimised and benefits are maximised.	13.1. Give preference to suppliers of equipment, services or consumables located within the Shoalhaven Local Government Area or Illawarra Region, where ever practicable.	Continuous
	13.2. Give preference, where reasonable to do so, when engaging new employees to candidates who live within the Shoalhaven Local Government Area.	
	13.3. Continue to support local junior sporting clubs through sponsorship or in kind support.	
	13.4. Review any request by a community organisation for support or assistance during the life of the Project.	As required

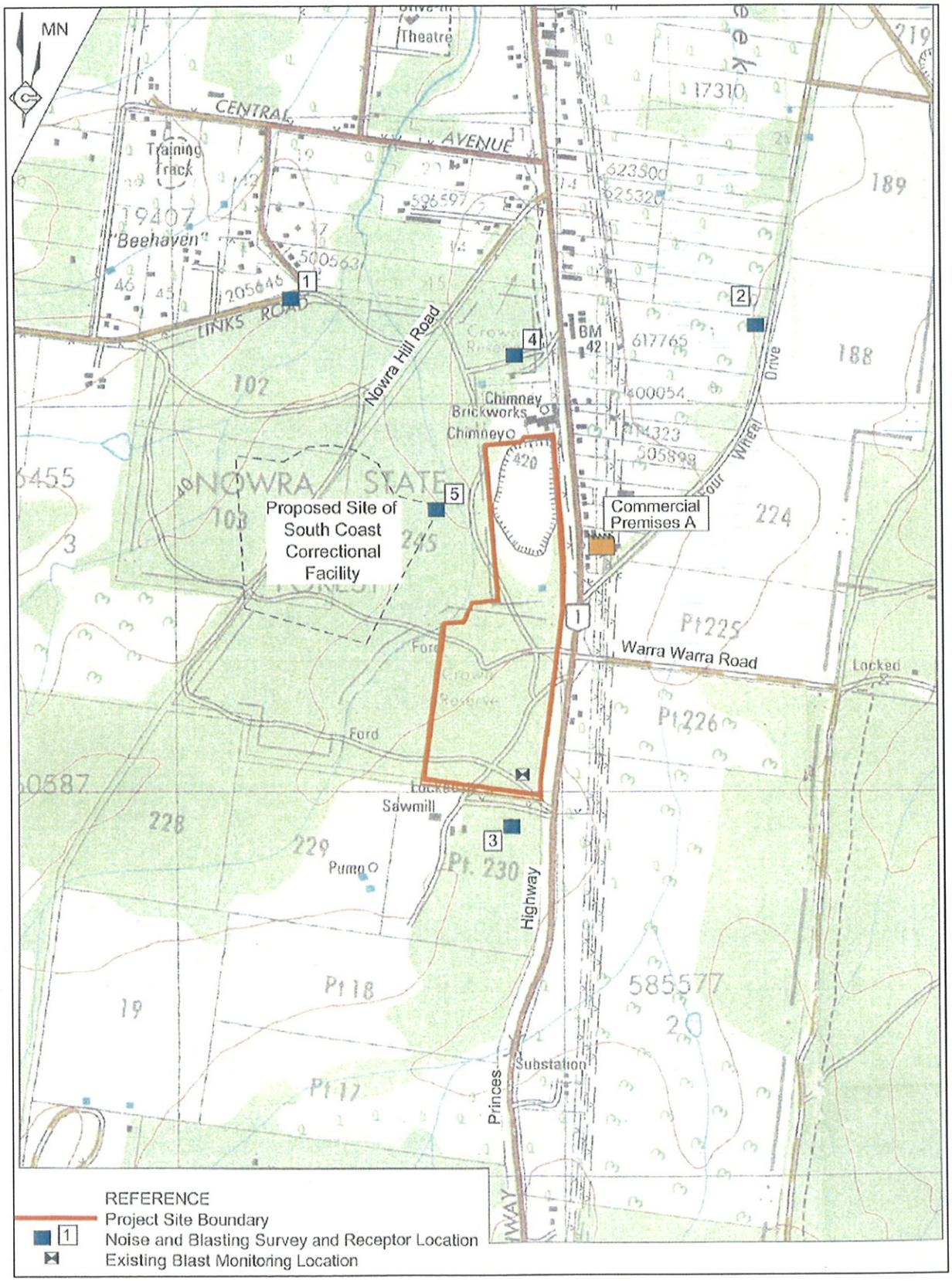
(Cont'd)
Statement of Commitments for the Nowra Brickworks Quarry

Desired Outcome	Action	Timing
13. Socio-Economic (Cont'd)		
Ensure Project-related adverse impacts are minimised and benefits are maximised. (Cont'd)	13.5. Consult with the residents and community surrounding the Project Site.	Continuous
	13.6. Advertise and maintain a community complaints telephone line.	
	13.7. Develop and maintain a Complaints Management Plan to ensure prompt response to issues identified by the public.	
14. Environmental Monitoring		
Ongoing monitoring of surface and groundwater-related impacts.	14.1. Monitor groundwater levels within Piezometers P1 to P8 (**Figure 5.1**).	Monthly.
	14.2. Monitor and record groundwater quality within piezometers P2, P3, P5, P6 and P7 (**Figure 5.1**).	Quarterly
	14.3. Monitor and record groundwater seepage on rock faces. To be undertaken by a geotechnical engineer.	Six monthly
	14.4. Monitor and record surface water quality within the extraction area sump, the water storage facility, the sediment containment structure and within Nowra Creek upstream and downstream of the Project-site discharge point.	Monthly
	14.5. Determine and record the quality of water pumped from the water storage facility to the bio-infiltration facility.	During each pumping campaign
	14.6. Determine and record the quality of water discharged from the bio-infiltration facility to Nowra Creek.	
	14.7. Determine and record the quality of water flowing from the sediment containment structure to Nowra Creek.	During or immediately following significant rainfall events
	14.8. Determine, using in-line meters, and record the volumes of water pumped: • from the extraction area sump to the water storage facility; • from the water storage facility to the bio-infiltration facility; and • from the bio-infiltration facility to Nowra Creek.	During pumping programs

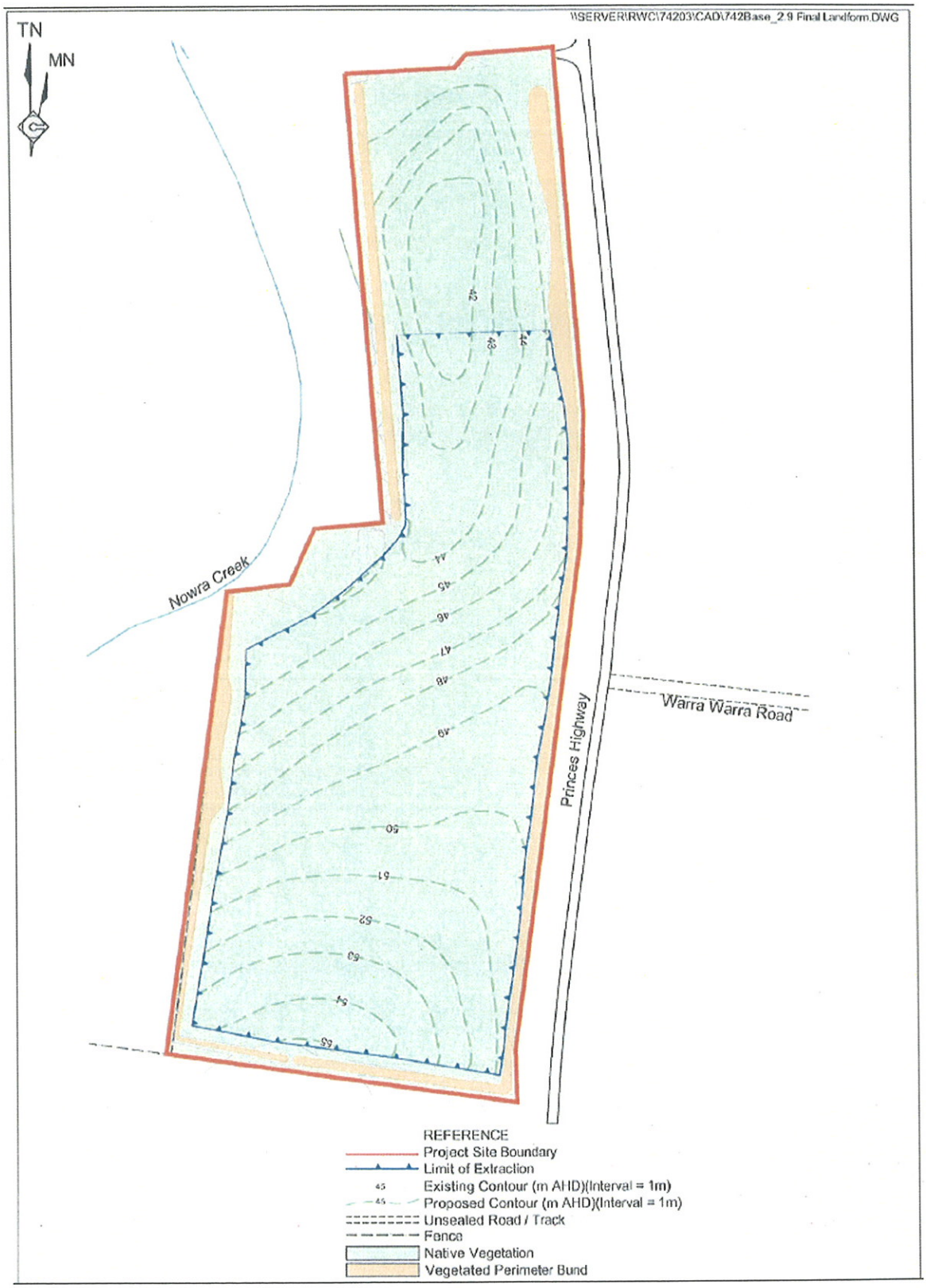
(Cont'd)
Statement of Commitments for the Nowra Brickworks Quarry

Desired Outcome	Action	Timing
14. Environmental Monitoring (Cont'd)		
Ongoing monitoring of surface and groundwater-related impacts. (Cont'd)	14.9. Determine and record the volume of water used for extraction, processing, placement and rehabilitation-related operations.	Daily
Ongoing monitoring of ecology-related impacts.	14.10. Undertake regular monitoring of areas undergoing rehabilitation to determine the success or otherwise of the management, mitigation and ameliorative measures and the rehabilitation programs.	Six monthly
	14.11. Take photographs from fixed points to document activities within the Project Site, including rehabilitation progress.	Six monthly
	14.12. Undertake weed inspection programs.	Annually
Ongoing monitoring of air quality-related impacts.	14.13. Maintain the existing network of deposited dust monitoring gauges and determine and record dust deposition rates.	Monthly
	14.14. Establish a meteorological station capable of measuring temperature at the surface and at a height of 10m, wind direction and speed and rainfall.	Within 3 months of receipt of project approval
Ongoing monitoring of blasting-related impacts.	14.15. Monitor all blasts at the blast monitoring locations indicated on **Figure 5.1**.	Each blast
15. Environmental Documentation		
A systematic set of documents are in place to guide the planning and implementation of all environmental management strategies.	15.1 Incorporate the environmental procedures in an on-site management system.	Prior to relevant activity.
	15.2 Update the Mining Operations Plan.	As required.
	15.3 Incorporate relevant environmental data / information in Annual Environmental Management Reports.	Annually.
	15.4 Prepare the following environmental plans for the Project. - Air Quality Monitoring Program. - Noise Monitoring Program. - Blast Monitoring Program. - Flora and Fauna Management Plan. - Site Water Management Plan. - Groundwater Management Plan. - Rehabilitation and Landscape Management Plan	Variously.
	15.5 Incorporate the environmental procedures in an on-site management system.	Prior to relevant activity.

APPENDIX 3
NOISE AND DUST MONITORING LOCATIONS

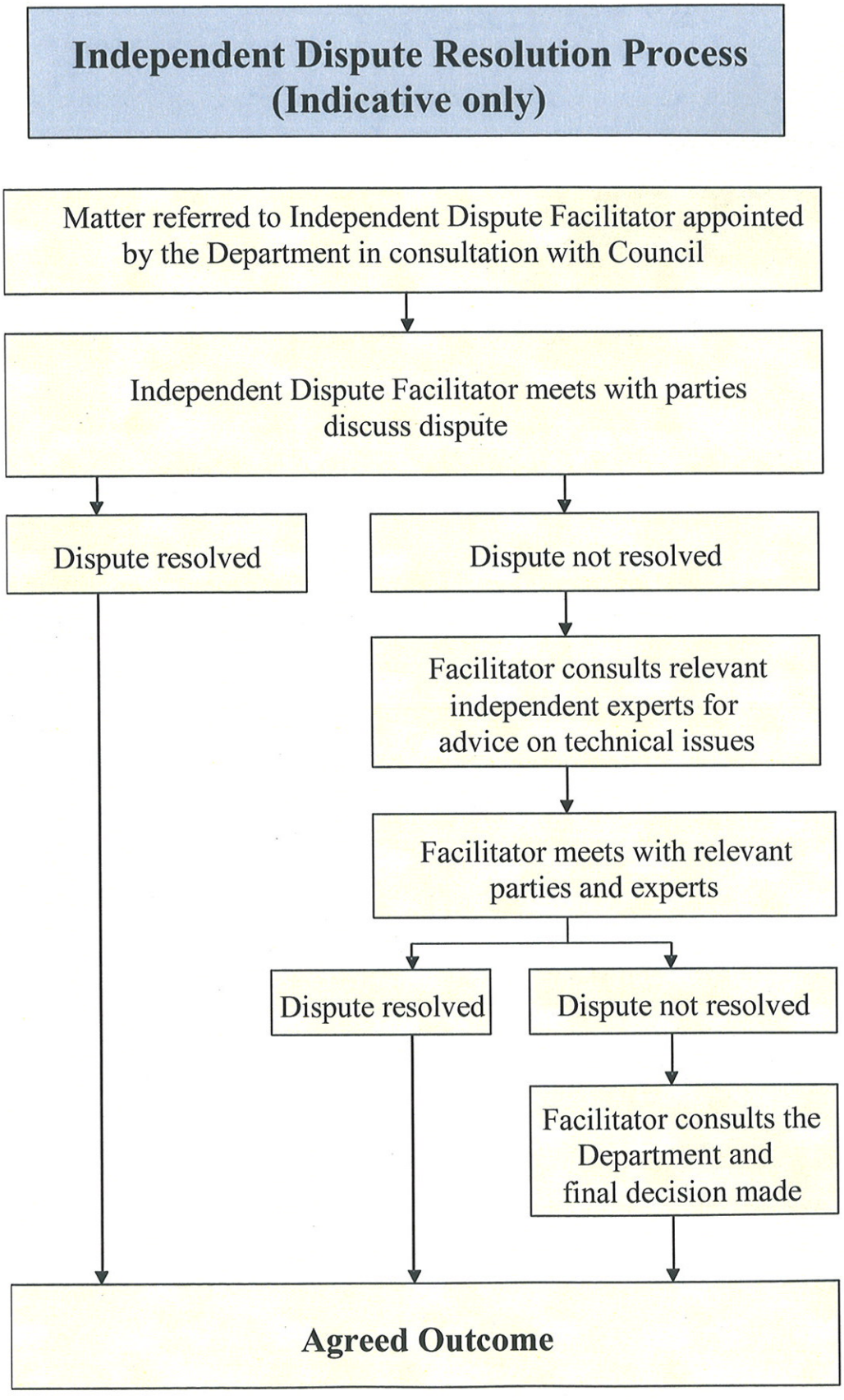


APPENDIX 4
CONCEPTUAL FINAL LANDFORM



APPENDIX 5
QUARRY ACCESS – RTA PRELIMINARY CONCEPT DESIGN

APPENDIX 6
INDEPENDENT DISPUTE RESOLUTION PROCESS



APPENDIX C – CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

Shoalhaven Local Environmental Plan 1985
Under the current LEP the land to which the project applies is zoned 1(b) – Rural Arterial and Main Road Protection, with a small section zoned 1(f) – Forest. Extractive industries are permissible in both zones, subject to consent.

Draft Shoalhaven Local Environmental Plan 2009
The Draft LEP proposes to re-zone land contained in ML5087 as IN2 – Light Industrial and land contained in ML 6322 as E2 – Environmental Conservation. This may impact on the permissibility of the project, as the E2 zoning would prohibit extractive industry.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)
Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of extractive industries, including:

- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

The Department has considered these matters in its assessment report. Based on this assessment, the Department is satisfied that the project is able to be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

State Environmental Planning Policy (Infrastructure) 2007
In accordance with clause 104 of the Infrastructure SEPP (and equivalent provisions of the now repealed *SEPP 11 Traffic Generating Developments*), the application was referred to the RTA. Issues raised by the RTA and related traffic impacts are discussed in section 4.3.

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development (SEPP 33)
SEPP 33 aims to identify proposals with the potential for significant offsite impacts, in terms of risk and/ or offence (odour, noise etc) to people, property or the environment. The Department is satisfied that the project is not potentially hazardous or offensive, and that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application. Clause 7 of SEPP 55 states that:

> *7(1) A consent authority must not consent to the carrying out of any development on land unless:*
>
> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

The Department is satisfied that existing land contamination is not a significant issue for the site.

APPENDIX D – PROPONENT'S RESPONSES TO SUBMISSIONS

See attached CD-ROM containing a folder titled "*Nowra Brickworks Quarry: Response to Submissions*".

APPENDIX E – SUBMISSIONS

See attached CD-ROM containing a folder titled "*Nowra Brickworks Quarry: Submissions*".

APPENDIX F – ENVIRONMENTAL ASSESSMENT

See attached CD-ROM containing a folder titled "*Nowra Brickworks Quarry: Environmental Assessment*".

Appendix B – Air Quality Monitering

The Air Quality is tested in accordance with the Instrument of Approval.
This monitoring is carried out by means of Dust Deposition Gauges and Hi-volume Air Samplers recording particulate matter of an Equivalent Aerodynamic Diameter of 10 microns or less (PM10) and Total Suspended Particulate Matter (TSP).

The results of these tests are analysed by ALS Group, a NATA accredited laboratory for environmental monitoring.

TsP High Volume Samplers

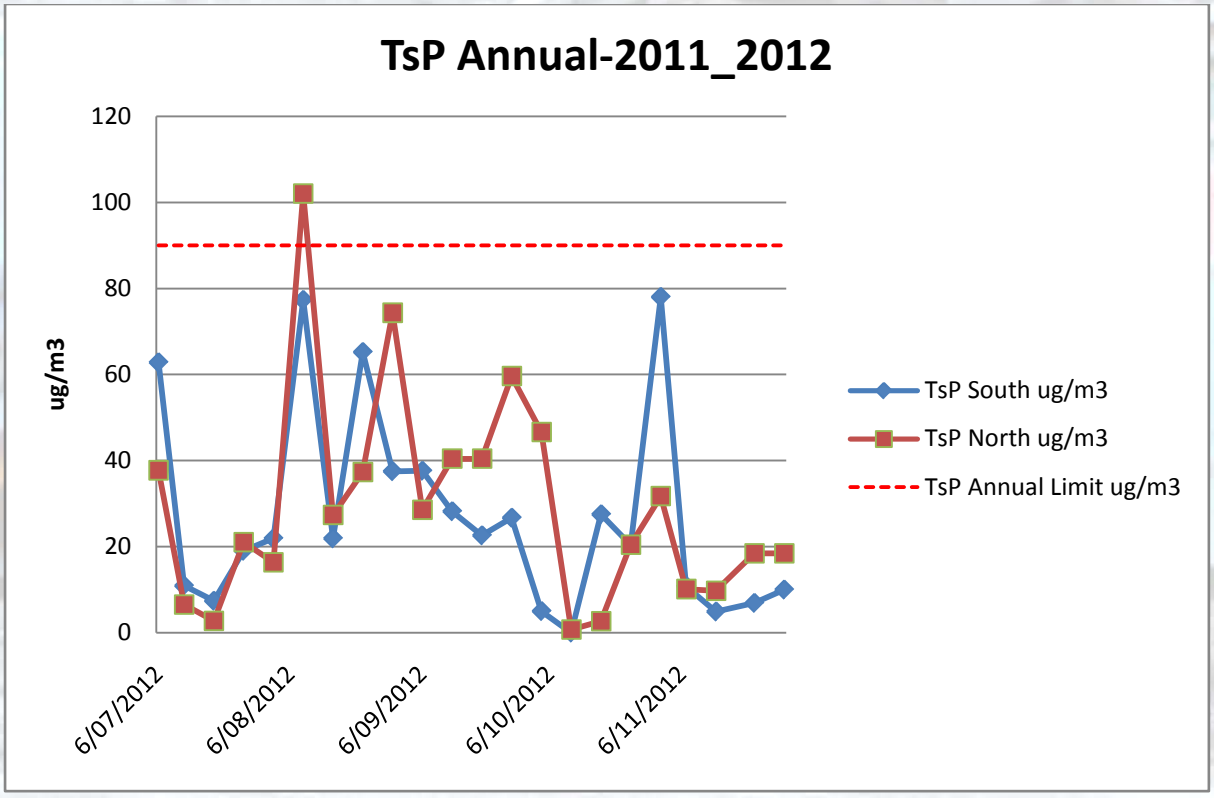
There was a period from Dec 2011 until June 2012 where no results were recorded this was an operation oversight and was corrected in July 2012 with monitering ongoing and continuing.

During the reporting period we had 1 TsP reading exceeding the annual reporting criteria, however there are no 24hr criteria. The higher readings coincided with the commencement of the RMS road construction at the front of our quarry. John Green contacted Julian from DECCW to report the high results and this was documented as to the high readings and the relationship to the commencement of the roadworks.

The TsP Annual Average limit (90ug/m3) was not exceeded during the reporting period. There was only one recorded instance of a 24hr period recording above the annual average and this was attributed to roadworks to the front of the quarry.

TsP Annual Average – South (27.4 ug/m3)
TsP Annual Average – North (29.7 ug/m3)

TsP Annual Table



TsP Results		
Reporting Criteria:		
TSP annual		90ug/m3
Date	TsP South ug/m3	TsP North ug/m3
6/07/2012	62.8	37.7
12/07/2012	10.9	6.5
19/07/2012	7.4	2.7
26/07/2012	19	21
2/08/2012	21.9	16.3
9/08/2012	77.3	102
16/08/2012	21.9	27.3
23/08/2012	65.2	37.3
30/08/2012	37.5	74.3
6/09/2012	37.6	28.5
13/09/2012	28.2	40.4
20/09/2012	22.6	40.4
27/09/2012	26.7	59.6
4/10/2012	5	46.6
11/10/2012	0	0.7
18/10/2012	27.5	2.6
25/10/2012	20.4	20.4
1/11/2012	78	31.7
7/11/2012	10.8	10.1
14/11/2012	4.9	9.7
23/11/2012	6.9	18.4
30/11/2012	10	18.4
Annual Average	**27.4**	**29.7**

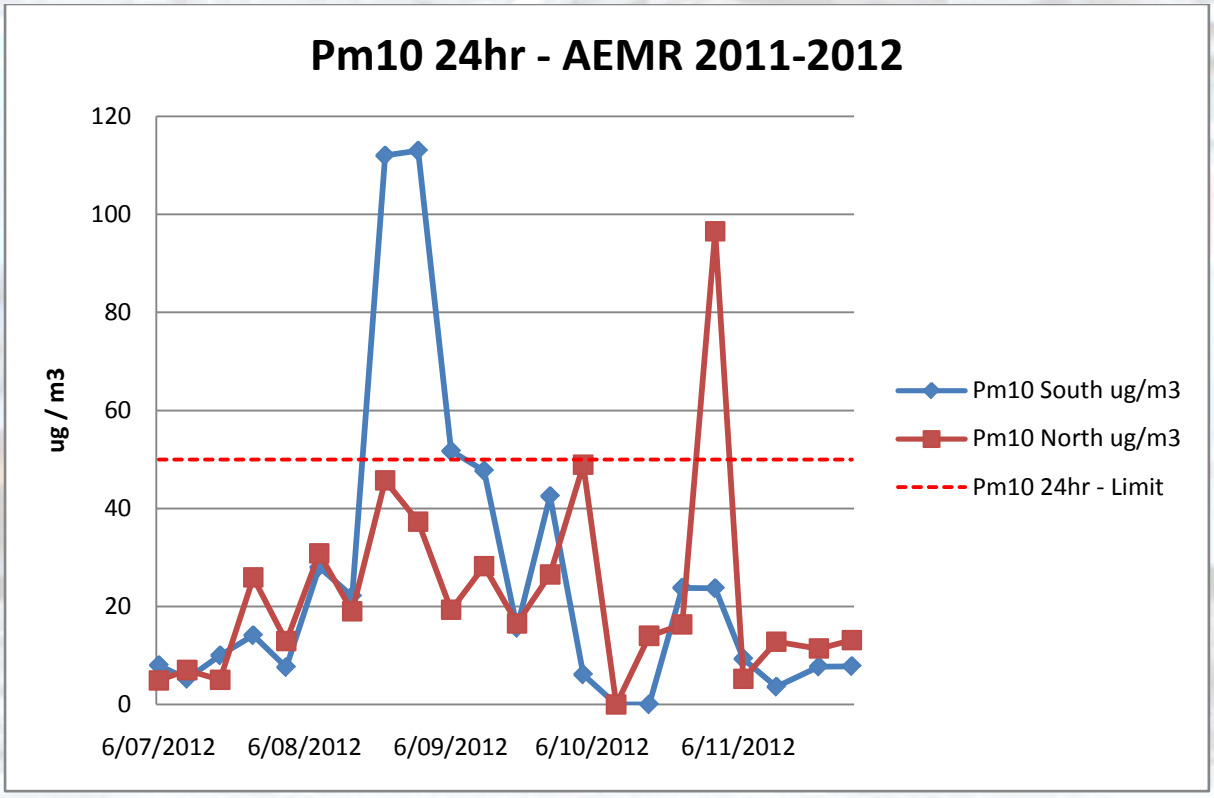
Pm10 High Volume Samplers

There was a period from Dec 2011 until June 2012 where no results were recorded this was an operation oversight and was corrected in July 2012 with monitering ongoing and continuing.

During the reporting period we had 4 readings exceeding the Pm10 24hr reporting criteria. All results co-incided with the commencement of the RMS road works to the front of the quarry. John Green contacted Julian from DECCW to report the high results and this was documented as to the high readings and the relationship to the commencement of the roadworks. Once the initial clearing and earthworks had been completed the intensity of the works decreased and plateaued with intermittent work near our quarry, resulting in another high reading in November. The Pm10 Annual Average limit was not exceeded during the reporting period. Even though in some instances there were higher limits recorded than the 24hr allowable amount the averages for both the North and South reporting locations were within the reporting criteria of 30ug/m3.

Pm10 Annual – South (25.4 ug/m3)
Pm10 Annual – North (22.6 ug/m3)

TsP 24hr Table



Pm10 and TsP report Overview		
Reporting Criteria:		
TSP annual		**90ug/m3**
Pm10 annual		**30ug/m3**
Pm10 24hr		**50ug/m3**
Date	**Pm10 South ug/m3**	**Pm10 North ug/m3**
6/07/2012	8	4.9
12/07/2012	5.2	7
19/07/2012	10	5
26/07/2012	14.1	25.9
2/08/2012	7.6	12.9
9/08/2012	28	30.8
16/08/2012	22.1	19
23/08/2012	112	45.7
30/08/2012	113	37.3
6/09/2012	51.7	19.3
13/09/2012	47.7	28.2
20/09/2012	15.6	16.5
27/09/2012	42.5	26.5
4/10/2012	6.1	48.9
11/10/2012	0	0
18/10/2012	0	14
25/10/2012	23.8	16.3
1/11/2012	23.7	96.5
7/11/2012	9.3	5.2
14/11/2012	3.6	12.8
23/11/2012	7.7	11.4
30/11/2012	7.8	13.1

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1201923**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 13-JUL-2012
Sampler	: ----	Issue Date	: 20-JUL-2012
Site	: ----		
		No. of samples received	: 5
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 5

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 621879	PM 10 Nth 621877	TSP Sth 621880	PM 10 Sth 621878	Blank 621881
Client sampling date / time				06-JUL-2012 14:30	06-JUL-2012 14:30	05-JUL-2012 14:30	05-JUL-2012 14:30	09-JUL-2012 14:15
				EW1201923-001	EW1201923-002	EW1201923-003	EW1201923-004	EW1201923-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**37.7**	**4.9**	**62.8**	**8.0**	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**20.3**	**2.6**	**34.3**	**4.3**	**1.6**

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202038**	Page	: 1 of 4
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-JUL-2012
Sampler	: ----	Issue Date	: 02-AUG-2012
Site	: ----		
		No. of samples received	: 9
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 9

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Analytical Results

Sub-Matrix: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 621858	PM10 Nth 621856	TSP Sth 621859	PM10 Sth 621857	TSP Nth 621869
				Client sampling date / time: 19-JUL-2012 14:30	20-JUL-2012 14:35	20-JUL-2012 14:40	19-JUL-2012 14:30	13-JUL-2012 14:30
				EW1202038-001	EW1202038-002	EW1202038-003	EW1202038-004	EW1202038-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**2.8**	**5.0**	**7.4**	**10.0**	**6.5**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**1.5**	**2.7**	**4.0**	**5.4**	**3.5**

Analytical Results

Sub-Matrix: AIR			Client sample ID	PM10 Nth 621870	TSP Sth 621868	PM10 Sth 621871	Blank 621855	----
			Client sampling date / time	13-JUL-2012 14:30	12-JUL-2012 14:30	12-JUL-2012 15:00	20-JUL-2012 15:00	----
Compound	CAS Number	LOR	Unit	EW1202038-006	EW1202038-007	EW1202038-008	EW1202038-009	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**7.0**	**10.9**	**5.2**	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**3.8**	**5.9**	**2.8**	**1.3**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202038**	Page	: 1 of 4
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 24-JUL-2012
Sampler	: ----	Issue Date	: 02-AUG-2012
Site	: ----		
		No. of samples received	: 9
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 9

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Dianne Blane	Laboratory Supervisor	Newcastle

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Analytical Results

Sub-Matrix: **AIR**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 621858	PM10 Nth 621856	TSP Sth 621859	PM10 Sth 621857	TSP Nth 621869
				Client sampling date / time: 19-JUL-2012 14:30	20-JUL-2012 14:35	20-JUL-2012 14:40	19-JUL-2012 14:30	13-JUL-2012 14:30
				EW1202038-001	EW1202038-002	EW1202038-003	EW1202038-004	EW1202038-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**2.8**	**5.0**	**7.4**	**10.0**	**6.5**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**1.5**	**2.7**	**4.0**	**5.4**	**3.5**

Analytical Results

Sub-Matrix: AIR			Client sample ID	PM10 Nth 621870	TSP Sth 621868	PM10 Sth 621871	Blank 621855	----
			Client sampling date / time	13-JUL-2012 14:30	12-JUL-2012 14:30	12-JUL-2012 15:00	20-JUL-2012 15:00	----
Compound	CAS Number	LOR	Unit	EW1202038-006	EW1202038-007	EW1202038-008	EW1202038-009	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**7.0**	**10.9**	**5.2**	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**3.8**	**5.9**	**2.8**	**1.3**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202240**	Page	: 1 of 4
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 14-AUG-2012
Sampler	: ----	Issue Date	: 21-AUG-2012
Site	: ----		
		No. of samples received	: 9
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 9

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Dianne Blane	Laboratory Supervisor	Newcastle

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^ = This result is computed from individual analyte detections at or above the level of reporting

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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South Client sampling date / time: 26-JUL-2012 14:30 EW1202240-001	Client sample ID: PM10 South Client sampling date / time: 26-JUL-2012 14:35 EW1202240-002	Client sample ID: Blank Client sampling date / time: 26-JUL-2012 15:00 EW1202240-003	Client sample ID: TSP North Client sampling date / time: 27-JUL-2012 14:30 EW1202240-004	Client sample ID: PM 10 North Client sampling date / time: 27-JUL-2012 14:30 EW1202240-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**19.0**	**14.1**	----	**21.0**	**25.9**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.3**	**7.6**	**2.4**	**11.4**	**14.0**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID	TSP South	PM 10 North	TSP North	PM 10 South	----
				Client sampling date / time	02-AUG-2012 14:30	02-AUG-2012 14:40	03-AUG-2012 14:20	03-AUG-2012 14:25	----
					EW1202240-006	EW1202240-007	EW1202240-008	EW1202240-009	----
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**21.9**	**12.9**	**16.3**	**7.6**	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**11.8**	**7.0**	**8.9**	**4.1**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202240**	Page	: 1 of 4
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
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Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 14-AUG-2012
Sampler	: ----	Issue Date	: 21-AUG-2012
Site	: ----		
		No. of samples received	: 9
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 9

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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South Client sampling date / time: 26-JUL-2012 14:30 EW1202240-001	Client sample ID: PM10 South Client sampling date / time: 26-JUL-2012 14:35 EW1202240-002	Client sample ID: Blank Client sampling date / time: 26-JUL-2012 15:00 EW1202240-003	Client sample ID: TSP North Client sampling date / time: 27-JUL-2012 14:30 EW1202240-004	Client sample ID: PM 10 North Client sampling date / time: 27-JUL-2012 14:30 EW1202240-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**19.0**	**14.1**	----	**21.0**	**25.9**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.3**	**7.6**	**2.4**	**11.4**	**14.0**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID	TSP South	PM 10 North	TSP North	PM 10 South	----
				Client sampling date / time	02-AUG-2012 14:30	02-AUG-2012 14:40	03-AUG-2012 14:20	03-AUG-2012 14:25	----
					EW1202240-006	EW1202240-007	EW1202240-008	EW1202240-009	----
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**21.9**	**12.9**	**16.3**	**7.6**	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**11.8**	**7.0**	**8.9**	**4.1**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202516**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-SEP-2012
Sampler	: ----	Issue Date	: 19-SEP-2012
Site	: ----		
		No. of samples received	: 20
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 20

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Dianne Blane	Laboratory Supervisor	Newcastle

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP North Client sampling date / time: 09-AUG-2012 14:35 EW1202516-001	Client sample ID: PM 10 South Client sampling date / time: 09-AUG-2012 14:25 EW1202516-002	Client sample ID: PM 10 South Client sampling date / time: 10-AUG-2012 14:30 EW1202516-003	Client sample ID: TSP South Client sampling date / time: 10-AUG-2012 14:25 EW1202516-004	Client sample ID: TSP South Client sampling date / time: 16-AUG-2012 14:20 EW1202516-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**102**	**28.0**	**30.8**	**77.3**	**21.9**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**55.0**	**15.1**	**16.6**	**41.7**	**11.8**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: PM 10 North Client sampling date / time: 16-AUG-2012 14:30 EW1202516-006	Client sample ID: PM 10 South Client sampling date / time: 17-AUG-2012 14:30 EW1202516-007	Client sample ID: TSP North Client sampling date / time: 17-AUG-2012 14:40 EW1202516-008	Client sample ID: TSP South Client sampling date / time: 23-AUG-2012 14:25 EW1202516-009	Client sample ID: PM 10 North Client sampling date / time: 23-AUG-2012 14:15 EW1202516-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**19.0**	**22.4**	**27.3**	**65.2**	**45.7**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.3**	**12.1**	**14.8**	**35.3**	**24.6**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP North Client sampling date / time: 24-AUG-2012 14:25 EW1202516-011	Client sample ID: PM 10 South Client sampling date / time: 24-AUG-2012 14:30 EW1202516-012	Client sample ID: TSP North Client sampling date / time: 30-AUG-2012 14:30 EW1202516-013	Client sample ID: PM 10 North Client sampling date / time: 30-AUG-2012 14:30 EW1202516-014	Client sample ID: PM 10 South Client sampling date / time: 31-AUG-2012 14:35 EW1202516-015
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**37.3**	**112**	**74.3**	**37.3**	**37.5**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**20.1**	**60.3**	**38.8**	**19.7**	**20.2**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South Client sampling date / time: 31-AUG-2012 14:25 EW1202516-016	Client sample ID: PM 10 North Client sampling date / time: 06-SEP-2012 14:25 EW1202516-017	Client sample ID: TSP South Client sampling date / time: 06-SEP-2012 14:35 EW1202516-018	Client sample ID: PM 10 South Client sampling date / time: 07-SEP-2012 14:40 EW1202516-019	Client sample ID: TSP North Client sampling date / time: 07-SEP-2012 14:30 EW1202516-020
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**113**	**19.3**	**37.6**	**51.7**	**28.5**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**59.8**	**10.4**	**19.1**	**27.3**	**14.9**

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202516**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-SEP-2012
Sampler	: ----	Issue Date	: 19-SEP-2012
Site	: ----		
		No. of samples received	: 20
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 20

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Dianne Blane	Laboratory Supervisor	Newcastle

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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP North Client sampling date / time: 09-AUG-2012 14:35 EW1202516-001	Client sample ID: PM 10 South Client sampling date / time: 09-AUG-2012 14:25 EW1202516-002	Client sample ID: PM 10 South Client sampling date / time: 10-AUG-2012 14:30 EW1202516-003	Client sample ID: TSP South Client sampling date / time: 10-AUG-2012 14:25 EW1202516-004	Client sample ID: TSP South Client sampling date / time: 16-AUG-2012 14:20 EW1202516-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**102**	**28.0**	**30.8**	**77.3**	**21.9**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**55.0**	**15.1**	**16.6**	**41.7**	**11.8**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: PM 10 North Client sampling date / time: 16-AUG-2012 14:30 EW1202516-006	Client sample ID: PM 10 South Client sampling date / time: 17-AUG-2012 14:30 EW1202516-007	Client sample ID: TSP North Client sampling date / time: 17-AUG-2012 14:40 EW1202516-008	Client sample ID: TSP South Client sampling date / time: 23-AUG-2012 14:25 EW1202516-009	Client sample ID: PM 10 North Client sampling date / time: 23-AUG-2012 14:15 EW1202516-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**19.0**	**22.4**	**27.3**	**65.2**	**45.7**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.3**	**12.1**	**14.8**	**35.3**	**24.6**

Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP North Client sampling date / time: 24-AUG-2012 14:25 EW1202516-011	Client sample ID: PM 10 South Client sampling date / time: 24-AUG-2012 14:30 EW1202516-012	Client sample ID: TSP North Client sampling date / time: 30-AUG-2012 14:30 EW1202516-013	Client sample ID: PM 10 North Client sampling date / time: 30-AUG-2012 14:30 EW1202516-014	Client sample ID: PM 10 South Client sampling date / time: 31-AUG-2012 14:35 EW1202516-015
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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South Client sampling date / time: 31-AUG-2012 14:25 EW1202516-016	Client sample ID: PM 10 North Client sampling date / time: 06-SEP-2012 14:25 EW1202516-017	Client sample ID: TSP South Client sampling date / time: 06-SEP-2012 14:35 EW1202516-018	Client sample ID: PM 10 South Client sampling date / time: 07-SEP-2012 14:40 EW1202516-019	Client sample ID: TSP North Client sampling date / time: 07-SEP-2012 14:30 EW1202516-020
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Environmental Division

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E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-SEP-2012
Sampler	: ----	Issue Date	: 19-SEP-2012
Site	: ----		
		No. of samples received	: 20
Quote number	: HVAS SY/466/10 V2	No. of samples analysed	: 20

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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP North Client sampling date / time: 09-AUG-2012 14:35 EW1202516-001	Client sample ID: PM 10 South Client sampling date / time: 09-AUG-2012 14:25 EW1202516-002	Client sample ID: PM 10 South Client sampling date / time: 10-AUG-2012 14:30 EW1202516-003	Client sample ID: TSP South Client sampling date / time: 10-AUG-2012 14:25 EW1202516-004	Client sample ID: TSP South Client sampling date / time: 16-AUG-2012 14:20 EW1202516-005
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Total Suspended Particulates	----	0.1	µg/m³	**102**	**28.0**	**30.8**	**77.3**	**21.9**
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Analytical Results

Sub-Matrix: **FILTER**

Compound	CAS Number	LOR	Unit	Client sample ID: PM 10 North Client sampling date / time: 16-AUG-2012 14:30 EW1202516-006	Client sample ID: PM 10 South Client sampling date / time: 17-AUG-2012 14:30 EW1202516-007	Client sample ID: TSP North Client sampling date / time: 17-AUG-2012 14:40 EW1202516-008	Client sample ID: TSP South Client sampling date / time: 23-AUG-2012 14:25 EW1202516-009	Client sample ID: PM 10 North Client sampling date / time: 23-AUG-2012 14:15 EW1202516-010
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Sub-Matrix: **FILTER**

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Environmental Division

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Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
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Sub-Matrix: **FILTER**

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Environmental Division

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Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
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EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**113**	**19.3**	**37.6**	**51.7**	**28.5**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**59.8**	**10.4**	**19.1**	**27.3**	**14.9**

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202695**	Page	: 1 of 5
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: HVAS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 03-OCT-2012
Sampler	: ----	Issue Date	: 12-OCT-2012
Site	: ----		
		No. of samples received	: 12
Quote number	: SY/466/10 V2	No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

General Comments

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 624365	PM10 Sth 624364	TSP Sth 624366	PM10 Nth 624363	TSP Sth 624370
				Client sampling date / time: 28-SEP-2012 15:00	28-SEP-2012 15:00	27-SEP-2012 15:00	27-SEP-2012 15:00	21-SEP-2012 15:00
				EW1202695-001	EW1202695-002	EW1202695-003	EW1202695-004	EW1202695-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**59.6**	**42.5**	**26.7**	**26.5**	**22.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**32.3**	**22.9**	**14.4**	**14.3**	**12.2**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID	PM10 Nth 624369	TSP Nth 624371	PM10 Sth 624368	PM10 Sth 624375	TSP Nth 624373
				Client sampling date / time	21-SEP-2012 15:00	20-SEP-2012 15:00	20-SEP-2012 15:00	14-SEP-2012 15:00	14-SEP-2012 15:00
					EW1202695-006	EW1202695-007	EW1202695-008	EW1202695-009	EW1202695-010
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**16.5**	**40.4**	**15.6**	**47.7**	**40.4**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**8.9**	**21.8**	**8.4**	**25.7**	**21.8**

Analytical Results

Sub-Matrix: DUST			Client sample ID	TSP Sth 624372	PM10 Nth 624374	----	----	----
			Client sampling date / time	13-SEP-2012 15:00	13-SEP-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit	EW1202695-011	EW1202695-012	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**28.2**	**28.2**	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**15.2**	**15.2**	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202695**	Page	: 1 of 5
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: HVAS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 03-OCT-2012
Sampler	: ----	Issue Date	: 12-OCT-2012
Site	: ----		
		No. of samples received	: 12
Quote number	: SY/466/10 V2	No. of samples analysed	: 12

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

General Comments

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LOR = Limit of reporting
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- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 624365	PM10 Sth 624364	TSP Sth 624366	PM10 Nth 624363	TSP Sth 624370
				Client sampling date / time: 28-SEP-2012 15:00	28-SEP-2012 15:00	27-SEP-2012 15:00	27-SEP-2012 15:00	21-SEP-2012 15:00
				EW1202695-001	EW1202695-002	EW1202695-003	EW1202695-004	EW1202695-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**59.6**	**42.5**	**26.7**	**26.5**	**22.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**32.3**	**22.9**	**14.4**	**14.3**	**12.2**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID	PM10 Nth 624369	TSP Nth 624371	PM10 Sth 624368	PM10 Sth 624375	TSP Nth 624373
				Client sampling date / time	21-SEP-2012 15:00	20-SEP-2012 15:00	20-SEP-2012 15:00	14-SEP-2012 15:00	14-SEP-2012 15:00
					EW1202695-006	EW1202695-007	EW1202695-008	EW1202695-009	EW1202695-010
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**16.5**	**40.4**	**15.6**	**47.7**	**40.4**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**8.9**	**21.8**	**8.4**	**25.7**	**21.8**

Analytical Results

Sub-Matrix: DUST			Client sample ID	TSP Sth 624372	PM10 Nth 624374	----	----	----
			Client sampling date / time	13-SEP-2012 15:00	13-SEP-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit	EW1202695-011	EW1202695-012	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**28.2**	**28.2**	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**15.2**	**15.2**	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202695**	Page	: 1 of 5
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: HVAS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 03-OCT-2012
Sampler	: ----	Issue Date	: 12-OCT-2012
Site	: ----		
		No. of samples received	: 12
Quote number	: SY/466/10 V2	No. of samples analysed	: 12

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

General Comments

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: TSP Nth 624365	PM10 Sth 624364	TSP Sth 624366	PM10 Nth 624363	TSP Sth 624370
				Client sampling date / time: 28-SEP-2012 15:00	28-SEP-2012 15:00	27-SEP-2012 15:00	27-SEP-2012 15:00	21-SEP-2012 15:00
				EW1202695-001	EW1202695-002	EW1202695-003	EW1202695-004	EW1202695-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**59.6**	**42.5**	**26.7**	**26.5**	**22.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**32.3**	**22.9**	**14.4**	**14.3**	**12.2**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID	PM10 Nth 624369	TSP Nth 624371	PM10 Sth 624368	PM10 Sth 624375	TSP Nth 624373
				Client sampling date / time	21-SEP-2012 15:00	20-SEP-2012 15:00	20-SEP-2012 15:00	14-SEP-2012 15:00	14-SEP-2012 15:00
					EW1202695-006	EW1202695-007	EW1202695-008	EW1202695-009	EW1202695-010
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**16.5**	**40.4**	**15.6**	**47.7**	**40.4**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**8.9**	**21.8**	**8.4**	**25.7**	**21.8**

Analytical Results

Sub-Matrix: DUST			Client sample ID	TSP Sth 624372	PM10 Nth 624374	----	----	----
			Client sampling date / time	13-SEP-2012 15:00	13-SEP-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit	EW1202695-011	EW1202695-012	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**28.2**	**28.2**	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**15.2**	**15.2**	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202748**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: DUST ANALYSIS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2012
Sampler	: ----	Issue Date	: 19-OCT-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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NATA Accredited Laboratory 825

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

General Comments

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- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID	PM10 Sth	TSP Sth	PM10 Nth	TSP Nth	----
				Client sampling date / time	04-OCT-2012 10:00	04-OCT-2012 10:00	05-OCT-2012 10:00	05-OCT-2012 10:00	----
					EW1202748-001	EW1202748-002	EW1202748-003	EW1202748-004	----
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**6.1**	**46.6**	**5.0**	**48.9**	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**3.3**	**25.1**	**2.7**	**26.4**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202825**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 16-OCT-2012
Sampler	: ----	Issue Date	: 23-OCT-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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- General Comments
- Analytical Results

NATA Accredited Laboratory 825

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WORLD RECOGNISED ACCREDITATION

Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

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- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST			Client sample ID	TSP Nth	PM10 Sth	TSP Sth	PM10 Nth	----
			Client sampling date / time	12-OCT-2012 15:00	12-OCT-2012 15:00	11-OCT-2012 15:00	11-OCT-2012 15:00	----
Compound	CAS Number	LOR	Unit	EW1202825-001	EW1202825-002	EW1202825-003	EW1202825-004	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**0.7**	<0.1	<0.1	<0.1	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**0.4**	<0.1	<0.1	<0.1	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202897**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: NOWRA BRICKWORKS QUARRY	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 23-OCT-2012
Sampler	: Corey Fox	Issue Date	: 30-OCT-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

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WORLD RECOGNISED ACCREDITATION

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Dianne Blane	Laboratory Supervisor	Newcastle

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- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID	TSP North 565318	TSP South 624357	PM10 North 565320	PM10 South 565319	----
				Client sampling date / time	18-OCT-2012 15:00	19-OCT-2012 15:00	19-OCT-2012 15:00	18-OCT-2012 15:00	----
					EW1202897-001	EW1202897-002	EW1202897-003	EW1202897-004	----
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**2.6**	**27.5**	**14.0**	<0.1	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**1.4**	**14.9**	**7.6**	<0.1	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203159**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-NOV-2012
Sampler	: ----	Issue Date	: 28-NOV-2012
Site	: ----		
		No. of samples received	: 16
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 16

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle

General Comments

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^ = This result is computed from individual analyte detections at or above the level of reporting

- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 North	PM10 South	PM10 North	PM10 South	PM10 North
			Client sampling date / time	26-OCT-2012 15:00	25-OCT-2012 15:00	01-NOV-2012 15:00	02-NOV-2012 15:00	07-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-001	EW1203159-002	EW1203159-003	EW1203159-004	EW1203159-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	16.3	23.8	96.5	23.7	5.2
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.9	13.0	53.1	12.9	2.8

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	TSP North	TSP South	TSP North	TSP South
			Client sampling date / time	08-NOV-2012 15:00	25-OCT-2012 15:00	26-OCT-2012 15:00	02-NOV-2012 15:00	01-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-006	EW1203159-007	EW1203159-008	EW1203159-009	EW1203159-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	9.3	20.4	20.4	31.7	78.0
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	5.1	11.0	11.2	17.4	42.7

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)				Client sample ID	TSP North	TSP South	PM 10 North	TSP South	PM10 South
				Client sampling date / time	08-NOV-2012 15:00	07-NOV-2012 15:00	15-NOV-2012 15:00	15-NOV-2012 15:00	14-NOV-2012 15:00
Compound	CAS Number	LOR	Unit		EW1203159-011	EW1203159-012	EW1203159-013	EW1203159-014	EW1203159-015
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**10.1**	**10.8**	**12.8**	**4.9**	**3.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**5.6**	**6.0**	**7.0**	**2.7**	**2.0**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)								
			Client sample ID	TSP North	----	----	----	----
			Client sampling date / time	14-NOV-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1203159-016	----	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**9.7**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**5.3**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203159**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-NOV-2012
Sampler	: ----	Issue Date	: 28-NOV-2012
Site	: ----		
		No. of samples received	: 16
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle

General Comments

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- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 North	PM10 South	PM10 North	PM10 South	PM10 North
			Client sampling date / time	26-OCT-2012 15:00	25-OCT-2012 15:00	01-NOV-2012 15:00	02-NOV-2012 15:00	07-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-001	EW1203159-002	EW1203159-003	EW1203159-004	EW1203159-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	16.3	23.8	96.5	23.7	5.2
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.9	13.0	53.1	12.9	2.8

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	TSP North	TSP South	TSP North	TSP South
			Client sampling date / time	08-NOV-2012 15:00	25-OCT-2012 15:00	26-OCT-2012 15:00	02-NOV-2012 15:00	01-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-006	EW1203159-007	EW1203159-008	EW1203159-009	EW1203159-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	9.3	20.4	20.4	31.7	78.0
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	5.1	11.0	11.2	17.4	42.7

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)				Client sample ID	TSP North	TSP South	PM 10 North	TSP South	PM10 South
				Client sampling date / time	08-NOV-2012 15:00	07-NOV-2012 15:00	15-NOV-2012 15:00	15-NOV-2012 15:00	14-NOV-2012 15:00
Compound	CAS Number	LOR	Unit		EW1203159-011	EW1203159-012	EW1203159-013	EW1203159-014	EW1203159-015
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**10.1**	**10.8**	**12.8**	**4.9**	**3.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**5.6**	**6.0**	**7.0**	**2.7**	**2.0**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)								
			Client sample ID	TSP North	----	----	----	----
			Client sampling date / time	14-NOV-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1203159-016	----	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**9.7**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**5.3**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203159**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-NOV-2012
Sampler	: ----	Issue Date	: 28-NOV-2012
Site	: ----		
		No. of samples received	: 16
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 16

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- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 North	PM10 South	PM10 North	PM10 South	PM10 North
			Client sampling date / time	26-OCT-2012 15:00	25-OCT-2012 15:00	01-NOV-2012 15:00	02-NOV-2012 15:00	07-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-001	EW1203159-002	EW1203159-003	EW1203159-004	EW1203159-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	16.3	23.8	96.5	23.7	5.2
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.9	13.0	53.1	12.9	2.8

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	TSP North	TSP South	TSP North	TSP South
			Client sampling date / time	08-NOV-2012 15:00	25-OCT-2012 15:00	26-OCT-2012 15:00	02-NOV-2012 15:00	01-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-006	EW1203159-007	EW1203159-008	EW1203159-009	EW1203159-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	9.3	20.4	20.4	31.7	78.0
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	5.1	11.0	11.2	17.4	42.7

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)				Client sample ID	TSP North	TSP South	PM 10 North	TSP South	PM10 South
				Client sampling date / time	08-NOV-2012 15:00	07-NOV-2012 15:00	15-NOV-2012 15:00	15-NOV-2012 15:00	14-NOV-2012 15:00
Compound	CAS Number	LOR	Unit		EW1203159-011	EW1203159-012	EW1203159-013	EW1203159-014	EW1203159-015
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Total Suspended Particulates	----	0.1	µg/m³		**10.1**	**10.8**	**12.8**	**4.9**	**3.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**5.6**	**6.0**	**7.0**	**2.7**	**2.0**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)								
			Client sample ID	TSP North	----	----	----	----
			Client sampling date / time	14-NOV-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1203159-016	----	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**9.7**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**5.3**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203159**	Page	: 1 of 6
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Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-NOV-2012
Sampler	: ----	Issue Date	: 28-NOV-2012
Site	: ----		
		No. of samples received	: 16
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 16

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Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 North	PM10 South	PM10 North	PM10 South	PM10 North
			Client sampling date / time	26-OCT-2012 15:00	25-OCT-2012 15:00	01-NOV-2012 15:00	02-NOV-2012 15:00	07-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-001	EW1203159-002	EW1203159-003	EW1203159-004	EW1203159-005
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	16.3	23.8	96.5	23.7	5.2
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	8.9	13.0	53.1	12.9	2.8

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	TSP North	TSP South	TSP North	TSP South
			Client sampling date / time	08-NOV-2012 15:00	25-OCT-2012 15:00	26-OCT-2012 15:00	02-NOV-2012 15:00	01-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203159-006	EW1203159-007	EW1203159-008	EW1203159-009	EW1203159-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	9.3	20.4	20.4	31.7	78.0
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	5.1	11.0	11.2	17.4	42.7

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)				Client sample ID	TSP North	TSP South	PM 10 North	TSP South	PM10 South
				Client sampling date / time	08-NOV-2012 15:00	07-NOV-2012 15:00	15-NOV-2012 15:00	15-NOV-2012 15:00	14-NOV-2012 15:00
Compound	CAS Number	LOR	Unit		EW1203159-011	EW1203159-012	EW1203159-013	EW1203159-014	EW1203159-015
EA143: Total Suspended Particulates									
Total Suspended Particulates	----	0.1	µg/m³		**10.1**	**10.8**	**12.8**	**4.9**	**3.6**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter		**5.6**	**6.0**	**7.0**	**2.7**	**2.0**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)								
			Client sample ID	TSP North	----	----	----	----
			Client sampling date / time	14-NOV-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1203159-016	----	----	----	----
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**9.7**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**5.3**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203506**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 18-DEC-2012
Sampler	: ----	Issue Date	: 29-DEC-2012
Site	: ----		
		No. of samples received	: 20
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 20

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling data was provided by the client.**
- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)	Client sample ID	PM10 North	PM10 North	PM10 North	PM10 North	TSP North
	Client sampling date / time	06-DEC-2012 15:00	30-NOV-2012 15:00	23-NOV-2012 15:00	13-DEC-2012 15:00	22-NOV-2012 15:00
Compound	CAS Number / LOR / Unit	EW1203506-001	EW1203506-002	EW1203506-003	EW1203506-004	EW1203506-005
EA143: Total Suspended Particulates						
Total Suspended Particulates	---- / 0.1 / µg/m³	**4.8**	**8.0**	**7.0**	**3.0**	**11.4**
Total Suspended Particulates (mass per filter)	---- / 0.1 / mg/filter	**7.7**	**13.1**	**11.4**	**4.9**	**18.4**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)	Client sample ID			TSP North	TSP North	TSP North	PM10 South	PM10 South
	Client sampling date / time			29-NOV-2012 15:00	07-DEC-2012 15:00	14-DEC-2012 15:00	06-DEC-2012 15:00	30-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203506-006	EW1203506-007	EW1203506-008	EW1203506-009	EW1203506-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**6.5**	**2.2**	**3.7**	**5.7**	**4.8**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.5**	**3.6**	**6.0**	**9.3**	**7.8**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	PM10 South	TSP South	TSP South	TSP South
			Client sampling date / time	23-NOV-2012 15:00	13-DEC-2012 15:00	07-DEC-2012 15:00	29-NOV-2012 15:00	22-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203506-011	EW1203506-012	EW1203506-013	EW1203506-014	EW1203506-015
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**4.8**	**14.8**	**9.0**	**6.2**	**4.3**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**7.7**	**23.9**	**14.5**	**10.0**	**6.9**

Analytical Results

Sub-Matrix: **DUST** (Matrix: **AIR**)

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South	Station 1 15/11/2012 - 13/12/2012	Station 2 15/11/2012 - 13/12/2012	Station 3 15/11/2012 - 13/12/2012	Station 4 15/11/2012 - 13/12/2012
Client sampling date / time				14-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
				EW1203506-016	**EW1203506-017**	**EW1203506-018**	**EW1203506-019**	**EW1203506-020**
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	----	**1.9**	**0.7**	**0.4**	**0.7**
Ash Content (mg)	----	1	mg	----	**32**	**12**	**6**	**11**
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	----	**3.4**	**0.2**	**0.1**	<0.1
Combustible Matter (mg)	----	1	mg	----	**55**	**3**	**2**	**1**
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	----	**5.3**	**0.9**	**0.5**	**0.7**
Total Insoluble Matter (mg)	----	1	mg	----	**87**	**15**	**8**	**12**
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**11.2**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**18.2**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1203506**	Page	: 1 of 6
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 18-DEC-2012
Sampler	: ----	Issue Date	: 29-DEC-2012
Site	: ----		
		No. of samples received	: 20
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 20

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

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Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling data was provided by the client.**
- **NATA accreditation is not held for results reported in µg/m³. Air volume data was provided by the client.**
- **No atmospheric corrections were used in the calculation of the µg/m³ results.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)	Client sample ID	PM10 North	PM10 North	PM10 North	PM10 North	TSP North
	Client sampling date / time	06-DEC-2012 15:00	30-NOV-2012 15:00	23-NOV-2012 15:00	13-DEC-2012 15:00	22-NOV-2012 15:00
Compound	CAS Number / LOR / Unit	EW1203506-001	EW1203506-002	EW1203506-003	EW1203506-004	EW1203506-005
EA143: Total Suspended Particulates						
Total Suspended Particulates	---- / 0.1 / µg/m³	**4.8**	**8.0**	**7.0**	**3.0**	**11.4**
Total Suspended Particulates (mass per filter)	---- / 0.1 / mg/filter	**7.7**	**13.1**	**11.4**	**4.9**	**18.4**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)	Client sample ID			TSP North	TSP North	TSP North	PM10 South	PM10 South
	Client sampling date / time			29-NOV-2012 15:00	07-DEC-2012 15:00	14-DEC-2012 15:00	06-DEC-2012 15:00	30-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203506-006	EW1203506-007	EW1203506-008	EW1203506-009	EW1203506-010
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**6.5**	**2.2**	**3.7**	**5.7**	**4.8**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**10.5**	**3.6**	**6.0**	**9.3**	**7.8**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)			Client sample ID	PM10 South	PM10 South	TSP South	TSP South	TSP South
			Client sampling date / time	23-NOV-2012 15:00	13-DEC-2012 15:00	07-DEC-2012 15:00	29-NOV-2012 15:00	22-NOV-2012 15:00
Compound	CAS Number	LOR	Unit	EW1203506-011	EW1203506-012	EW1203506-013	EW1203506-014	EW1203506-015
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**4.8**	**14.8**	**9.0**	**6.2**	**4.3**
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**7.7**	**23.9**	**14.5**	**10.0**	**6.9**

Analytical Results

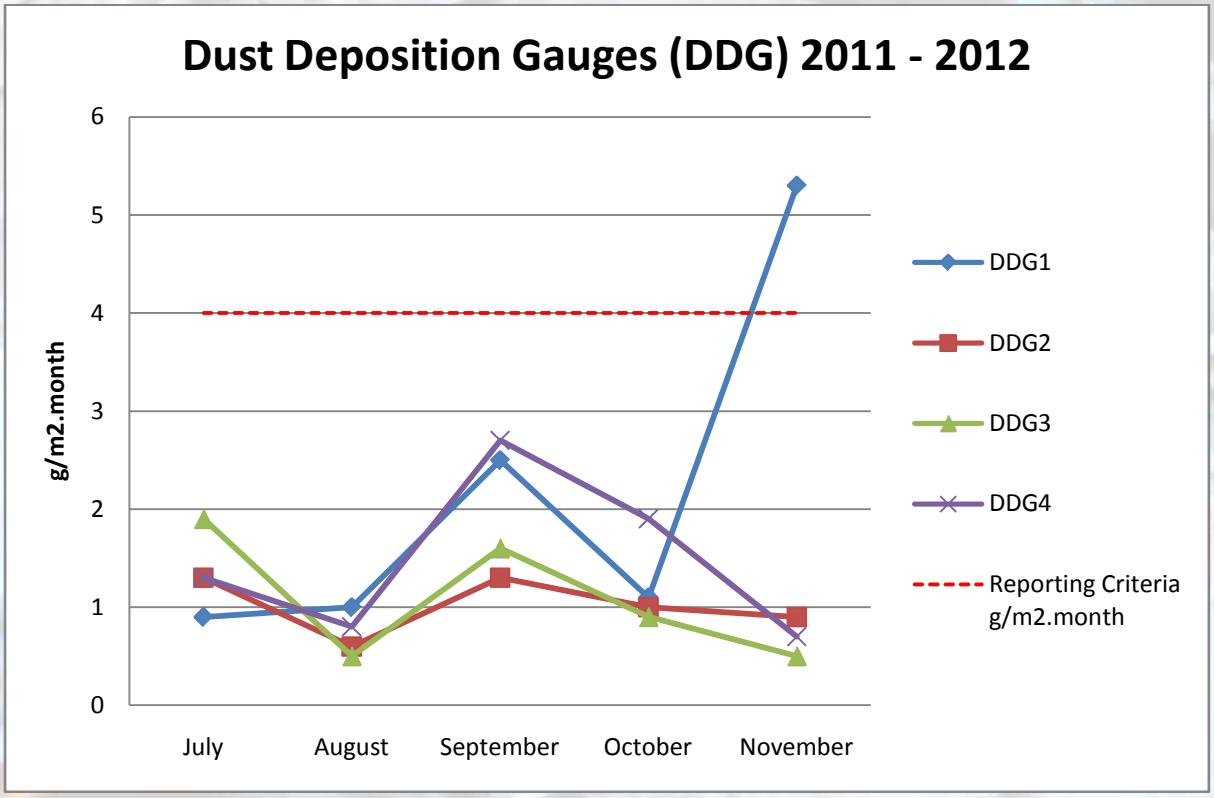
Sub-Matrix: **DUST** (Matrix: **AIR**)

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South	Station 1 15/11/2012 - 13/12/2012	Station 2 15/11/2012 - 13/12/2012	Station 3 15/11/2012 - 13/12/2012	Station 4 15/11/2012 - 13/12/2012
Client sampling date / time				14-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
				EW1203506-016	**EW1203506-017**	**EW1203506-018**	**EW1203506-019**	**EW1203506-020**
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	----	**1.9**	**0.7**	**0.4**	**0.7**
Ash Content (mg)	----	1	mg	----	**32**	**12**	**6**	**11**
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	----	**3.4**	**0.2**	**0.1**	<0.1
Combustible Matter (mg)	----	1	mg	----	**55**	**3**	**2**	**1**
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	----	**5.3**	**0.9**	**0.5**	**0.7**
Total Insoluble Matter (mg)	----	1	mg	----	**87**	**15**	**8**	**12**
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**11.2**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**18.2**	----	----	----	----

DDG Monitoring Results

Dust Deposition Gauges were placed within the quarry area and monitored on a monthly basis. There was a period from Dec 2011 until June 2012 where no results were recorded this was an operational oversight and was corrected in July 2012 with monitering ongoing and continuing.

During recording of results there was one Dust Deposition Gauge (DDG1) that had an unusually high reading during the month of November this was attributed to the earthworks, pavement construction and lime stabilisation works that was carried out on the main road during this period.



		Ash Content		Combustible Matter		Total Insoluble Matter	
		g/m2.month	mg	g/m2.month	mg	g/m2.month	mg
December							
January							
February							
March							
April							
May							
June							
July	DDG1	0.8	12	0.1	3	**0.9**	15
	DDG2	0.9	14	0.4	7	**1.3**	21
	DDG3	1.3	21	0.6	9	**1.9**	30
	DDG4	0.8	12	0.5	8	**1.3**	20
August	DDG1	0.8	17	0.2	3	**1**	20
	DDG2	0.4	9	0.2	3	**0.6**	12
	DDG3	0.4	9	0.1	2	**0.5**	11
	DDG4	0.6	13	0.2	3	**0.8**	16
September	DDG1	2.1	29	0.4	6	**2.5**	35
	DDG2	1	14	0.3	4	**1.3**	18
	DDG3	1.2	17	0.4	6	**1.6**	23
	DDG4	1.6	22	1.1	16	**2.7**	38
October	DDG1	1	16	0.1	1	**1.1**	17
	DDG2	0.9	15	0.1	1	**1**	16
	DDG3	0.7	11	0.2	3	**0.9**	14
	DDG4	1.4	22	0.5	9	**1.9**	31
November	DDG1	1.9	32	3.4	55	**5.3**	87
	DDG2	0.7	12	0.2	3	**0.9**	15
	DDG3	0.4	6	0.1	2	**0.5**	8
	DDG4	0.7	11	0	1	**0.7**	12

Reporting Criteria:- Maximum Allowed 4mg/m2.month

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202242**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
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E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 14-AUG-2012
Sampler	: ----	Issue Date	: 22-AUG-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

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- Analytical Results

NATA Accredited Laboratory 825

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WORLD RECOGNISED ACCREDITATION

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: Station 1 28/6/12 - 25/7/12	Station 2 28/6/12 - 25/7/12	Station 3 28/6/12 - 25/7/12	Station 4 28/6/12 - 25/7/12	----
				Client sampling date / time: 25-JUL-2012 15:00	25-JUL-2012 15:00	25-JUL-2012 15:00	25-JUL-2012 15:00	----
				EW1202242-001	EW1202242-002	EW1202242-003	EW1202242-004	----
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	**0.8**	**0.9**	**1.3**	**0.8**	----
Ash Content (mg)	----	1	mg	**12**	**14**	**21**	**12**	----
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	**0.1**	**0.4**	**0.6**	**0.5**	----
Combustible Matter (mg)	----	1	mg	**3**	**7**	**9**	**8**	----
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	**0.9**	**1.3**	**1.9**	**1.3**	----
Total Insoluble Matter (mg)	----	1	mg	**15**	**21**	**30**	**20**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202517**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-SEP-2012
Sampler	: ----	Issue Date	: 20-SEP-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: Station 1 25/7/12 - 28/8/12	Station 2 25/7/12 - 28/8/12	Station 3 25/7/12 - 28/8/12	Station 4 25/7/12 - 28/8/12	----
			Client sampling date / time	28-AUG-2012 15:00	28-AUG-2012 15:00	28-AUG-2012 15:00	28-AUG-2012 15:00	----
				EW1202517-001	EW1202517-002	EW1202517-003	EW1202517-004	----
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	**0.8**	**0.4**	**0.4**	**0.6**	----
Ash Content (mg)	----	1	mg	**17**	**9**	**9**	**13**	----
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	**0.2**	**0.2**	**0.1**	**0.2**	----
Combustible Matter (mg)	----	1	mg	**3**	**3**	**2**	**3**	----
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	**1.0**	**0.6**	**0.5**	**0.8**	----
Total Insoluble Matter (mg)	----	1	mg	**20**	**12**	**11**	**16**	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202694**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Glenn Davies
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: glenn.davies@alsglobal.com
Telephone	: +61 0421 235 308	Telephone	: 02 4225 3125
Facsimile	: ----	Facsimile	: 02 4225 3128
Project	: Dust Analysis	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 03-OCT-2012
Sampler	: ----	Issue Date	: 12-OCT-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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- Analytical Results

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Supervisor	Newcastle

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: Station 1 28/8/12 - 21/9/12	Station 2 28/8/12 - 21/9/12	Station 3 28/8/12 - 21/9/12	Station 4 28/8/12 - 21/9/12	----
			Client sampling date / time	21-SEP-2012 10:00	21-SEP-2012 10:00	21-SEP-2012 10:00	21-SEP-2012 10:00	----
				EW1202694-001	EW1202694-002	EW1202694-003	EW1202694-004	----
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	**2.1**	**1.0**	**1.2**	**1.6**	----
Ash Content (mg)	----	1	mg	**29**	**14**	**17**	**22**	----
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	**0.4**	**0.3**	**0.4**	**1.1**	----
Combustible Matter (mg)	----	1	mg	**6**	**4**	**6**	**16**	----
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	**2.5**	**1.3**	**1.6**	**2.7**	----
Total Insoluble Matter (mg)	----	1	mg	**35**	**18**	**23**	**38**	----

CERTIFICATE OF ANALYSIS

Work Order	: **EW1202898**	Page	: 1 of 3
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR BUDD GREEN	Contact	: Peter Keyte
Address	: PO Box 121 Oak Flats 2529	Address	: 99 Kenny Street, Wollongong 2500 Unit 4 / 13 Geary Place, PO Box 3105, North Nowra 2541 AUSTRALIA
E-mail	: b.green@jbgcontractors.com.au	E-mail	: peter.keyte@als.com.au
Telephone	: +61 0421 235 308	Telephone	: 61-2-4968-9433
Facsimile	: ----	Facsimile	: +61-2-4968 0349
Project	: NOWRA BRICKWORKS QUARRY DUST ANALYSIS	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 23-OCT-2012
Sampler	: Corey Fox	Issue Date	: 01-NOV-2012
Site	: ----		
		No. of samples received	: 4
Quote number	: SY/466/10 V2	No. of samples analysed	: 4

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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Signatories

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: Station 1 21/9/12 - 18/10/12	Station 2 21/9/12 - 18/10/12	Station 3 21/9/12 - 18/10/12	Station 4 21/9/12 - 18/10/12	----
			Client sampling date / time	18-OCT-2012 15:00	18-OCT-2012 15:00	18-OCT-2012 15:00	18-OCT-2012 15:00	----
				EW1202898-001	EW1202898-002	EW1202898-003	EW1202898-004	----
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	**1.0**	**0.9**	**0.7**	**1.4**	----
Ash Content (mg)	----	1	mg	**16**	**15**	**11**	**22**	----
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	**0.1**	**0.1**	**0.2**	**0.5**	----
Combustible Matter (mg)	----	1	mg	**1**	**1**	**3**	**9**	----
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	**1.1**	**1.0**	**0.9**	**1.9**	----
Total Insoluble Matter (mg)	----	1	mg	**17**	**16**	**14**	**31**	----

Analytical Results

Sub-Matrix: **DUST** (Matrix: **AIR**)

Compound	CAS Number	LOR	Unit	Client sample ID: TSP South	Station 1 15/11/2012 - 13/12/2012	Station 2 15/11/2012 - 13/12/2012	Station 3 15/11/2012 - 13/12/2012	Station 4 15/11/2012 - 13/12/2012
Client sampling date / time				14-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
				EW1203506-016	**EW1203506-017**	**EW1203506-018**	**EW1203506-019**	**EW1203506-020**
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	----	**1.9**	**0.7**	**0.4**	**0.7**
Ash Content (mg)	----	1	mg	----	**32**	**12**	**6**	**11**
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	----	**3.4**	**0.2**	**0.1**	<0.1
Combustible Matter (mg)	----	1	mg	----	**55**	**3**	**2**	**1**
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	----	**5.3**	**0.9**	**0.5**	**0.7**
Total Insoluble Matter (mg)	----	1	mg	----	**87**	**15**	**8**	**12**
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**11.2**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**18.2**	----	----	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EW1300277**	Page	: 1 of 5
Client	: **SCCCR QUARRIES**	Laboratory	: Environmental Division NSW South Coast
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Telephone	: +61 0421 235 308	Telephone	: 61-2-4968-9433
Facsimile	: ----	Facsimile	: +61-2-4968 0349
Project	: Nowra Brickworks Quarry	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 25-JAN-2013
Sampler	: COREY FOX	Issue Date	: 08-FEB-2013
Site	: ----		
		No. of samples received	: 12
Quote number	: Nowra Brickworks Quarry SY/466/10 V2	No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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- General Comments
- Analytical Results

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Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle

Analytical Results

Sub-Matrix: **DUST** (Matrix: **AIR**)

Compound	CAS Number	LOR	Unit	Client sample ID: PM10 South 653461	Station 1 13/12/12 - 14/1/13	Station 2 13/12/12 - 14/1/13	Station 3 13/12/12 - 14/1/13	Station 4 13/12/12 - 14/1/13
Client sampling date / time				18-JAN-2013 15:00	14-JAN-2013 15:00	14-JAN-2013 15:00	14-JAN-2013 15:00	14-JAN-2013 15:00
				EW1300277-006	EW1300277-007	EW1300277-008	EW1300277-009	EW1300277-010
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	----	**1.1**	**0.8**	**0.7**	**1.0**
Ash Content (mg)	----	1	mg	----	**20**	**15**	**14**	**18**
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	----	**2.5**	**0.2**	**0.3**	**0.2**
Combustible Matter (mg)	----	1	mg	----	**47**	**4**	**5**	**4**
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	----	**3.6**	**1.0**	**1.0**	**1.2**
Total Insoluble Matter (mg)	----	1	mg	----	**67**	**19**	**19**	**22**
EA143: Total Suspended Particulates								
Total Suspended Particulates	----	0.1	µg/m³	**13.8**	----	----	----	----
Total Suspended Particulates (mass per filter)	----	0.1	mg/filter	**22.4**	----	----	----	----

Appendix C - Water Test Results

Piezometers

Piezometers are located throughout the quarry and are required to be monitered on a quarterly basis there was a period from Dec 2011 until March 2013 where no results were recorded this was an operational oversight and was corrected in March 2013 with monitering ongoing and continuing. These results will be reported and forwarded in the AEMR for 2012-2013

Surface Water Monitering

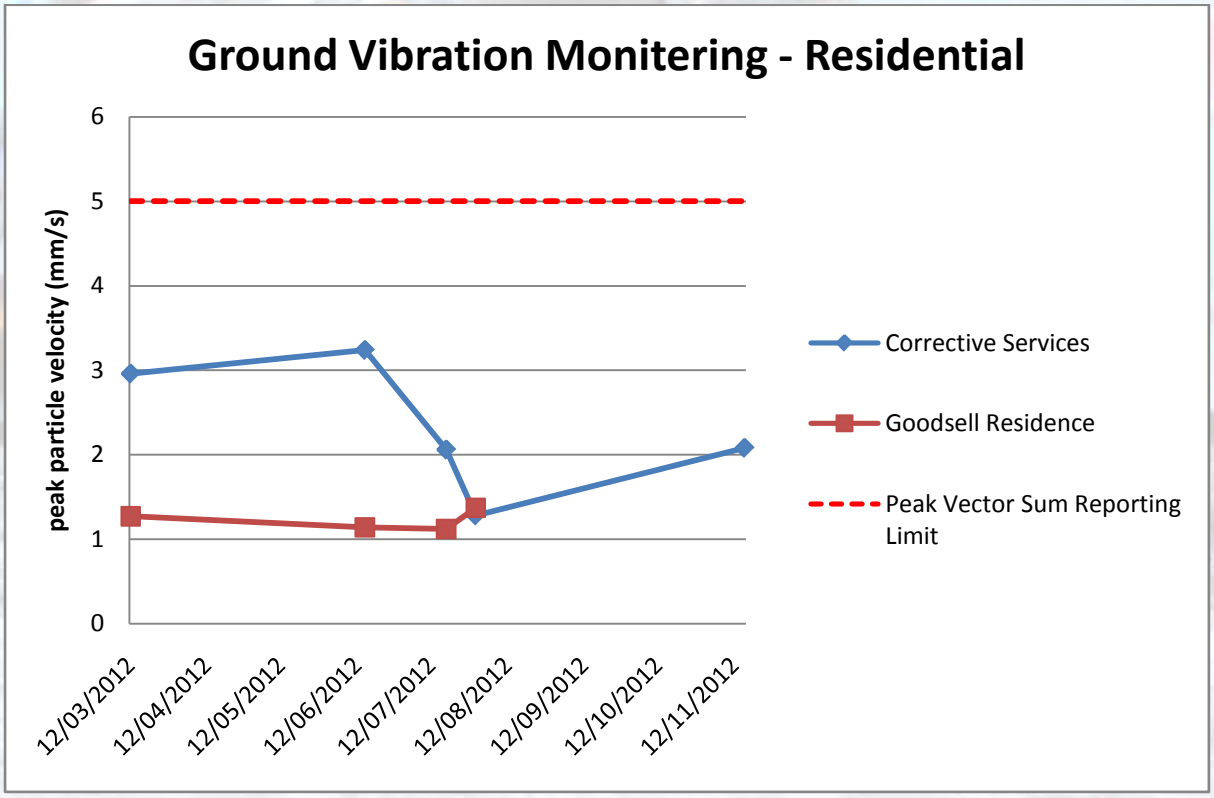
Surface Water monitering of the quarry and Nowra Creek basis there has been intermittent monitering until May 2013 where no results or few were recorded this was an operational oversight and was corrected in May 2013 with monitering ongoing and continuing. These results will be reported and forwarded in the AEMR for 2012-2013. Photographic inspection and viewing of the areas had been carried out but the water sampling regime had been misinterpreted and results had not been taken.

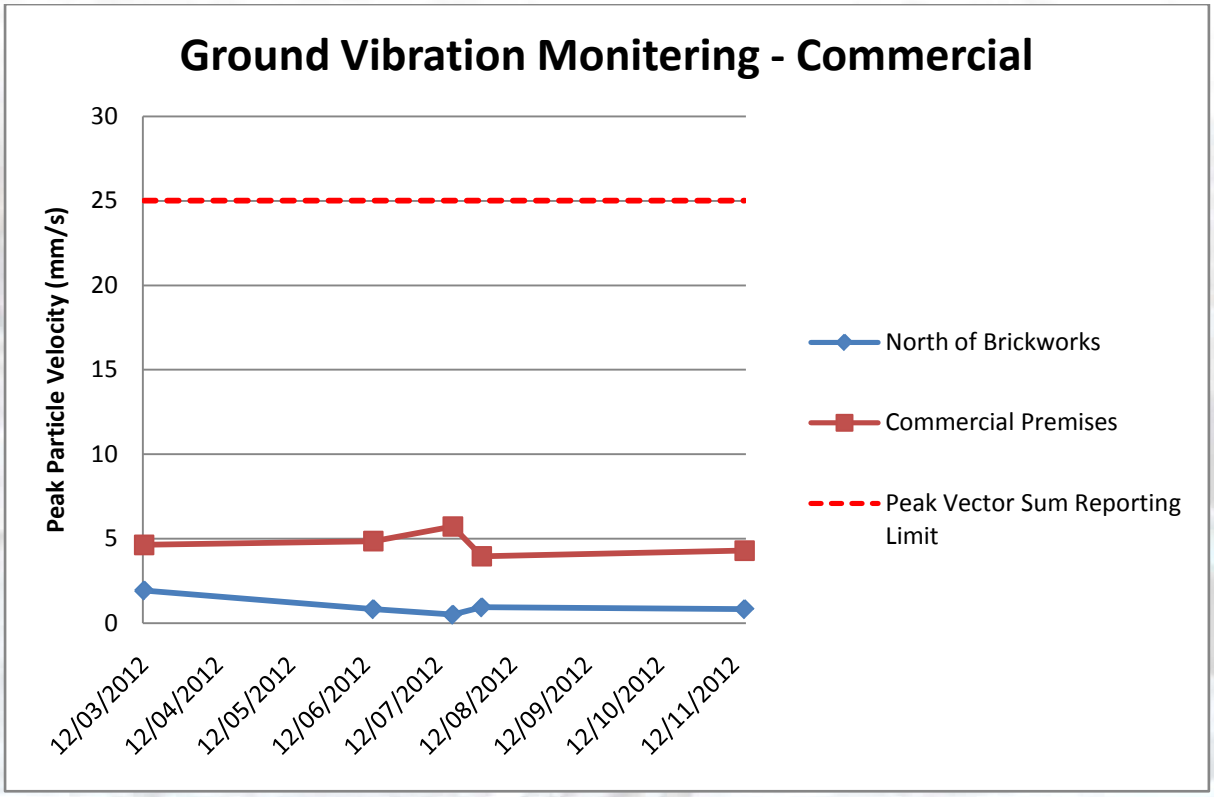
Appendix D – Blasting Monitering Results

Blasting Analysis (Ground Vibration)

Date	Corrective Services	Goodsell Residence	Peak Particle velocity – reporting limit
12/03/2012	2.96	1.27	5
15/06/2012	3.24	1.14	5
18/07/2012	2.06	1.12	5
30/07/2012	1.28	1.37	5
16/11/2012	2.08		5

Date	North of Brickworks	Commercial Premises	Peak Particle velocity – reporting limit
12/03/2012	1.93	4.63	25
15/06/2012	0.824	4.85	25
18/07/2012	0.496	5.71	25
30/07/2012	0.931	3.96	25
16/11/2012	0.824	4.29	25

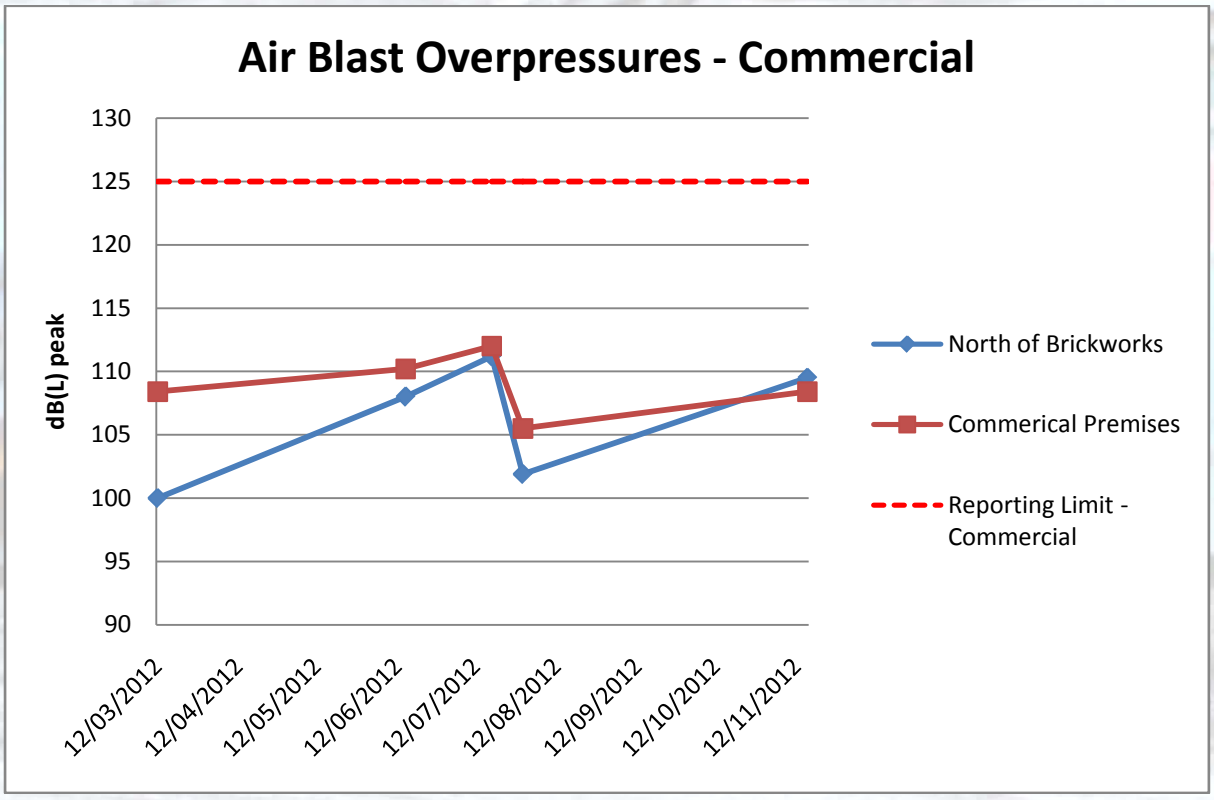


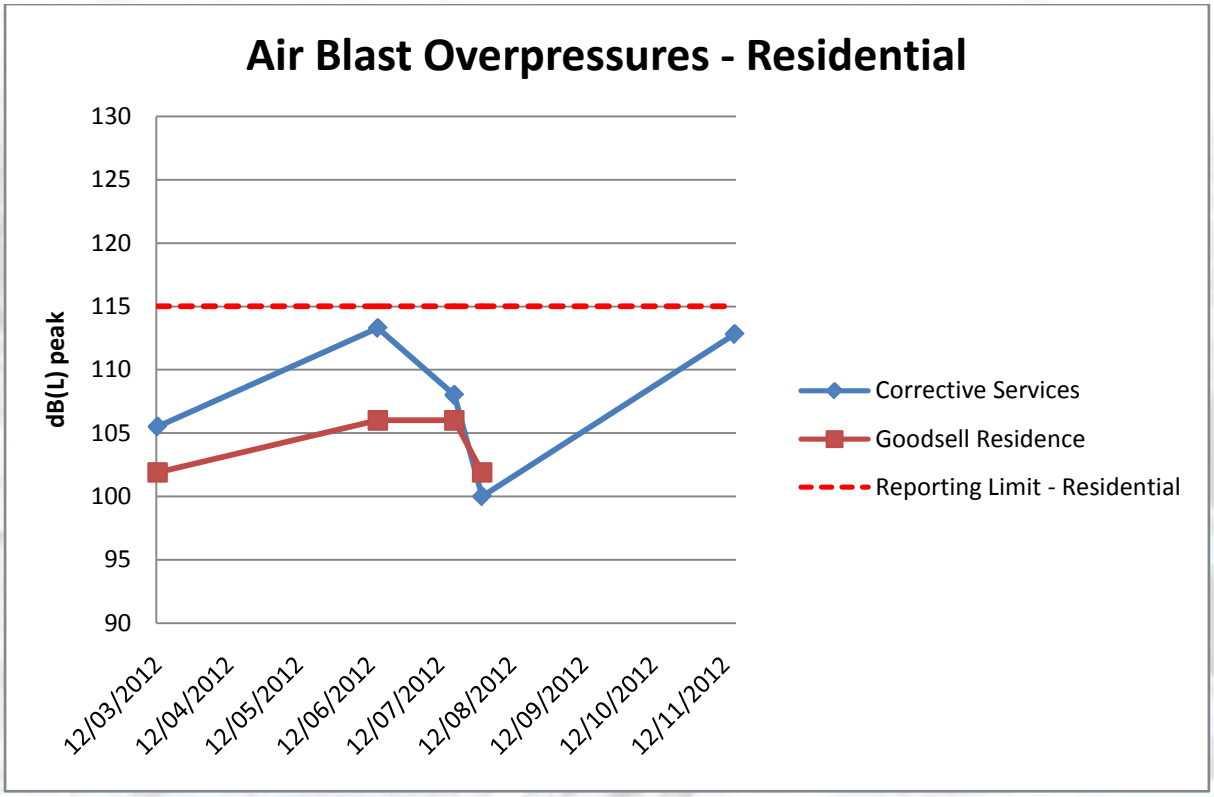

Ground Vibration Monitering - Commercial
Peak Particle Velocity (mm/s)
30
25
20
15
10
5
0
12/03/2012
12/04/2012
12/05/2012
12/06/2012
12/07/2012
12/08/2012
12/09/2012
12/10/2012
12/11/2012
North of Brickworks
Commercial Premises
Peak Vector Sum Reporting Limit

Blasting Analysis (Air Blast Overpressure)

Date	Corrective Services	Goodsell Residence	Reporting Limit - Residential
12/03/2012	105.5	101.9	115
15/06/2012	113.3	106	115
18/07/2012	108	106	115
30/07/2012	100	101.9	115
16/11/2012	112.8		115

Date	North of Brickworks	Commerical Premises	Reporting Limit - Commercial
12/03/2012	100	108.4	125
15/06/2012	108	110.2	125
18/07/2012	111.2	112	125
30/07/2012	101.9	105.5	125
16/11/2012	109.5	108.4	125




Air Blast Overpressures - Residential
dB(L) peak
130
125
120
115
110
105
100
95
90
12/03/2012
12/04/2012
12/05/2012
12/06/2012
12/07/2012
12/08/2012
12/09/2012
12/10/2012
12/11/2012
Corrective Services
Goodsell Residence
Reporting Limit - Residential

Commercial Premises

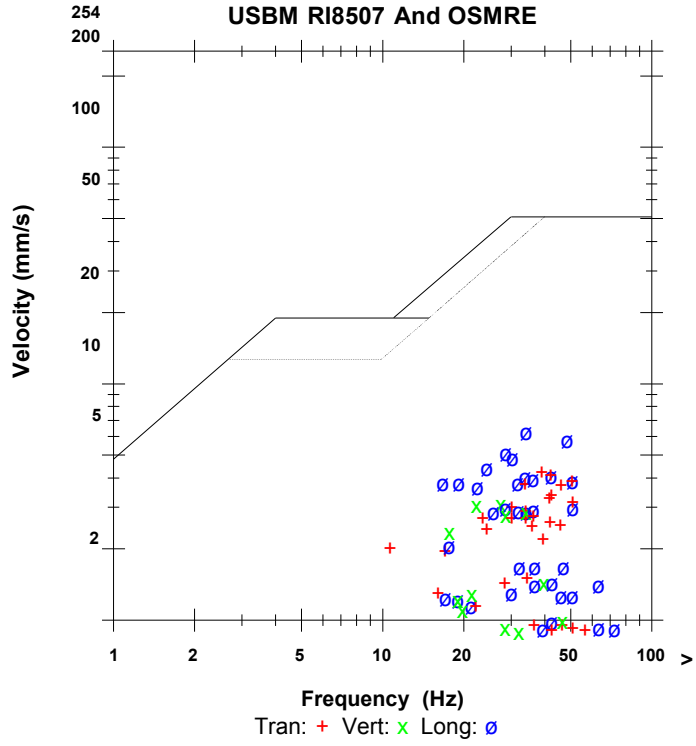
Date/Time	Vert at 11:30:08 March 12, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo: 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

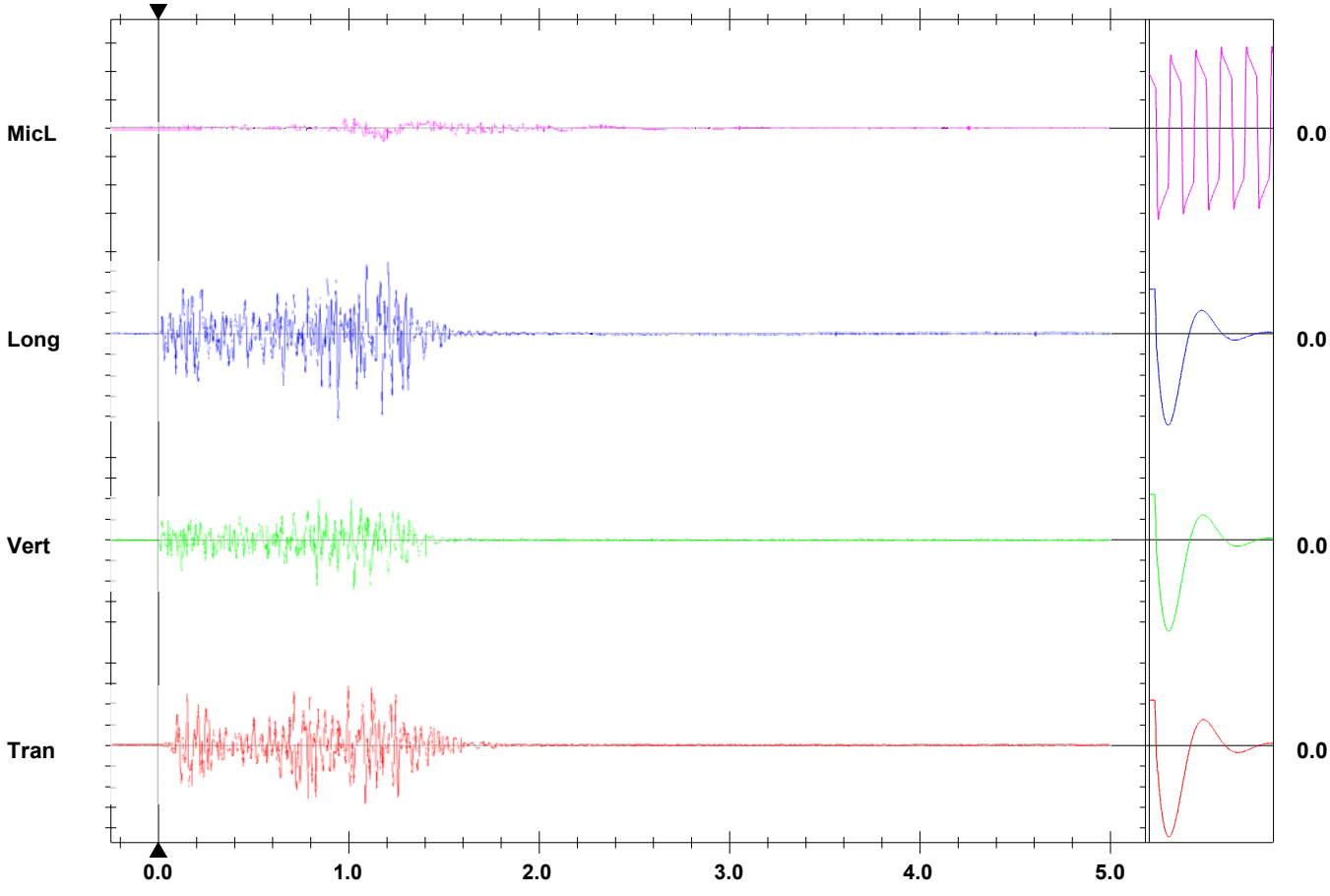
Serial Number	BE15569 V 10.11-1.1 Minimate Blaster
Battery Level	6.4 Volts

Microphone	Linear Weighting
PSPL ZC	108.4 dB(L) at 1.178 sec
Freq Channel	4.0 Hz
Test	Passed (Freq = 19.7 Hz Amp = 564 mv)

	Tran	Vert	Long	
PPV	2.91	2.46	4.29	mm/s
ZC Freq	39	18	34	Hz
Time (Rel. to Trig)	0.991	1.021	0.935	sec
Peak Acceleration	0.0945	0.0795	0.121	g
Peak Displacement	0.0179	0.0142	0.0197	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.6	Hz
Overswing Ratio	3.6	3.7	3.9	

Peak Vector Sum 4.63 mm/s at 0.935 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger = ▶◀

Instantel

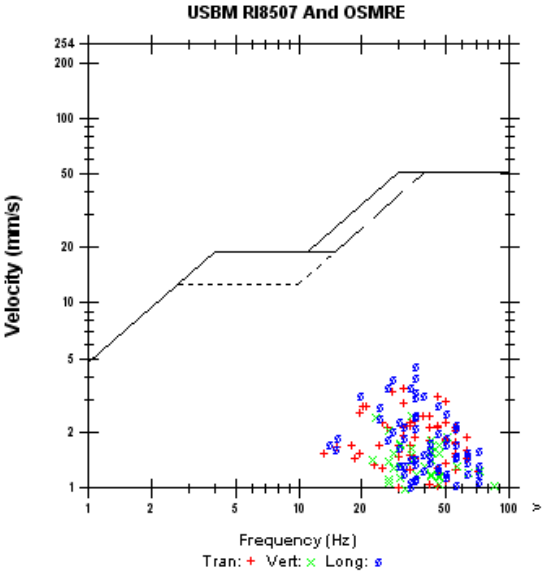
Commercial Premises

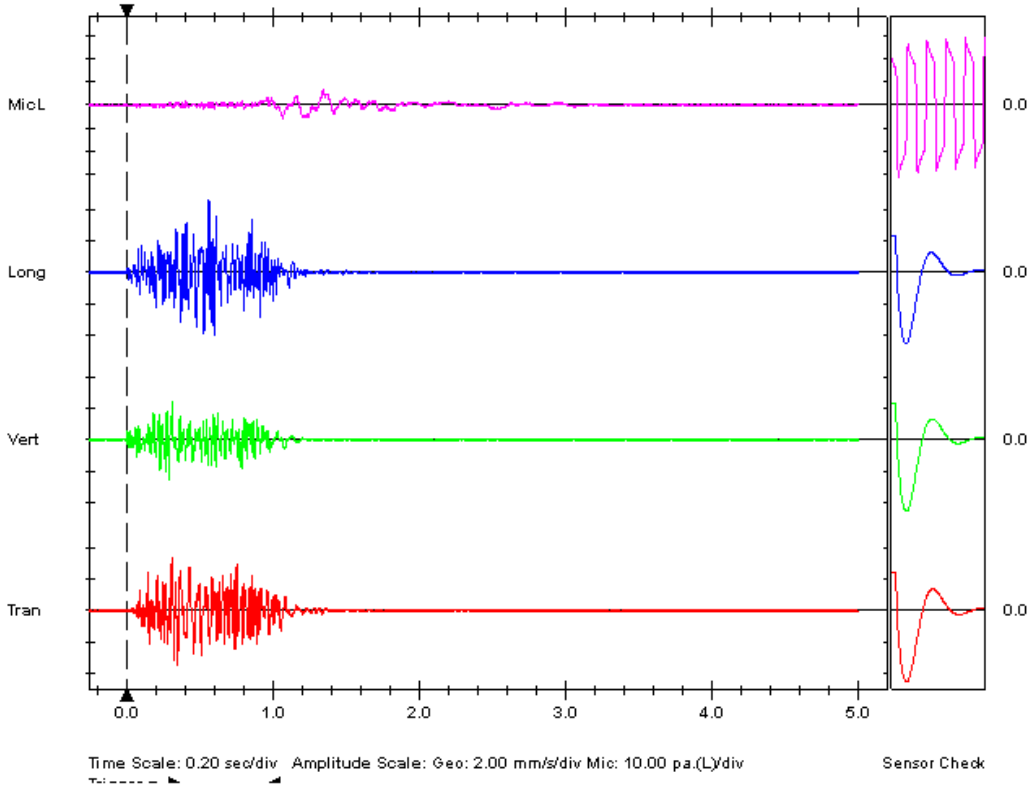
Date/Time	Vert at 10:59:33 June 15, 2012	Serial Number	BE15569 V 10.30-1.1 Minimate Blaster
Trigger Source	Geo: 0.130 mm/s	Battery Level	6.4 Volts
Range	Geo : 31.7 mm/s	Unit Calibration	May 29, 2012 by Saros (Australia)
Record Time	5.0 sec at 1024 sps	File Name	__TEMP.EVT
Notes			

Microphone	Linear Weighting
PSPL	110.2 dB(L) 6.50 pa.(L) at 1.343 sec
ZC Freq	6.0 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 573 mv)

	Tran	Vert	Long	
PPV	3.46	2.49	4.57	mm/s
ZC Freq	32	34	37	Hz
Time (Rel. to Trig)	0.353	0.292	0.565	sec
Peak Acceleration	0.0978	0.103	0.103	g
Peak Displacement	0.0199	0.0125	0.0201	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.6	Hz
Overswing Ratio	3.7	3.8	4.0	

Peak Vector Sum 4.85 mm/s at 0.565 sec





Time Scale: 0.20 sec/div Amplitude Scale: Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Commercial Premises

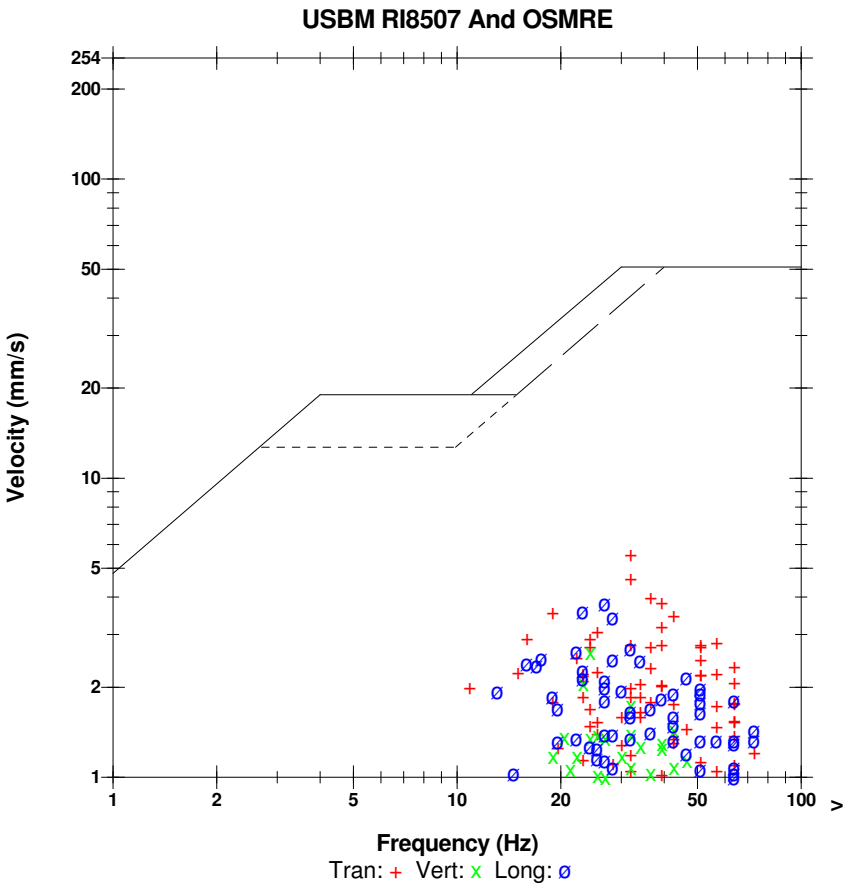
Date/Time	Vert at 10:56:16 July 18, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

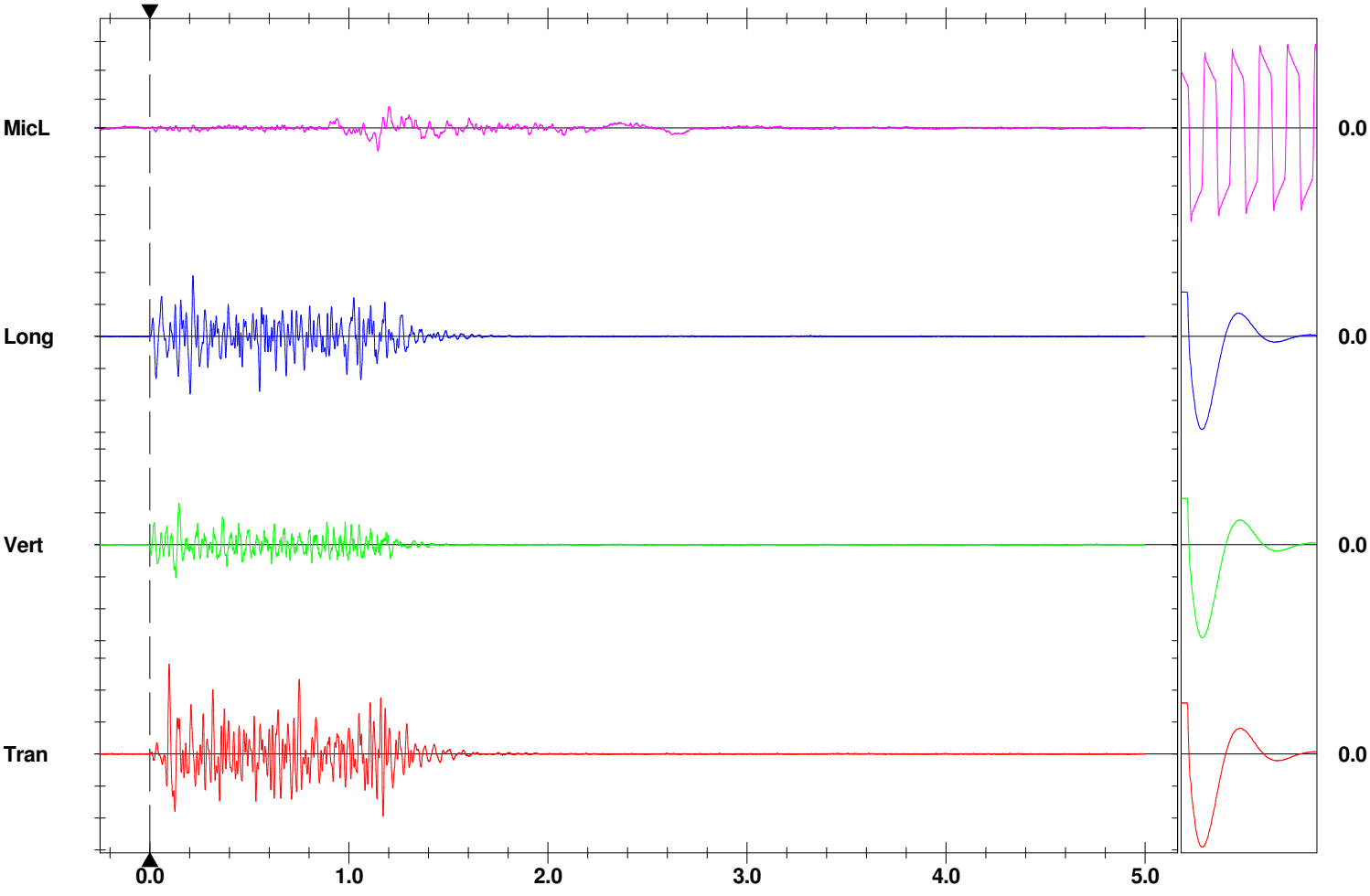
Serial Number	BE15569 V 10.30-1.1 Minimate Blaster
Battery Level	6.4 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	112.0 dB(L) 8.00 pa.(L) at 1.146 sec
ZC Freq	5.9 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 618 mv)

	Tran	Vert	Long	
PPV	5.64	2.62	3.81	mm/s
ZC Freq	32	24	27	Hz
Time (Rel. to Trig)	0.097	0.146	0.217	sec
Peak Acceleration	0.118	0.0563	0.0911	g
Peak Displacement	0.0298	0.0165	0.0215	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.6	Hz
Overswing Ratio	3.6	3.8	4.0	

Peak Vector Sum 5.71 mm/s at 0.097 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

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CommercialPremises

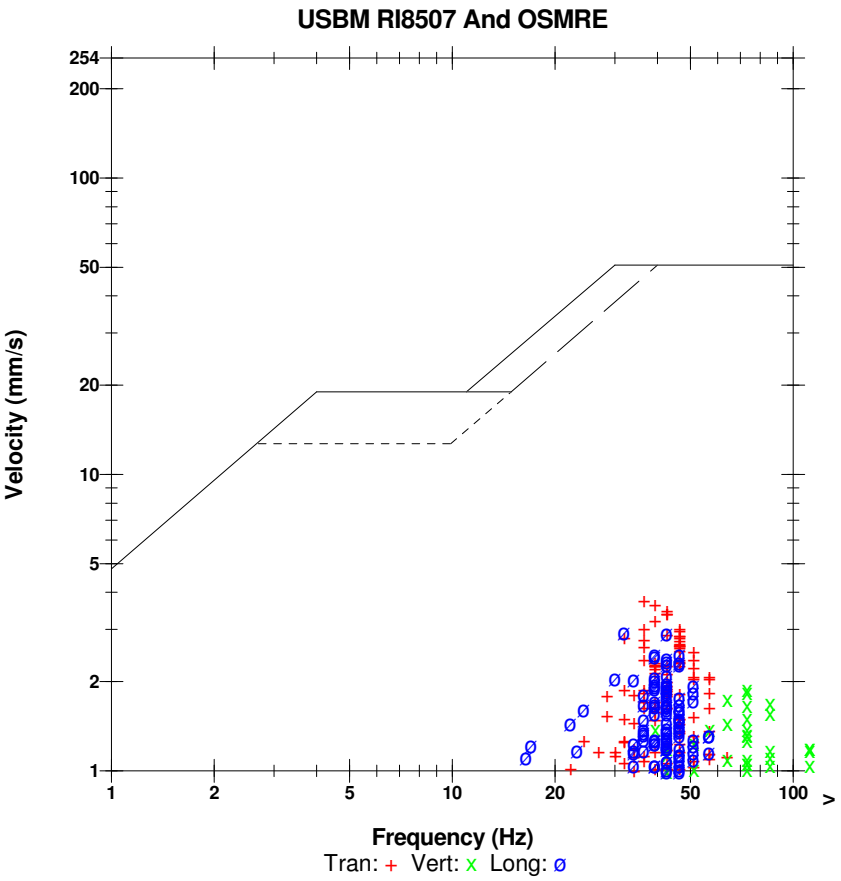
Date/Time	Vert at 11:58:18 July 30, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

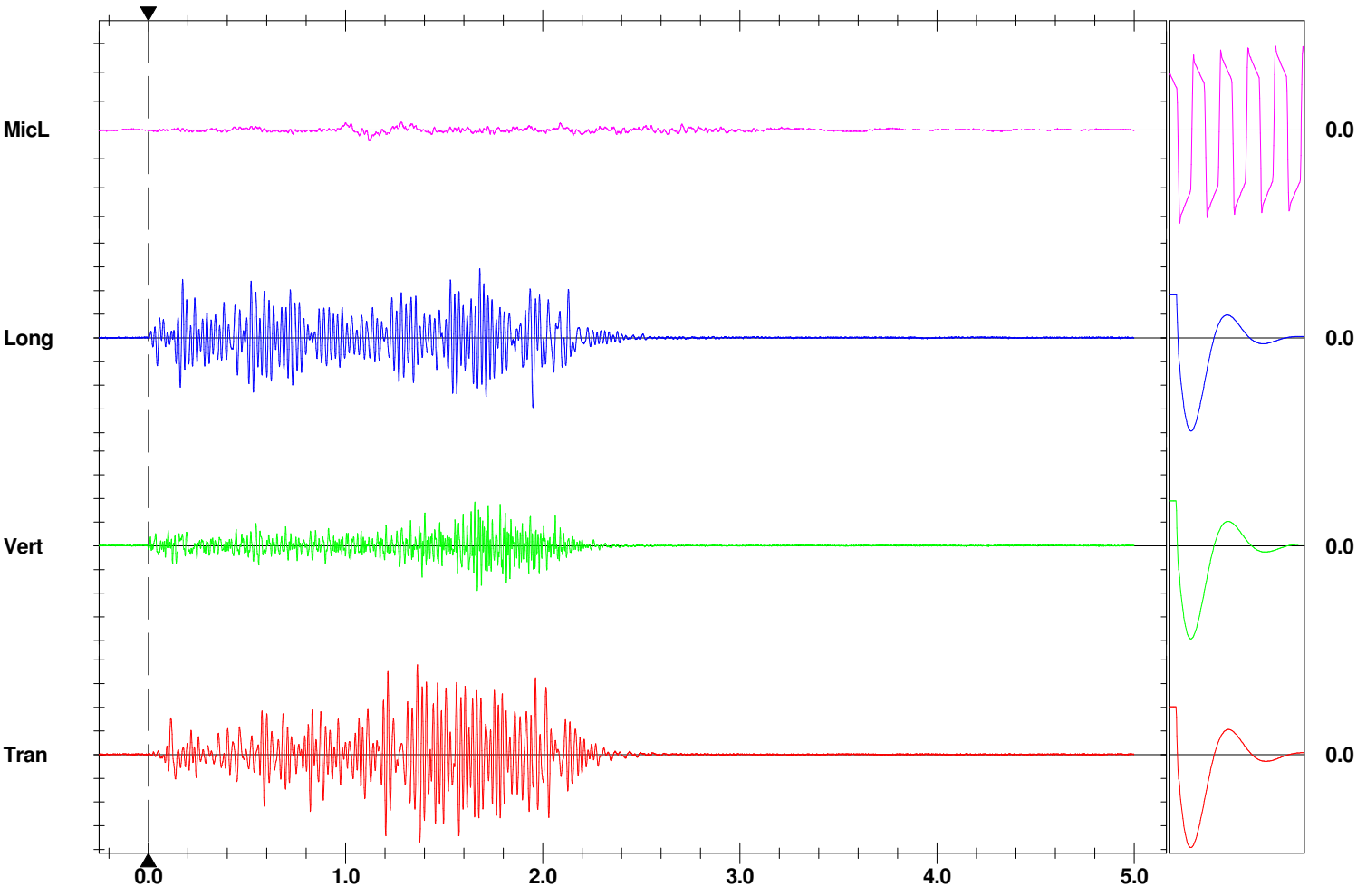
Serial Number	BE15569 V 10.30-1.1 Minimate Blaster
Battery Level	6.4 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	105.5 dB(L) 3.75 pa.(L) at 1.118 sec
ZC Freq	6.8 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 637 mv)

	Tran	Vert	Long	
PPV	3.79	1.89	2.94	mm/s
ZC Freq	37	73	32	Hz
Time (Rel. to Trig)	1.364	1.668	1.950	sec
Peak Acceleration	0.106	0.0978	0.0746	g
Peak Displacement	0.0153	0.00423	0.0148	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.5	7.5	Hz
Overswing Ratio	3.7	3.8	4.1	

Peak Vector Sum 3.96 mm/s at 1.575 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

Instantel

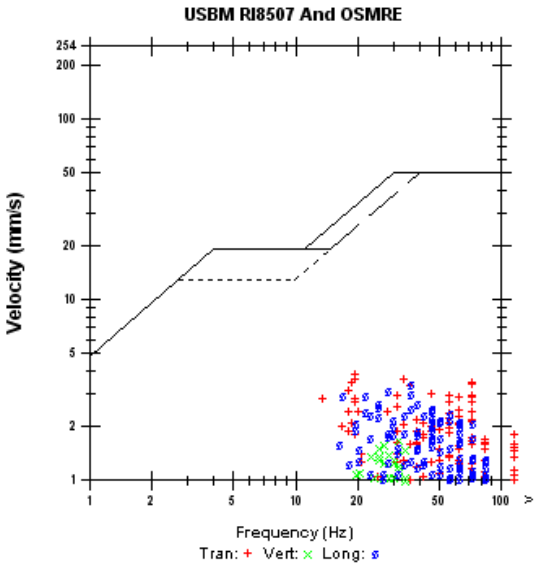
Commercial Premises

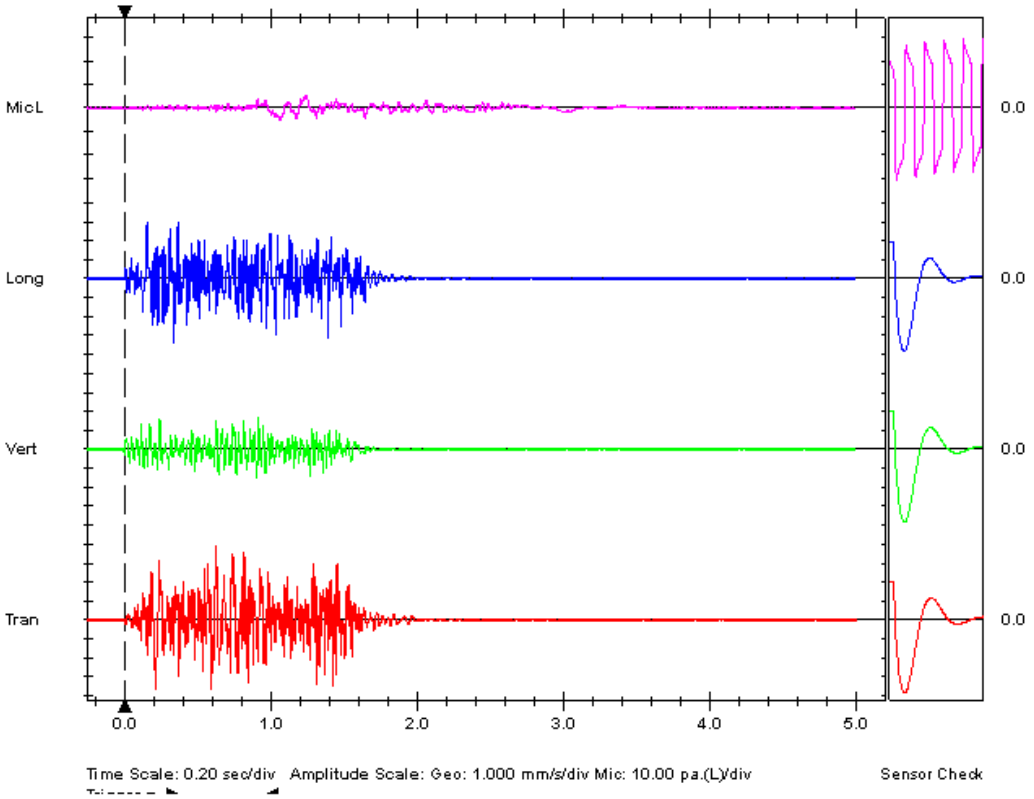
Date/Time	Vert at 11:00:31 November 16, 2012	Serial Number	BE15569 V 10.30-1.1 Minimate Blaster
Trigger Source	Geo: 0.130 mm/s	Battery Level	6.3 Volts
Range	Geo : 31.7 mm/s	Unit Calibration	May 29, 2012 by Saros (Australia)
Record Time	5.0 sec at 1024 sps	File Name	Q569EJQJ.WV0
Notes			

Microphone	Linear Weighting
PSPL	108.4 dB(L) 5.25 pa.(L) at 1.241 sec
ZC Freq	7.2 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 556 mv)

	Tran	Vert	Long	
PPV	3.87	1.67	3.37	mm/s
ZC Freq	20	32	37	Hz
Time (Rel. to Trig)	0.628	0.919	0.342	sec
Peak Acceleration	0.157	0.0646	0.108	g
Peak Displacement	0.0286	0.00934	0.0175	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.4	7.6	Hz
Overswing Ratio	3.6	3.7	3.9	

Peak Vector Sum 4.29 mm/s at 0.628 sec





Time Scale: 0.20 sec/div Amplitude Scale: Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Instantel

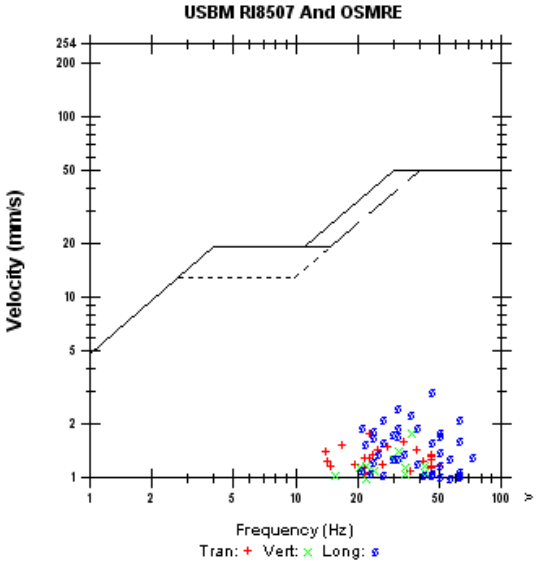
Jail Monitor

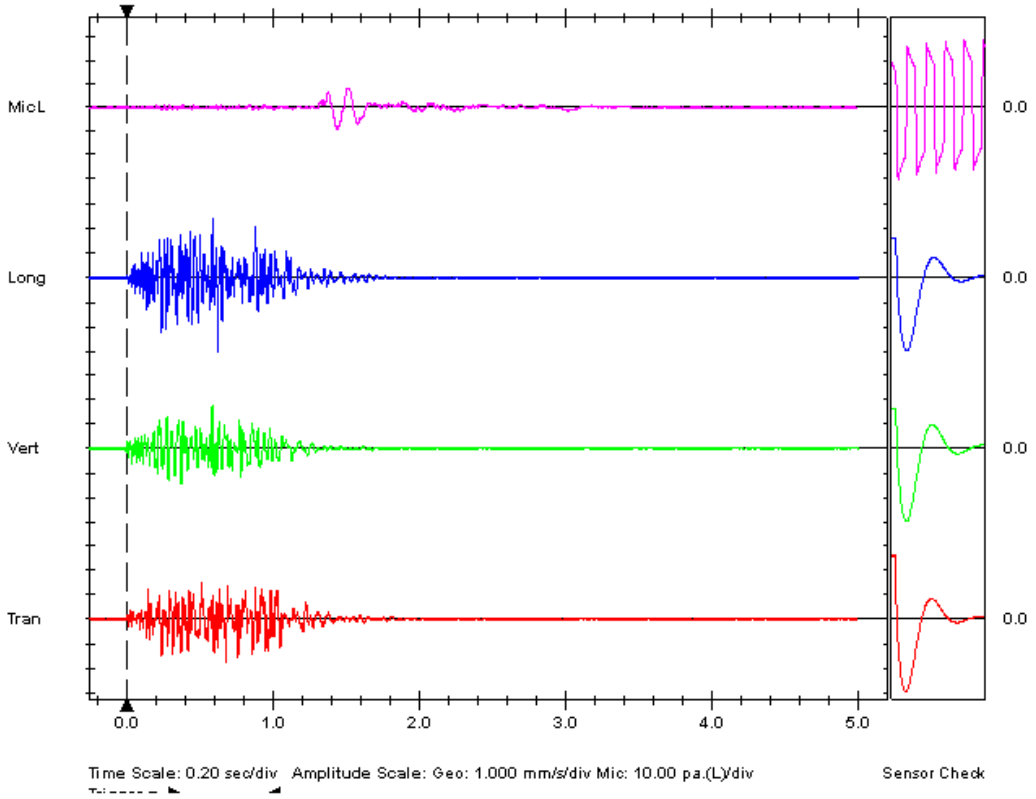
Date/Time	Vert at 10:59:35 June 15, 2012	Serial Number	BE15377 V 10.30-1.1 Minimate Blaster
Trigger Source	Geo: 0.130 mm/s	Battery Level	6.4 Volts
Range	Geo : 31.7 mm/s	Unit Calibration	May 29, 2012 by Saros (Australia)
Record Time	5.0 sec at 1024 sps	File Name	__TEMP.EVT
Notes			

Microphone	Linear Weighting
PSPL	113.3 dB(L) 9.25 pa.(L) at 1.441 sec
ZC Freq	6.4 Hz
Channel Test	Passed (Freq = 20.5 Hz Amp = 617 mv)

	Tran	Vert	Long	
PPV	1.75	1.78	3.00	mm/s
ZC Freq	23	37	47	Hz
Time (Rel. to Trig)	0.683	0.590	0.626	sec
Peak Acceleration	0.0497	0.0464	0.0845	g
Peak Displacement	0.0118	0.00984	0.0124	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.6	7.1	Hz
Overswing Ratio	4.0	3.4	3.9	

Peak Vector Sum 3.24 mm/s at 0.626 sec



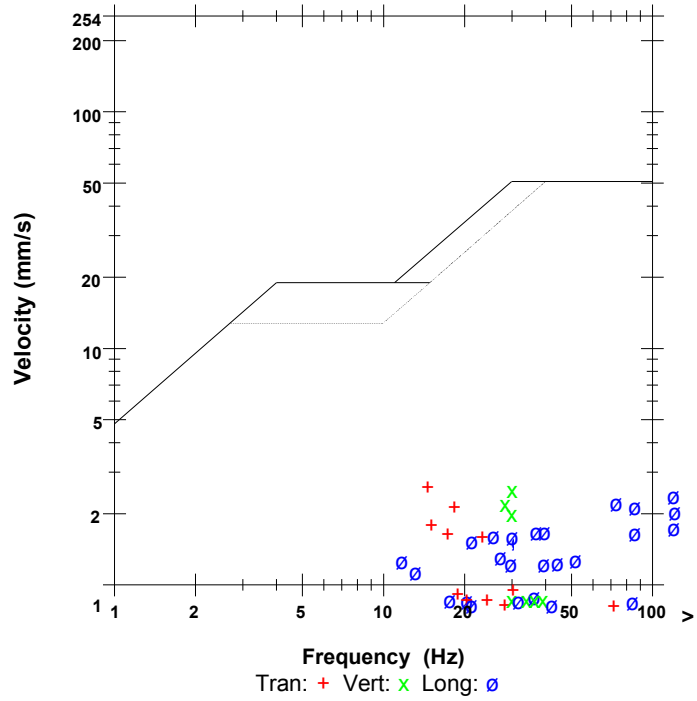


Time Scale: 0.20 sec/div Amplitude Scale: Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Date/Time	Vert at 11:30:11 March 12, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo: 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

Serial Number	BE16158 V 10.10-1.1 Minimate Blaster
Battery Level	6.3 Volts

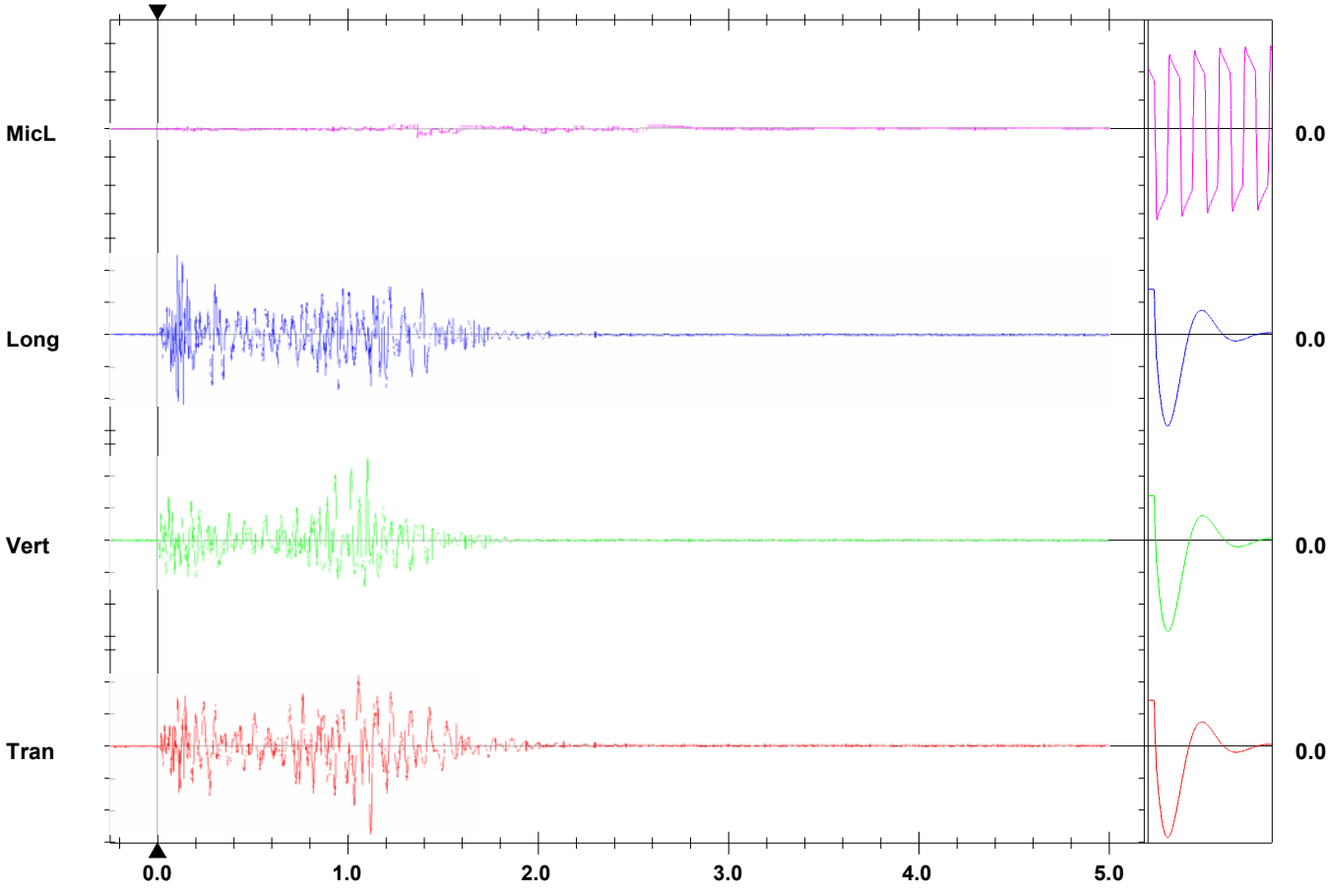
USBM RI8507 And OSMRE



Microphone	Linear Weighting
PSPL ZC	105.5 dB(L) at 1.357 sec
Freq Channel	5.1 Hz
Test	Passed (Freq = 20.1 Hz Amp = 557 mv)

	Tran	Vert	Long	
PPV	2.76	2.64	2.52	mm/s
ZC Freq	15	30	>100	Hz
Time (Rel. to Trig)	1.106	1.097	0.096	sec
Peak Acceleration	0.0862	0.0580	0.151	g
Peak Displacement	0.0186	0.0127	0.0109	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.4	Hz
Overswing Ratio	3.8	3.7	3.9	

Peak Vector Sum 2.96 mm/s at 1.107 sec



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

Instantel

Corrective Services

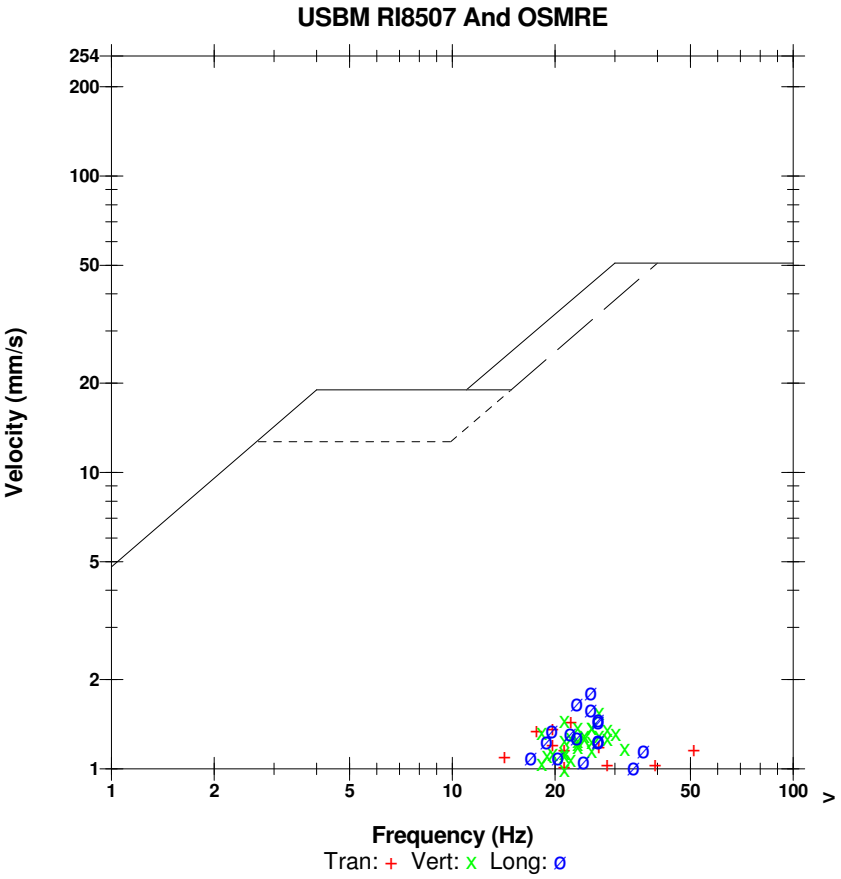
Date/Time	Vert at 10:56:16 July 18, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

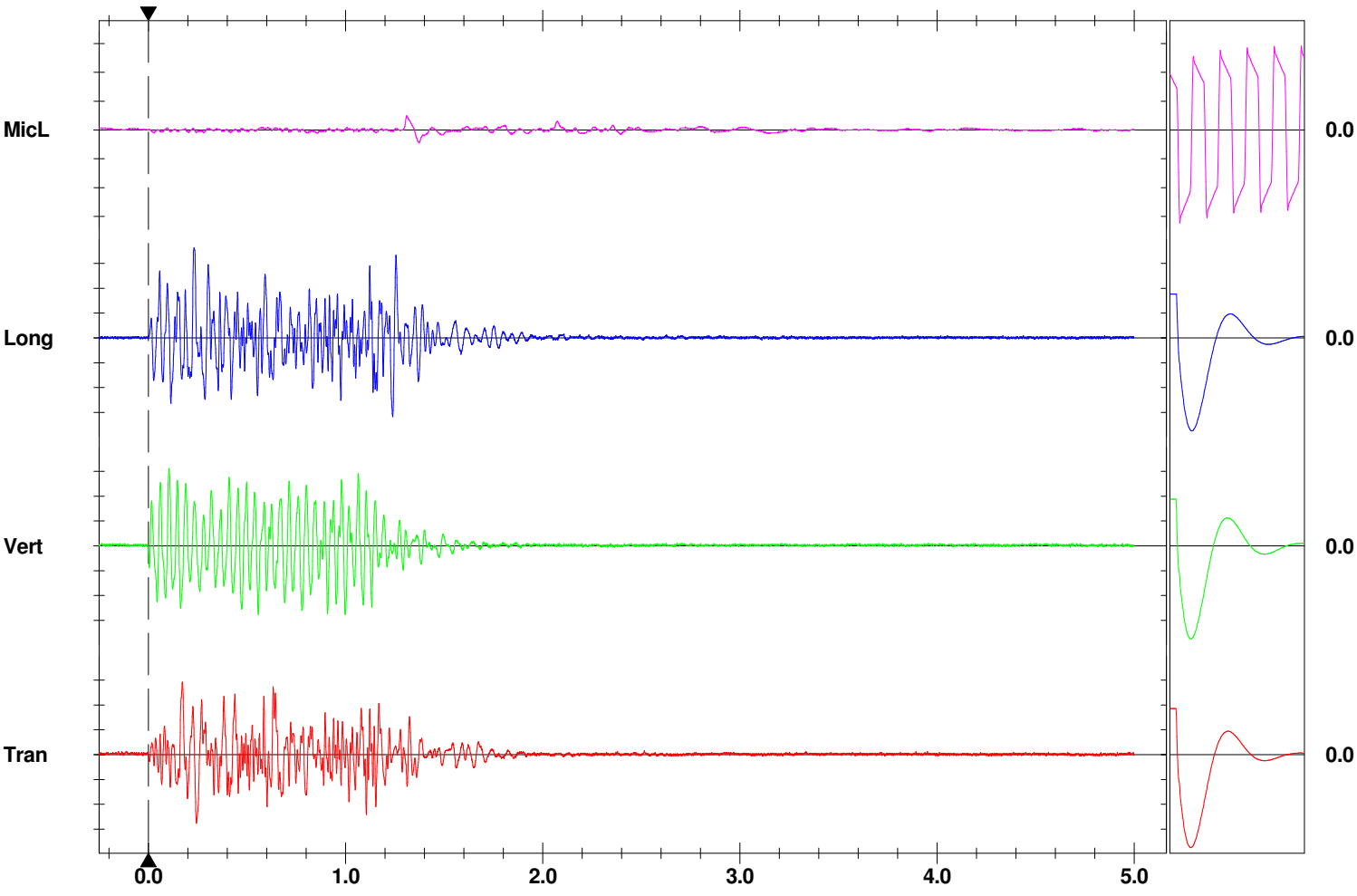
Serial Number	BE15377 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	108.0 dB(L) 5.00 pa.(L) at 1.310 sec
ZC Freq	9.1 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 576 mv)

	Tran	Vert	Long	
PPV	1.46	1.56	1.81	mm/s
ZC Freq	22	27	26	Hz
Time (Rel. to Trig)	0.172	0.104	0.230	sec
Peak Acceleration	0.0365	0.0315	0.0431	g
Peak Displacement	0.0115	0.00946	0.0125	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.2	Hz
Overswing Ratio	4.0	3.4	3.9	

Peak Vector Sum 2.06 mm/s at 0.230 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

Instantel

Corrective Services

Date/Time	Vert at 11:58:18 July 30, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

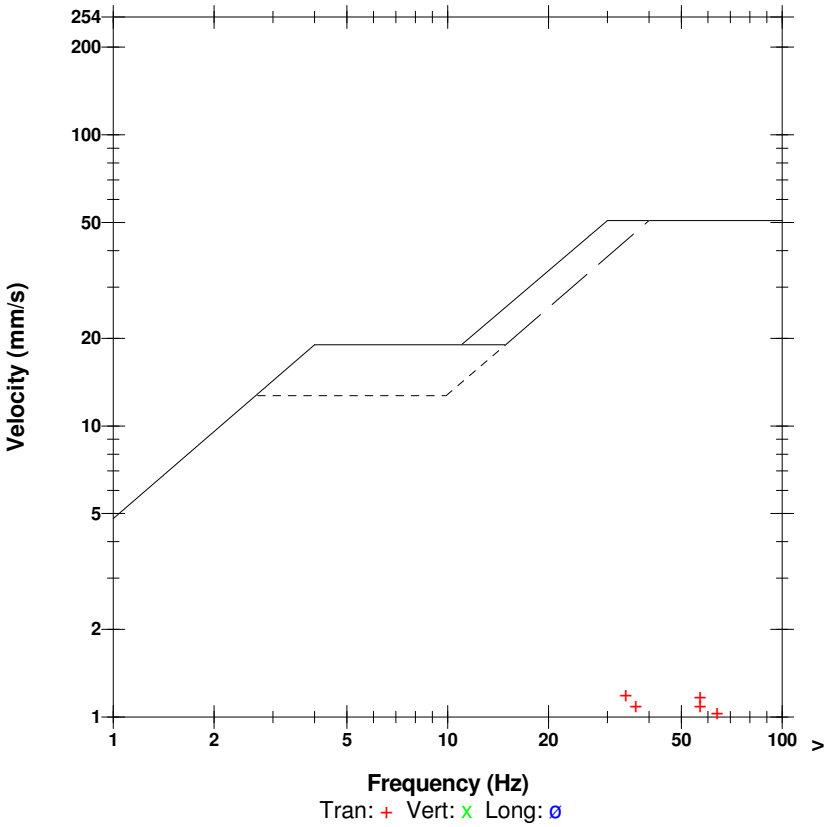
Serial Number	BE15377 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

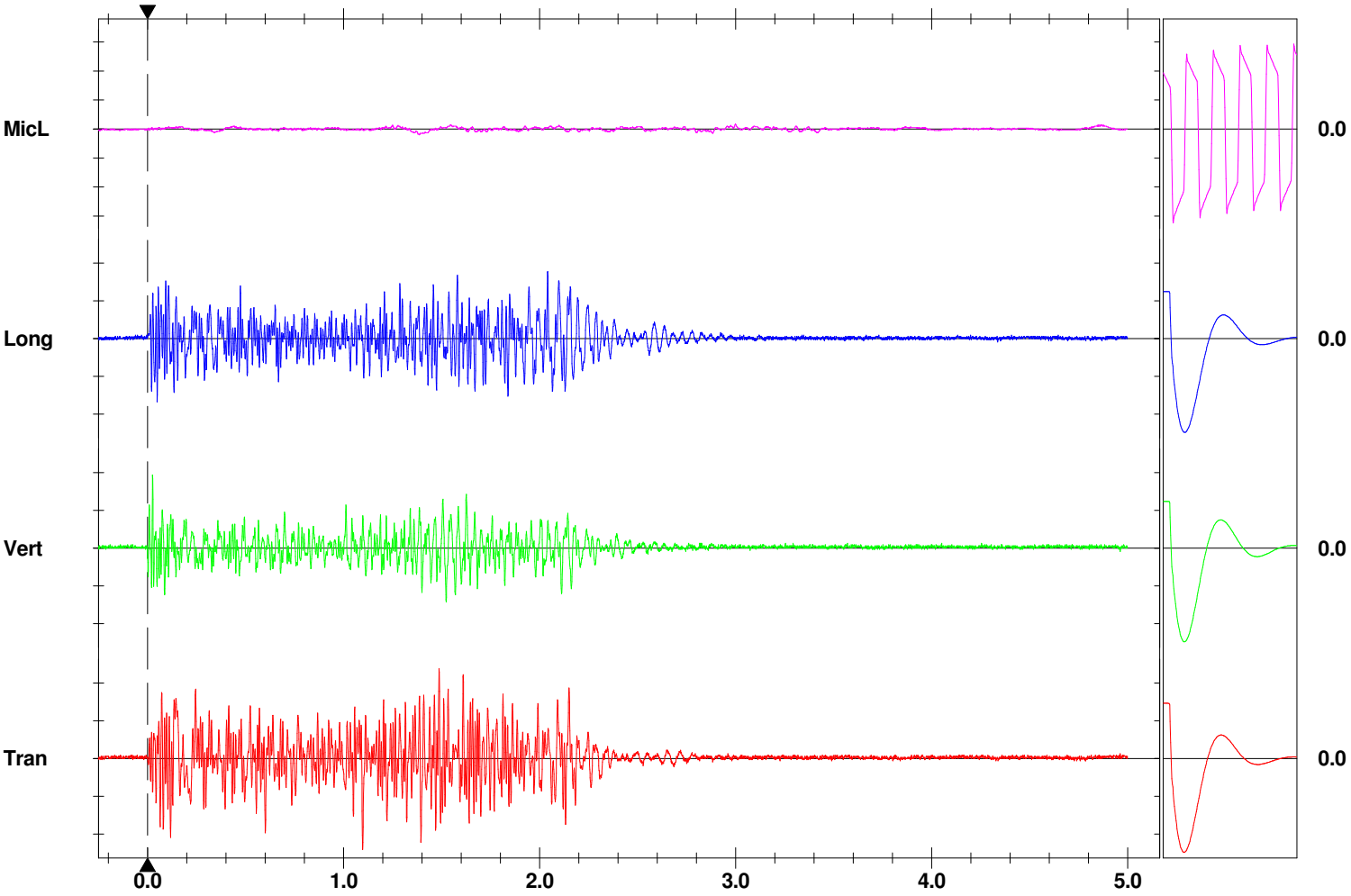
Microphone	Linear Weighting
PSPL	100.0 dB(L) 2.00 pa.(L) at 1.386 sec
ZC Freq	5.0 Hz
Channel Test	Passed (Freq = 20.5 Hz Amp = 564 mv)

	Tran	Vert	Long	
PPV	1.21	0.968	0.889	mm/s
ZC Freq	34	85	47	Hz
Time (Rel. to Trig)	1.098	0.025	2.041	sec
Peak Acceleration	0.0447	0.0464	0.0431	g
Peak Displacement	0.00805	0.00338	0.00531	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.1	Hz
Overswing Ratio	4.0	3.3	4.0	

Peak Vector Sum 1.28 mm/s at 1.098 sec

USBM RI8507 And OSMRE





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

Sensor Check

Trigger =

Instantel

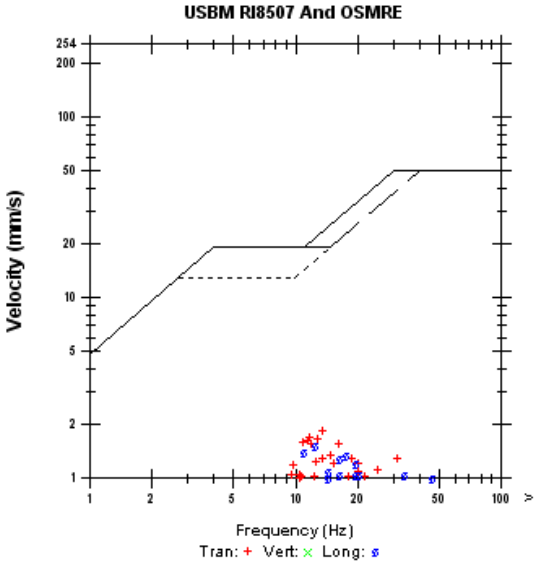
Corrective Services

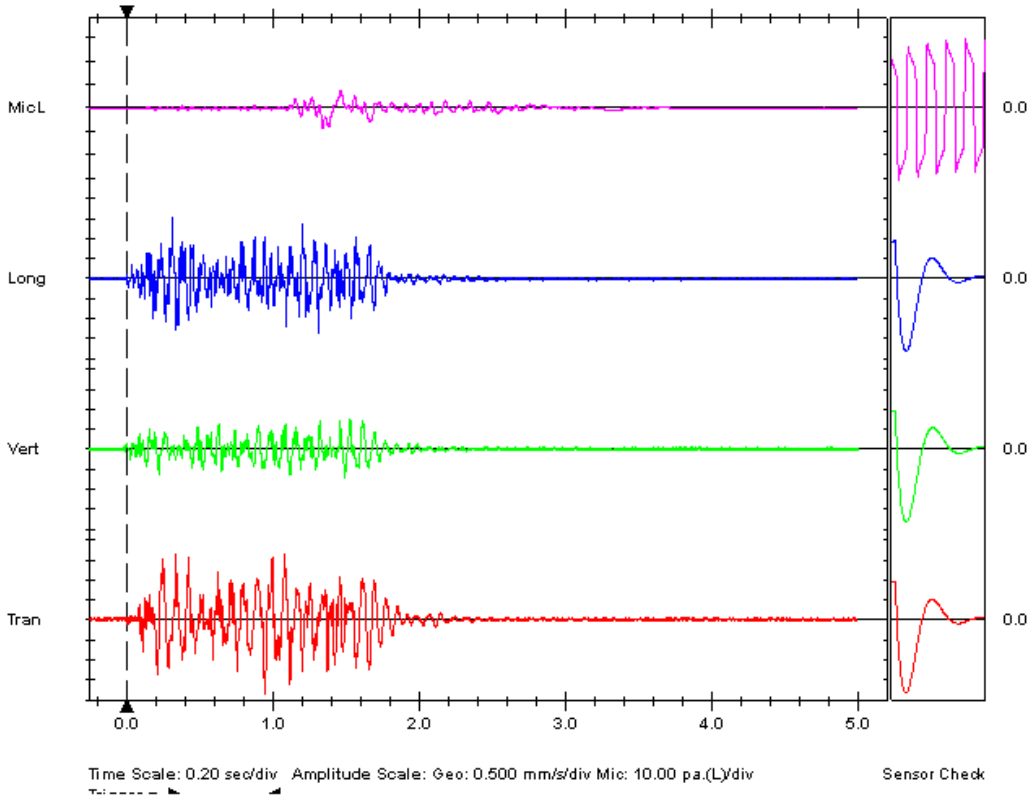
Date/Time	Vert at 11:00:48 November 16, 2012	Serial Number	BE16158 V 10.30-1.1 Minimate Blaster
Trigger Source	Geo: 0.130 mm/s	Battery Level	6.3 Volts
Range	Geo : 31.7 mm/s	Unit Calibration	May 29, 2012 by Saros (Australia)
Record Time	5.0 sec at 1024 sps	File Name	R158EJQJ.XC0
Notes			

Microphone	Linear Weighting
PSPL	112.8 dB(L) 8.75 pa.(L) at 1.341 sec
ZC Freq	5.8 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 590 mv)

	Tran	Vert	Long	
PPV	1.84	0.746	1.52	mm/s
ZC Freq	14	18	12	Hz
Time (Rel. to Trig)	0.950	1.529	0.315	sec
Peak Acceleration	0.0331	0.0166	0.0298	g
Peak Displacement	0.0191	0.00812	0.0125	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.4	7.5	Hz
Overswing Ratio	3.9	3.8	3.9	

Peak Vector Sum 2.08 mm/s at 0.341 sec





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

Goodsel Residence

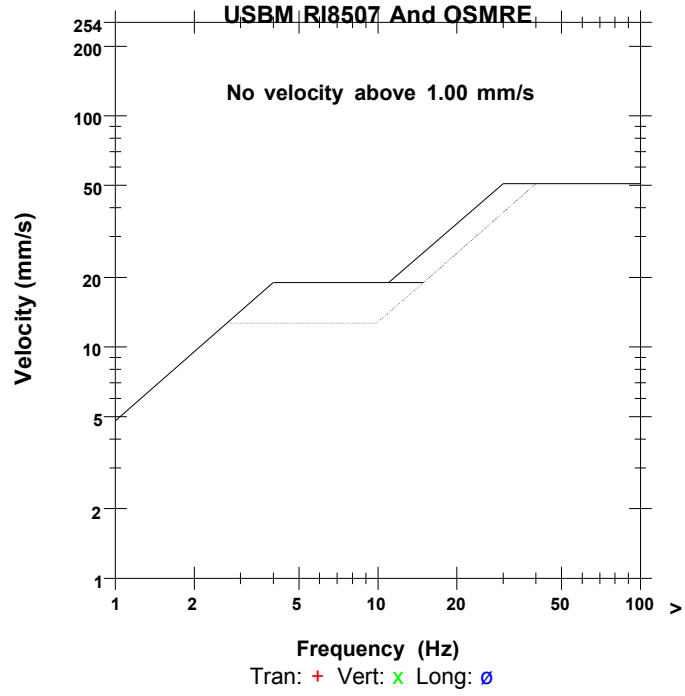
Date/Time	Vert at 11:30:08 March 12, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo: 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

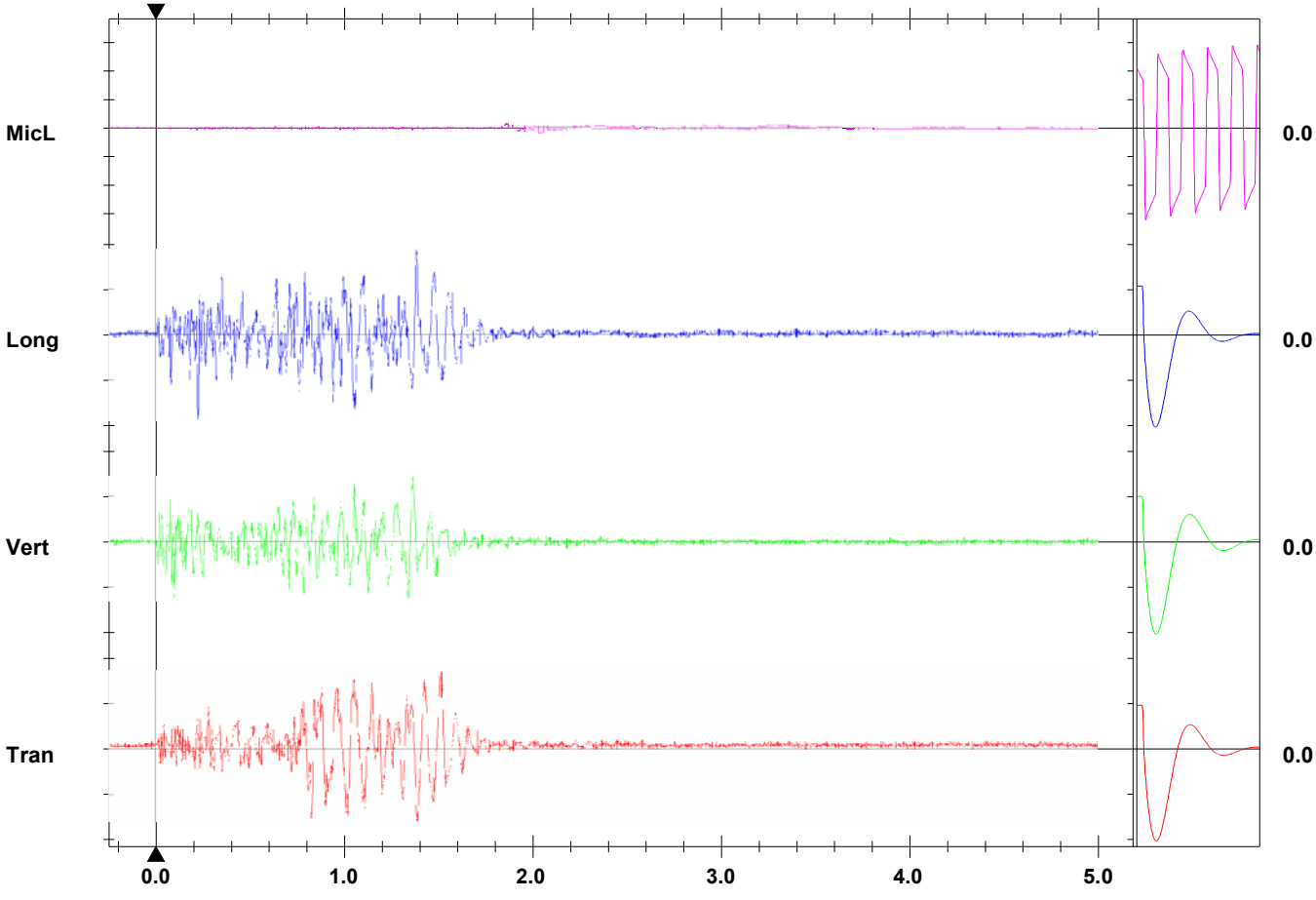
Serial Number	BE15777 V 10.06-1.1 Minimate Blaster
Battery Level	6.4 Volts

Microphone	Linear Weighting
PSPL ZC	101.9 dB(L) at 2.023 sec
Freq Channel	17 Hz
Test	Passed (Freq = 20.1 Hz Amp = 562 mv)

	Tran	Vert	Long	
PPV	0.857	0.730	0.952	mm/s
ZC Freq	13	17	14	Hz
Time (Rel. to Trig)	1.504	1.357	1.378	sec
Peak Acceleration	0.0215	0.0199	0.0282	g
Peak Displacement	0.0107	0.00720	0.00843	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.6	Hz
Overswing Ratio	3.8	3.3	3.9	

Peak Vector Sum 1.27 mm/s at 1.378 sec





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

Godsell Residence

Date/Time	Vert at 10:55:59 July 18, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

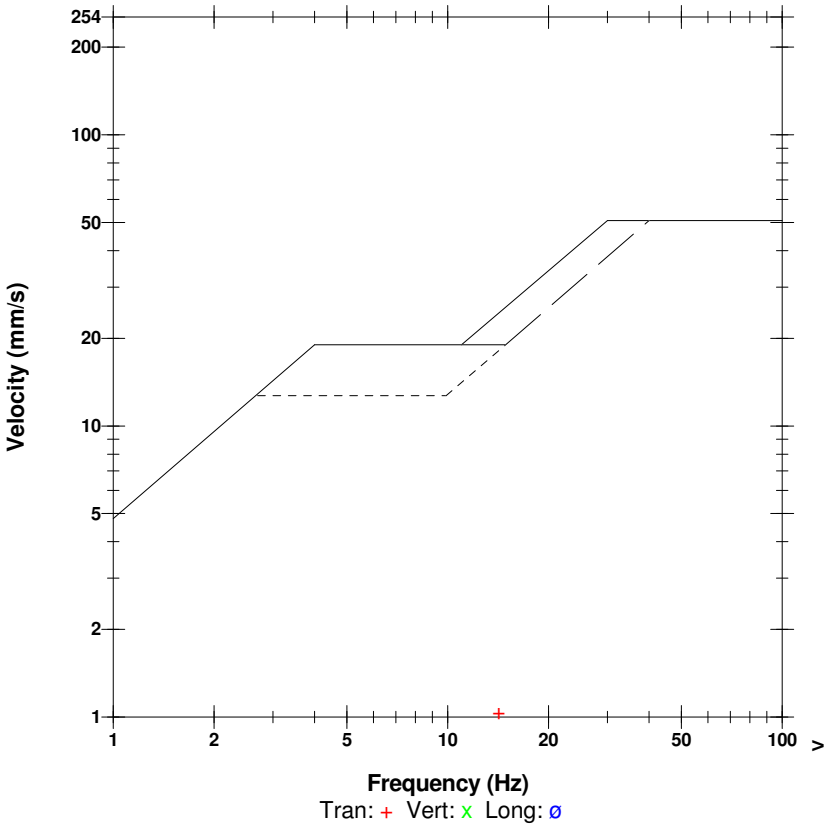
Serial Number	BE15777 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

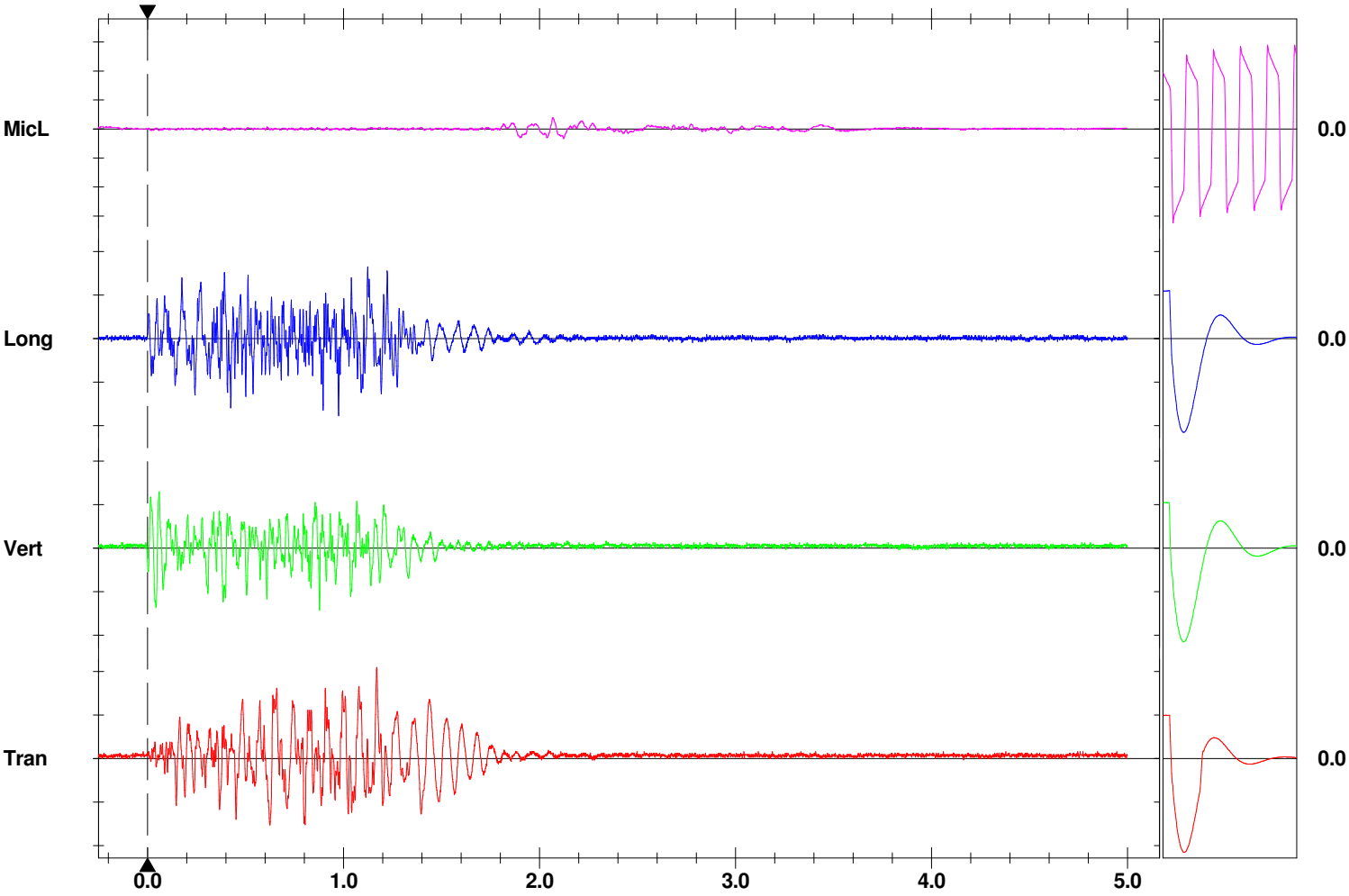
Microphone	Linear Weighting
PSPL	106.0 dB(L) 4.00 pa.(L) at 2.067 sec
ZC Freq	16 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 592 mv)

	Tran	Vert	Long	
PPV	1.05	0.714	0.889	mm/s
ZC Freq	14	34	22	Hz
Time (Rel. to Trig)	1.169	0.878	0.975	sec
Peak Acceleration	0.0265	0.0265	0.0398	g
Peak Displacement	0.00909	0.00515	0.00704	mm
Sensor Check	Passed	Passed	Passed	
Frequency	8.8	7.6	7.6	Hz
Overswing Ratio	4.5	3.5	4.0	

Peak Vector Sum 1.12 mm/s at 1.169 sec

USBM RI8507 And OSMRE





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

Goodsell Residence

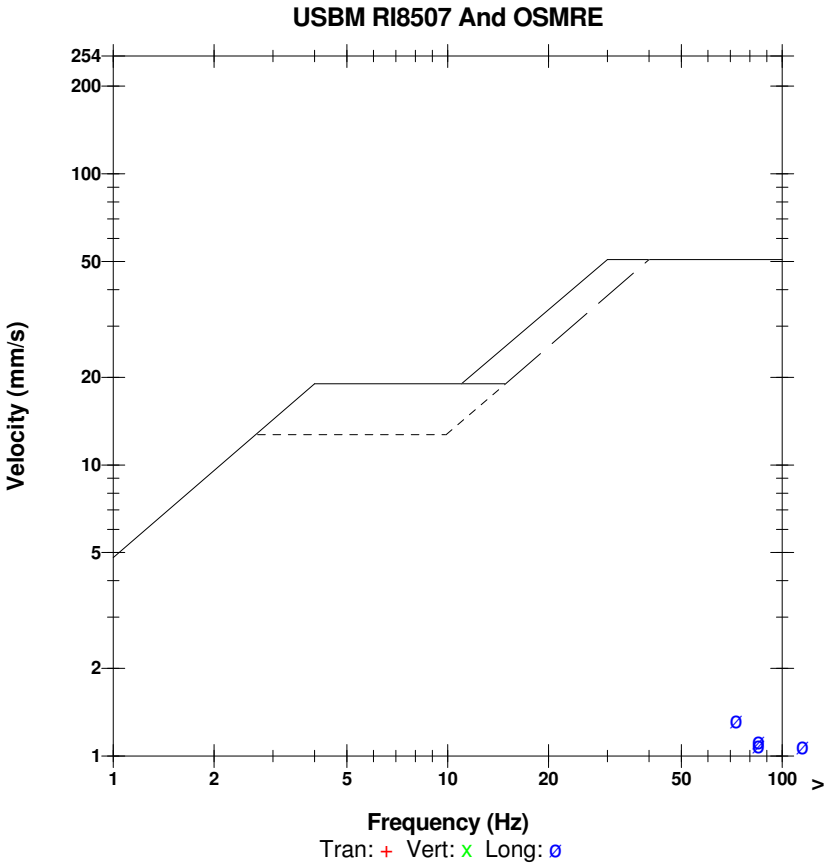
Date/Time	Vert at 11:58:18 July 30, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

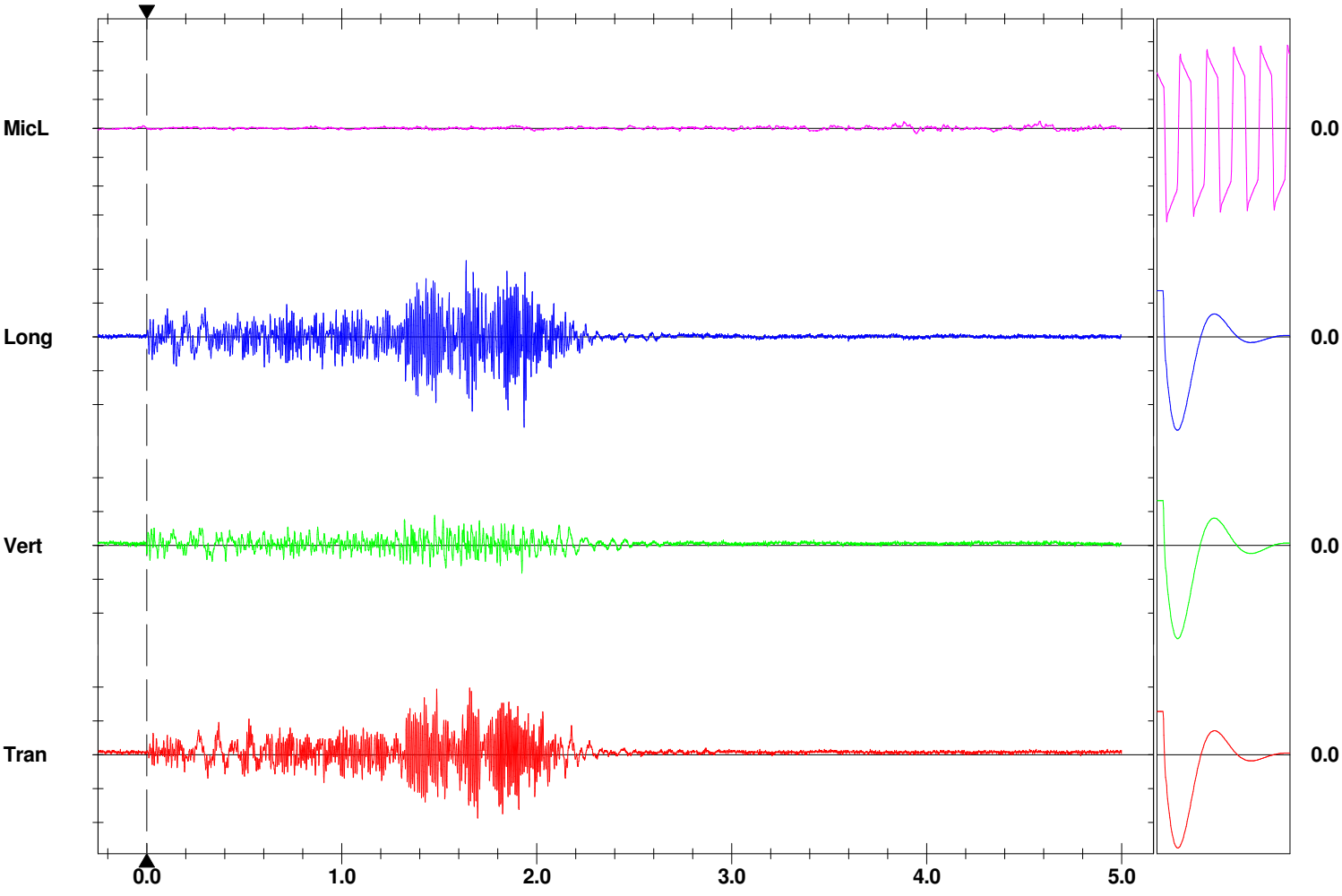
Serial Number	BE15777 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	101.9 dB(L) 2.50 pa.(L) at 4.579 sec
ZC Freq	8.5 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 638 mv)

	Tran	Vert	Long	
PPV	0.984	0.444	1.33	mm/s
ZC Freq	>100	39	73	Hz
Time (Rel. to Trig)	1.656	1.477	1.935	sec
Peak Acceleration	0.0597	0.0215	0.0696	g
Peak Displacement	0.00426	0.00248	0.00346	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.5	Hz
Overswing Ratio	3.9	3.4	4.1	

Peak Vector Sum 1.37 mm/s at 1.935 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

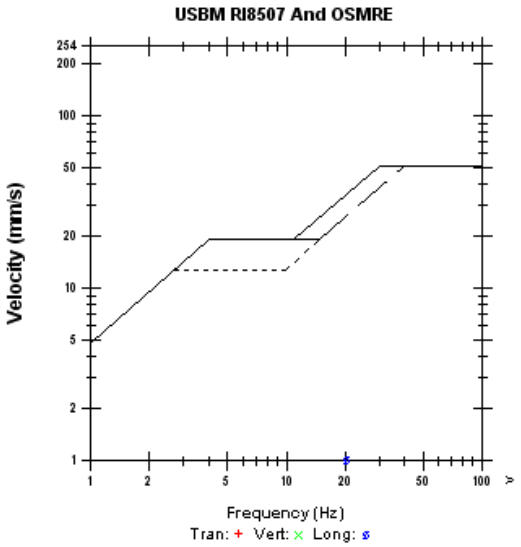
Goodsell Residence

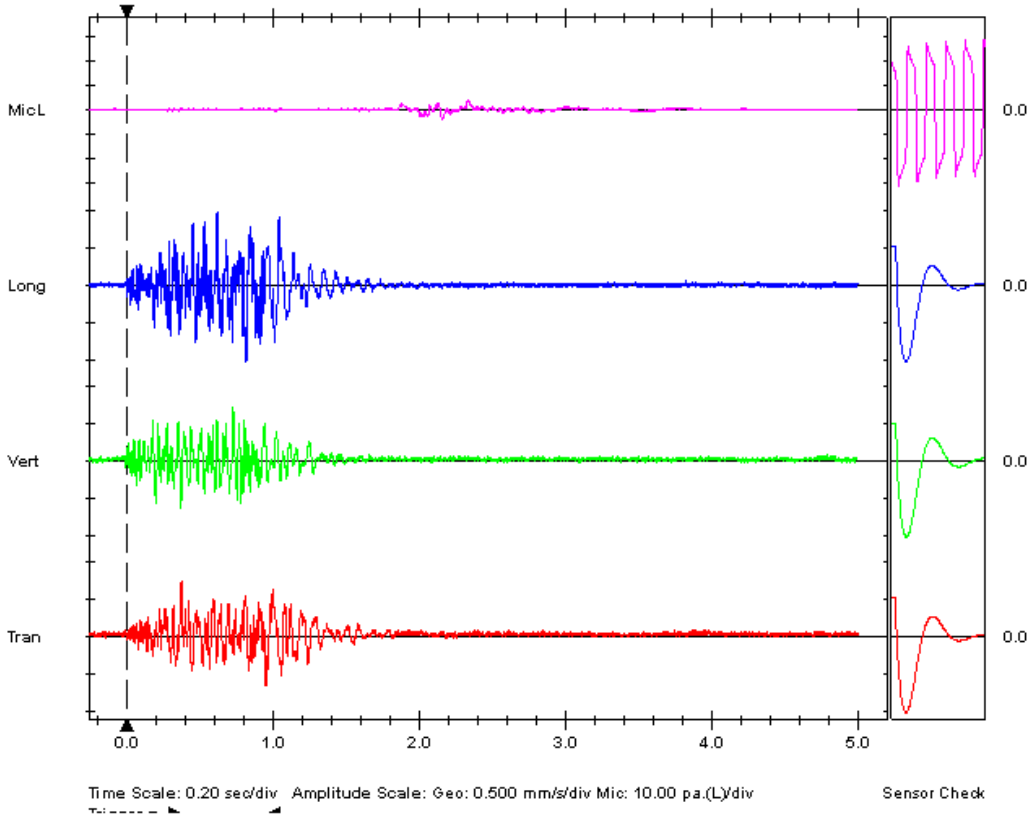
Date/Time	Vert at 10:59:32 June 15, 2012	Serial Number	BE15777 V 10.30-1.1 Minimate Blaster
Trigger Source	Geo: 0.130 mm/s	Battery Level	6.4 Volts
Range	Geo : 31.7 mm/s	Unit Calibration	May 29, 2012 by Saros (Australia)
Record Time	5.0 sec at 1024 sps	File Name	__TEMP.EVT
Notes			

Microphone	Linear Weighting
PSPL	106.0 dB(L) 4.00 pa.(L) at 2.156 sec
ZC Freq	14 Hz
Channel Test	Passed (Freq = 20.5 Hz Amp = 600 mv)

	Tran	Vert	Long	
PPV	0.730	0.714	1.02	mm/s
ZC Freq	20	22	20	Hz
Time (Rel. to Trig)	0.379	0.730	0.820	sec
Peak Acceleration	0.0166	0.0282	0.0331	g
Peak Displacement	0.00829	0.00442	0.00927	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.6	7.6	Hz
Overswing Ratio	4.0	3.4	4.0	

Peak Vector Sum 1.14 mm/s at 0.622 sec





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

North Of Brickworks

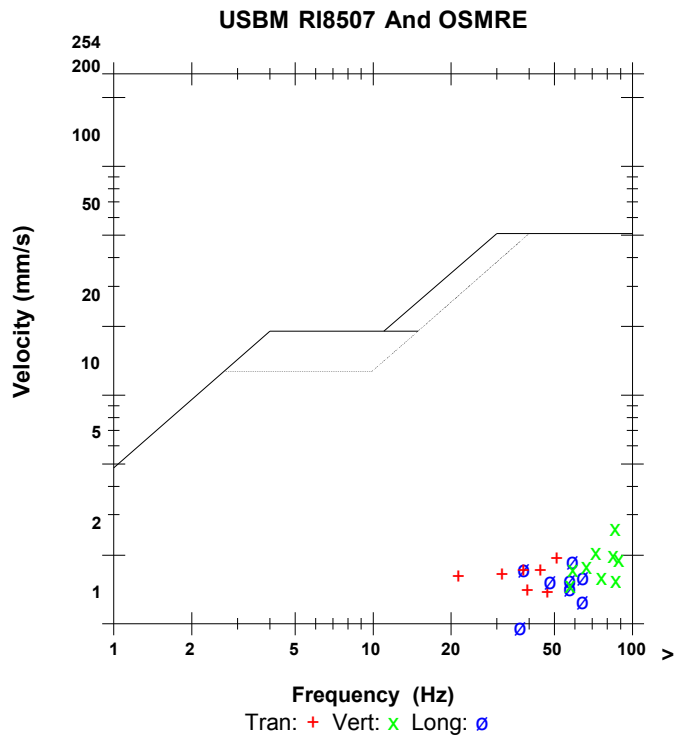
Date/Time	Vert at 11:30:10 March 12, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo: 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

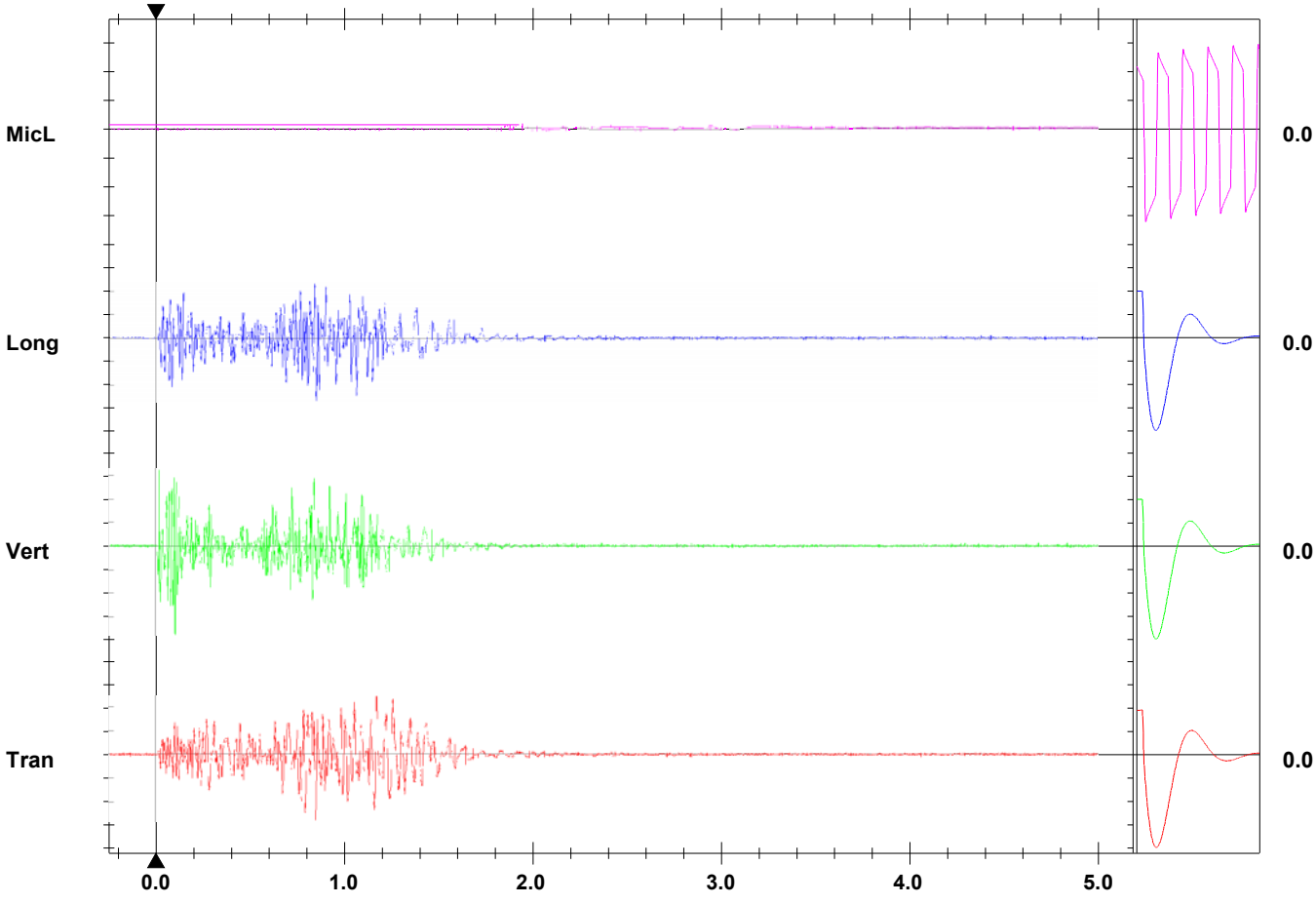
Serial Number	BE16020 V 10.10-1.1 Minimate Blaster
Battery Level	6.3 Volts

Microphone	Linear Weighting
PSPL ZC	100.0 dB(L) at 1.918 sec
Freq Channel	14 Hz
Test	Passed (Freq = 19.7 Hz Amp = 530 mv)

	Tran	Vert	Long	
PPV	1.43	1.92	1.38	mm/s
ZC Freq	51	85	57	Hz
Time (Rel. to Trig)	0.842	0.096	0.844	sec
Peak Acceleration	0.0414	0.0945	0.0497	g
Peak Displacement	0.00736	0.00415	0.00571	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.5	7.4	Hz
Overswing Ratio	3.9	3.7	4.0	

Peak Vector Sum 1.93 mm/s at 0.096 sec





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

North Of Brickworks

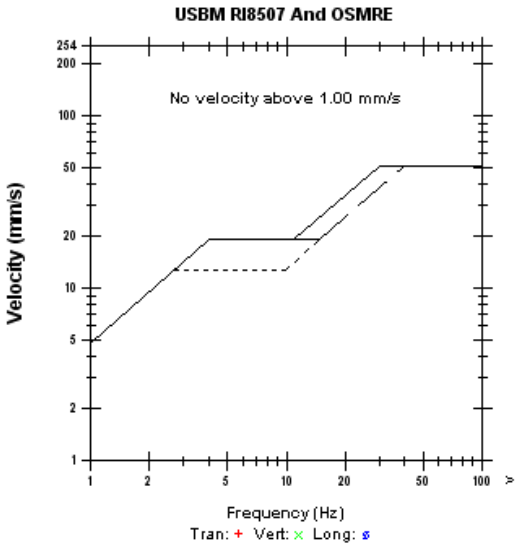
Date/Time	Vert at 10:59:33 June 15, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

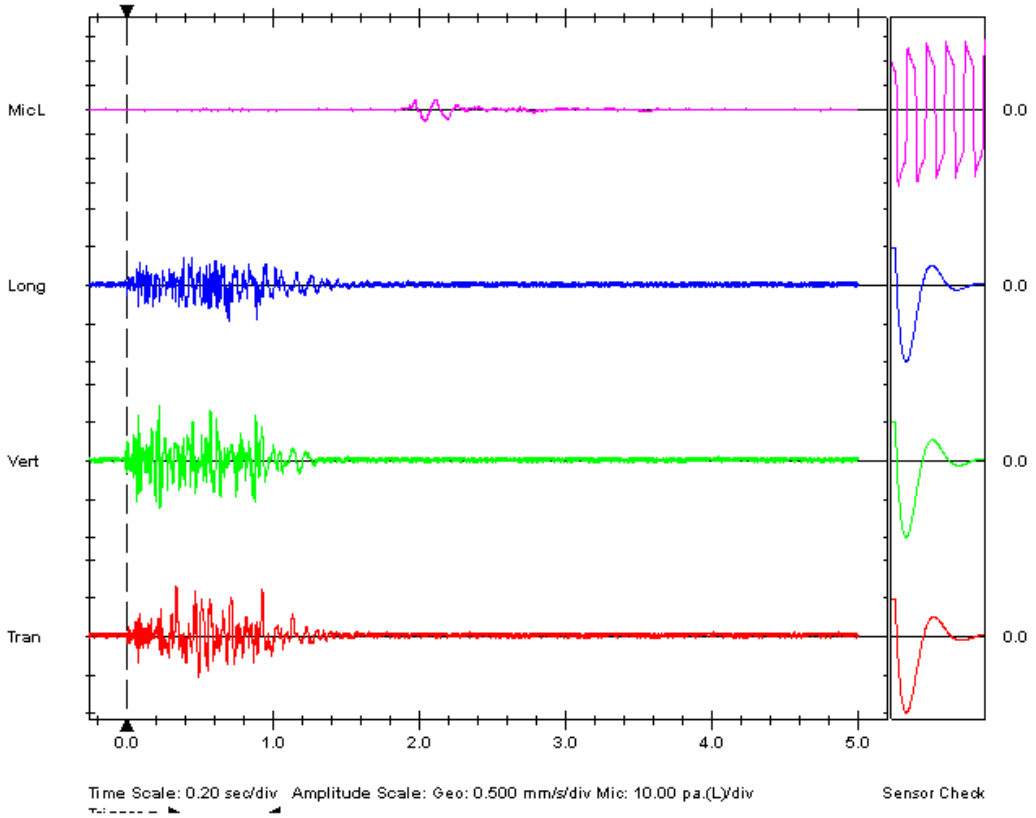
Serial Number	BE16020 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	108.0 dB(L) 5.00 pa.(L) at 2.046 sec
ZC Freq	6.0 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 574 mv)

	Tran	Vert	Long	
PPV	0.651	0.714	0.476	mm/s
ZC Freq	17	47	22	Hz
Time (Rel. to Trig)	0.344	0.224	0.700	sec
Peak Acceleration	0.0166	0.0265	0.0149	g
Peak Displacement	0.00472	0.00393	0.00264	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.5	7.5	Hz
Overswing Ratio	4.0	3.8	4.0	

Peak Vector Sum 0.824 mm/s at 0.576 sec





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

Instantel

North of Brickworks

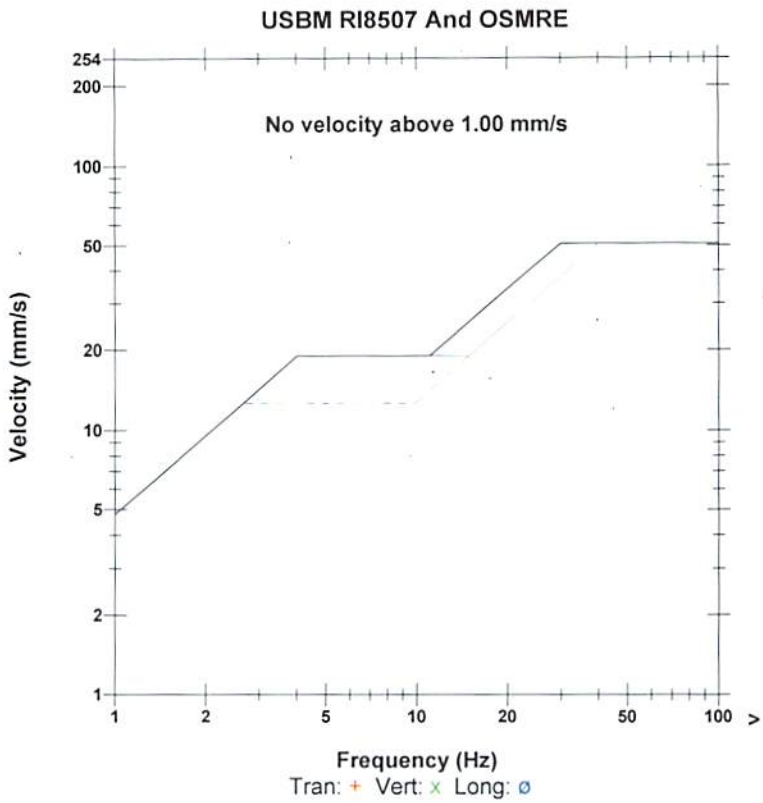
Date/Time	Vert at 10:56:14 July 18, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

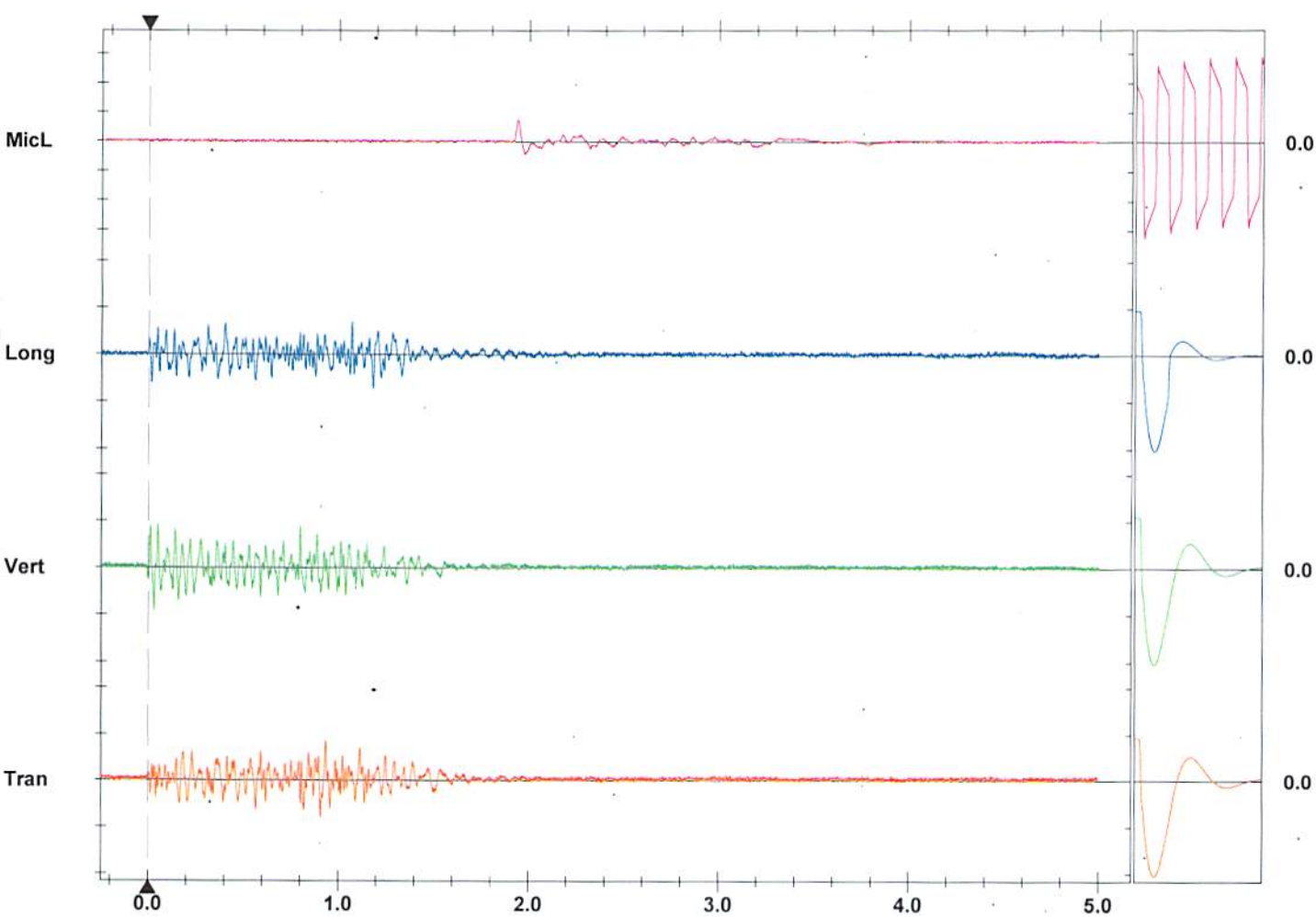
Serial Number	BE16020 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	111.2 dB(L) 7.25 pa.(L) at 1.940 sec
ZC Freq	14 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 531 mv)

	Tran	Vert	Long	
PPV	0.429	0.460	0.365	mm/s
ZC Freq	28	28	30	Hz
Time (Rel. to Trig)	0.937	0.030	1.183	sec
Peak Acceleration	0.0133	0.0133	0.00994	g
Peak Displacement	0.00253	0.00220	0.00222	mm
Sensor Check	Passed	Passed	Check	
Frequency	7.2	7.5	9.4	Hz
Overswing Ratio	3.9	3.8	6.3	

Peak Vector Sum 0.496 mm/s at 0.050 sec





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

Sensor Check

Trigger = ▶ ◀

North of Brickworks

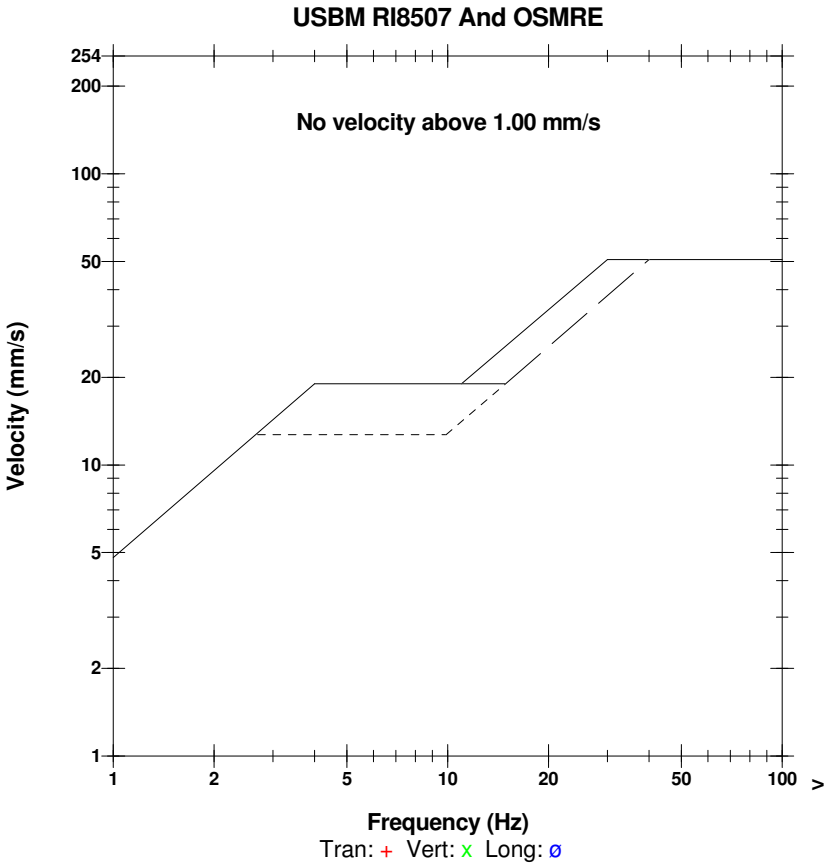
Date/Time	Vert at 11:58:16 July 30, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

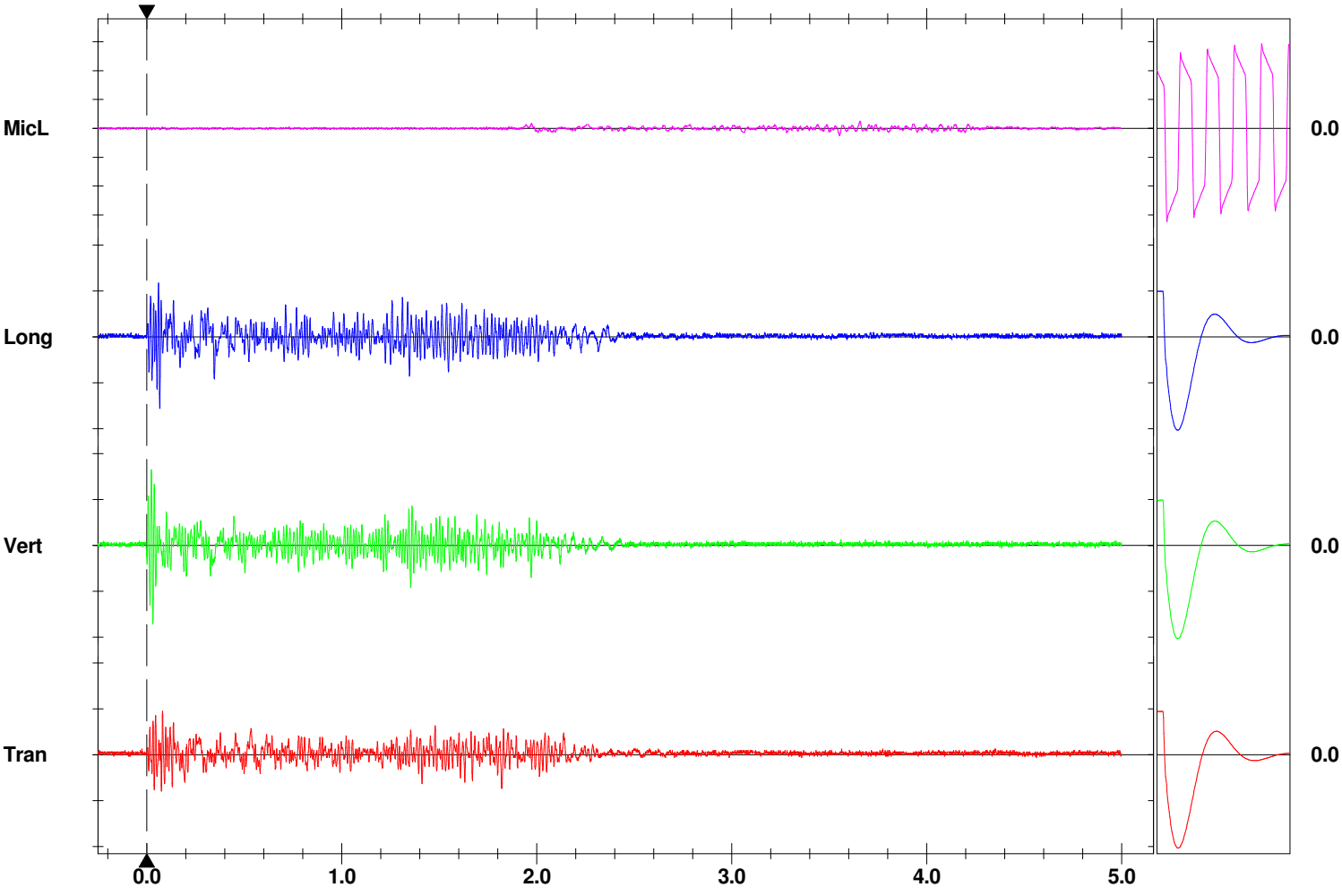
Serial Number	BE16020 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	__TEMP.EVT

Microphone	Linear Weighting
PSPL	101.9 dB(L) 2.50 pa.(L) at 3.552 sec
ZC Freq	27 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 586 mv)

	Tran	Vert	Long	
PPV	0.476	0.857	0.778	mm/s
ZC Freq	64	73	64	Hz
Time (Rel. to Trig)	0.081	0.031	0.066	sec
Peak Acceleration	0.0265	0.0381	0.0315	g
Peak Displacement	0.00234	0.00253	0.00255	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.2	7.4	7.4	Hz
Overswing Ratio	4.0	3.8	4.1	

Peak Vector Sum 0.931 mm/s at 0.031 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div Sensor Check

Trigger =

North of Brickworks

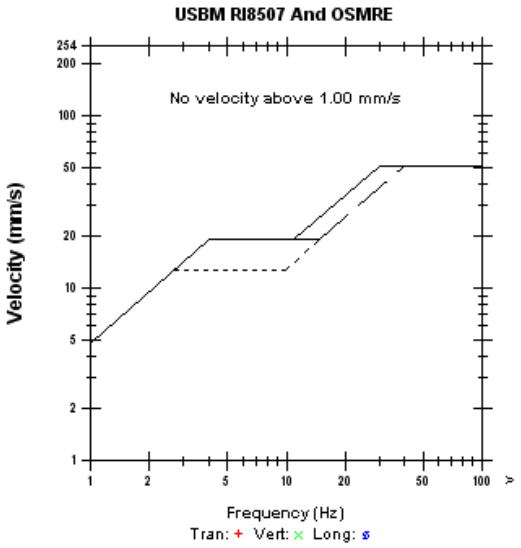
Date/Time	Vert at 10:59:56 November 16, 2012
Trigger Source	Geo: 0.130 mm/s
Range	Geo : 31.7 mm/s
Record Time	5.0 sec at 1024 sps
Notes	

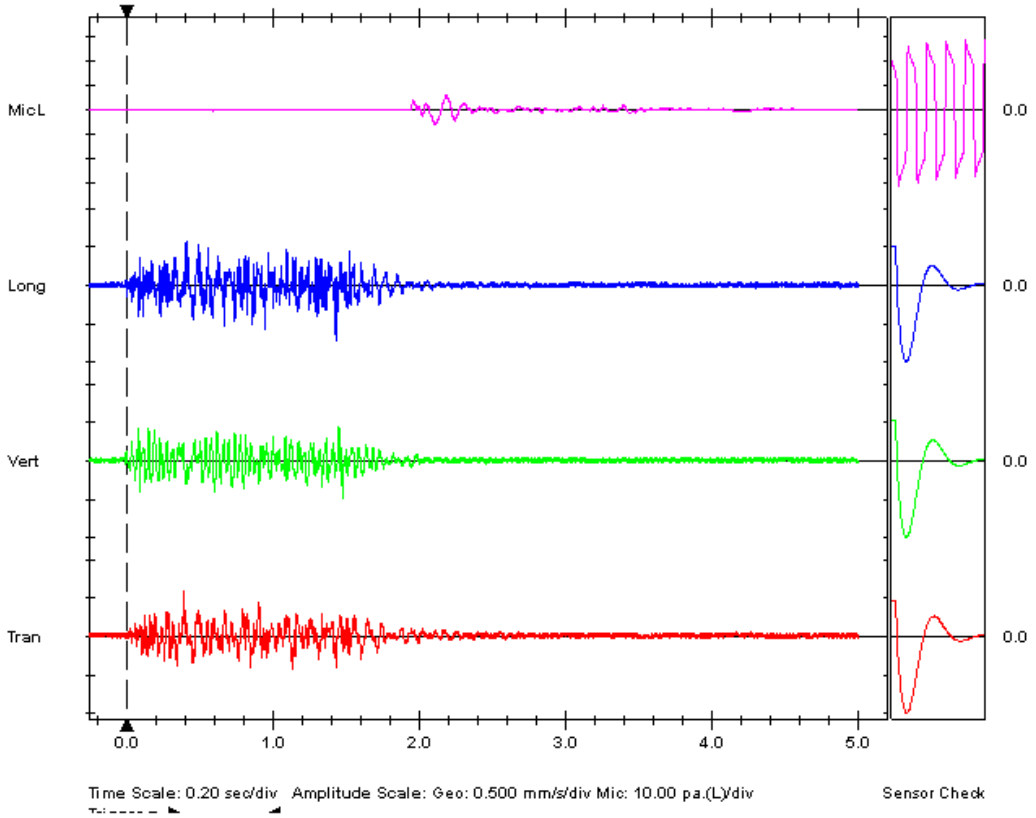
Serial Number	BE16020 V 10.30-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	May 29, 2012 by Saros (Australia)
File Name	R020EJQJ.V\W0

Microphone	Linear Weighting
PSPL	109.5 dB(L) 6.00 pa.(L) at 2.110 sec
ZC Freq	6.0 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 562 mv)

	Tran	Vert	Long	
PPV	0.587	0.492	0.730	mm/s
ZC Freq	13	22	51	Hz
Time (Rel. to Trig)	0.396	1.478	1.433	sec
Peak Acceleration	0.0149	0.0133	0.0215	g
Peak Displacement	0.00434	0.00377	0.00431	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.3	7.4	Hz
Overswing Ratio	3.9	3.8	4.0	

Peak Vector Sum 0.824 mm/s at 1.433 sec





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

Appendix E - Weed Management Report

Weed management has continued throughout 2011 as per the Weed Management Plan 2007. The year has been consistently wet. This has stimulated weed seed germination but where possible all weeds have been treated before they have set seed. It has also reduced suitable herbicide application conditions. There are no new significant outbreaks of any declared or environmental weeds to report. *Cirsium vulgare*, Black thistle and *Bidens pilosa*, Cobblers Pegs are the most frequent weeds. These are both annuals and spray works were undertaken in autumn and spring to contain the spread of these weeds. One small patch - 3 plant of *Xanthium occidentale*, Noogoora Burr was treated and it is in a new weed on the site. During the year Mother of Millions was treated with herbicide for the first time. All woody weeds have been treated with glyphosate and will continue to be monitored.

The native vegetation cover on the bunds has benefited from the wet conditions and continues to increase.

Please find detailed below the weed control measures that have been undertaken during 2011.

Weed	Status	Control Method	Comment
Black Thistle *Cirsium vulgare*	Annual - abundant	Glyphosate 360– foliar - backpack and splatter gun	Treated in spring and autumn prior to seed set
Turkey Rhubarb *Acetosa sagittata*	occasional	Glyphosate - foliar	Repeated small outbreaks but no seed found
Mother of Millions *Bryophyllum delagoense*	Abundant in one area	Glyphosate 360 - foliar	All flowering plants removed
Fire Weed *Senecio madagascariensis*	Declared Occasional throughout the site	Hand removal	Annual hand removal across the whole site
Cobblers Pegs *Bidens pilosa*	Annual - abundant	Glyphosate – foliar -– backpack and splatter gun	Treated in spring and autumn prior to seed set
Bitou *Chrysanthemoides monilifera*	Declared Sporadic individuals	Hand removal	None found 2011 – annual monitoring required. Considered eradicated from the site.
Castor Oil Plant *Ricinus communis*	occasional	Glyphosate - foliar	Repeated small infestations – some seed produced. Control effort to continue.
Yucca *Yucca aloifolia*	Sporadic individuals	Glyphosate - foliar	One infestation – all individuals treated – requires monitoring
Mustard Weed	Annual - abundant	Glyphosate - foliar	Treated in spring and autumn prior to seed

			set
Moth Vine *Araujia sericifera*	occasional	Glyphosate - foliar	Annual monitoring – no seeding plants found.
Senna *Senna pendula*	Sporadic individuals	Glyphosate - foliar	Annual monitoring
Kikuyu *Pennisetum clandestinum*	occasional	Glyphosate - foliar	Under control
Montbretia *Crocosmia x*	occasional	Glyphosate - foliar	Monitor
Crofton weed *Ageratina adenophora*	occasional	Glyphosate - foliar	Annual treatment
Purple Top Verbena bonariensis	Occasional	Glyphosate - foliar	
Passion fruit *Passiflora edulis*	Sporadic individuals	Glyphosate - foliar	
Noogoora Burr *Xanthium occidentale*	One small patch 3 plants	Glyphosate - foliar	Monitor

Summary

All weed control activity has been in accordance with the priorities identified in the 2007 Weed Management Plan. Weed species are present at the site but they are under control. The site is generally in healthy condition. Control activities will continue during the 2012 and the site will monitored every 6 months for any new or increase in weed populations.

Appendix F – Nowra Creek After Significant Rain Events

Photographs of Nowra Creek After Significant Rain Events

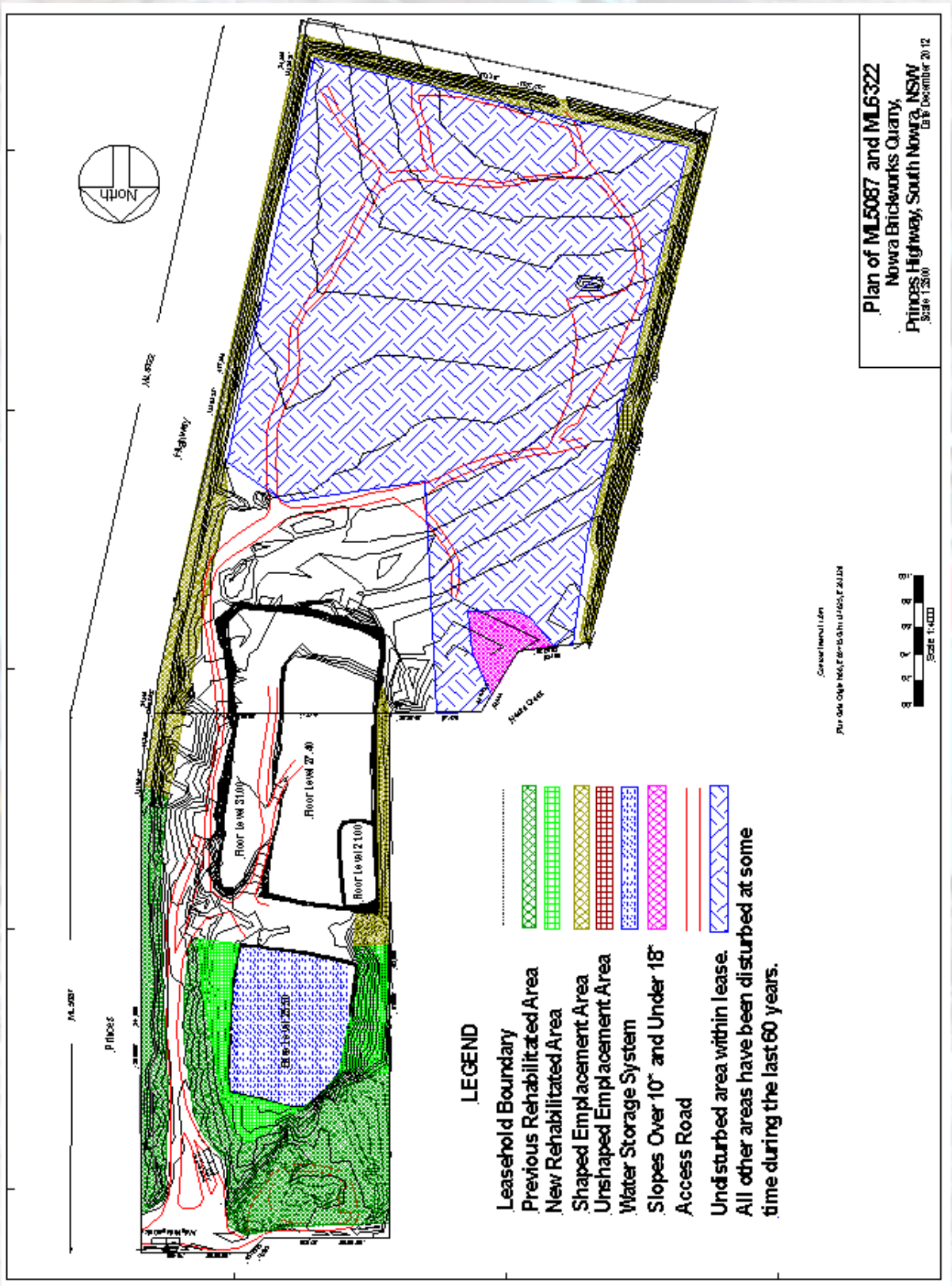
Despite heavy rains during the year there was no evidence of any flooding.

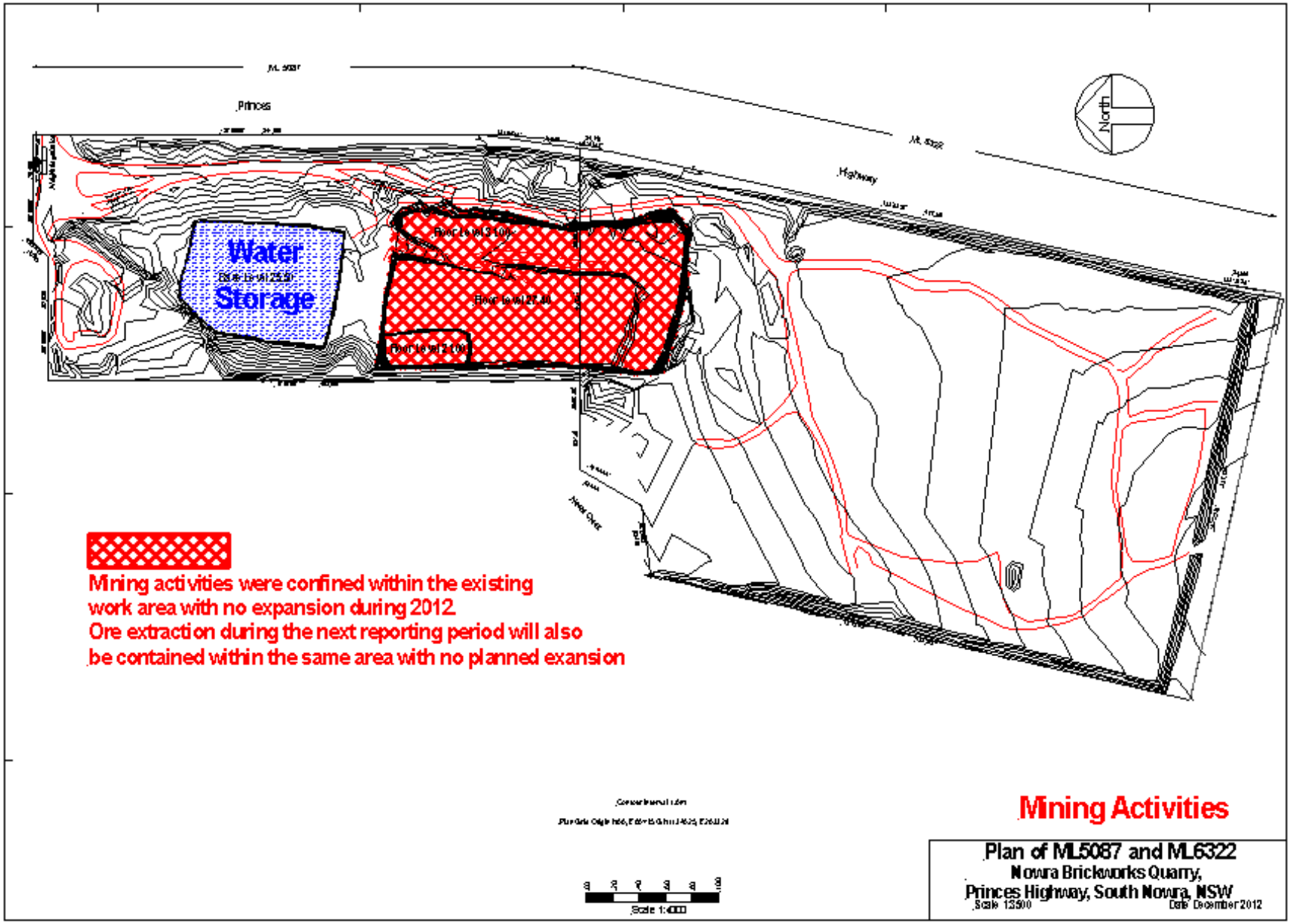
The quarry does not contribute any run-off to Nowra Ck as all water is contained

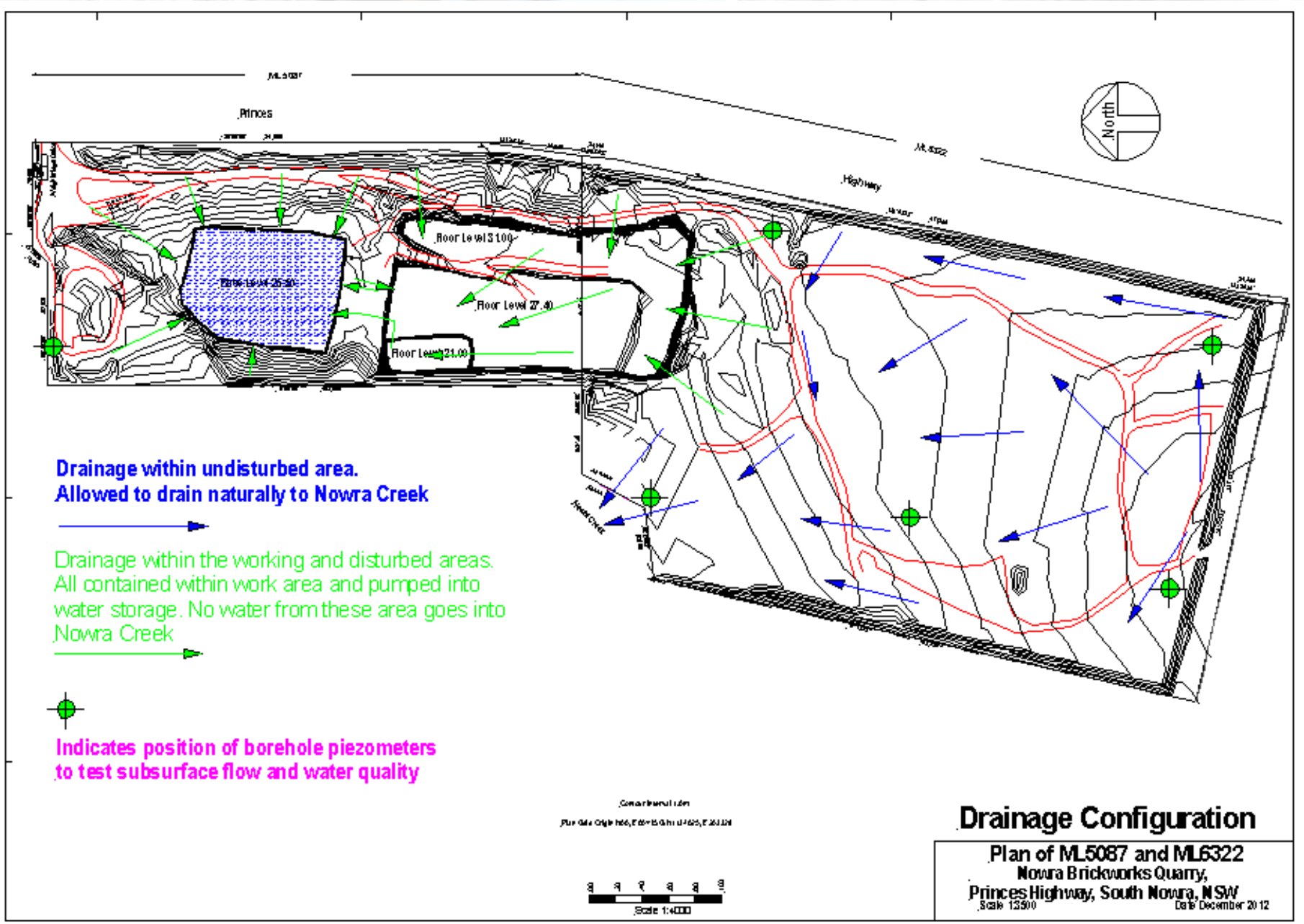
within the working and storage areas.

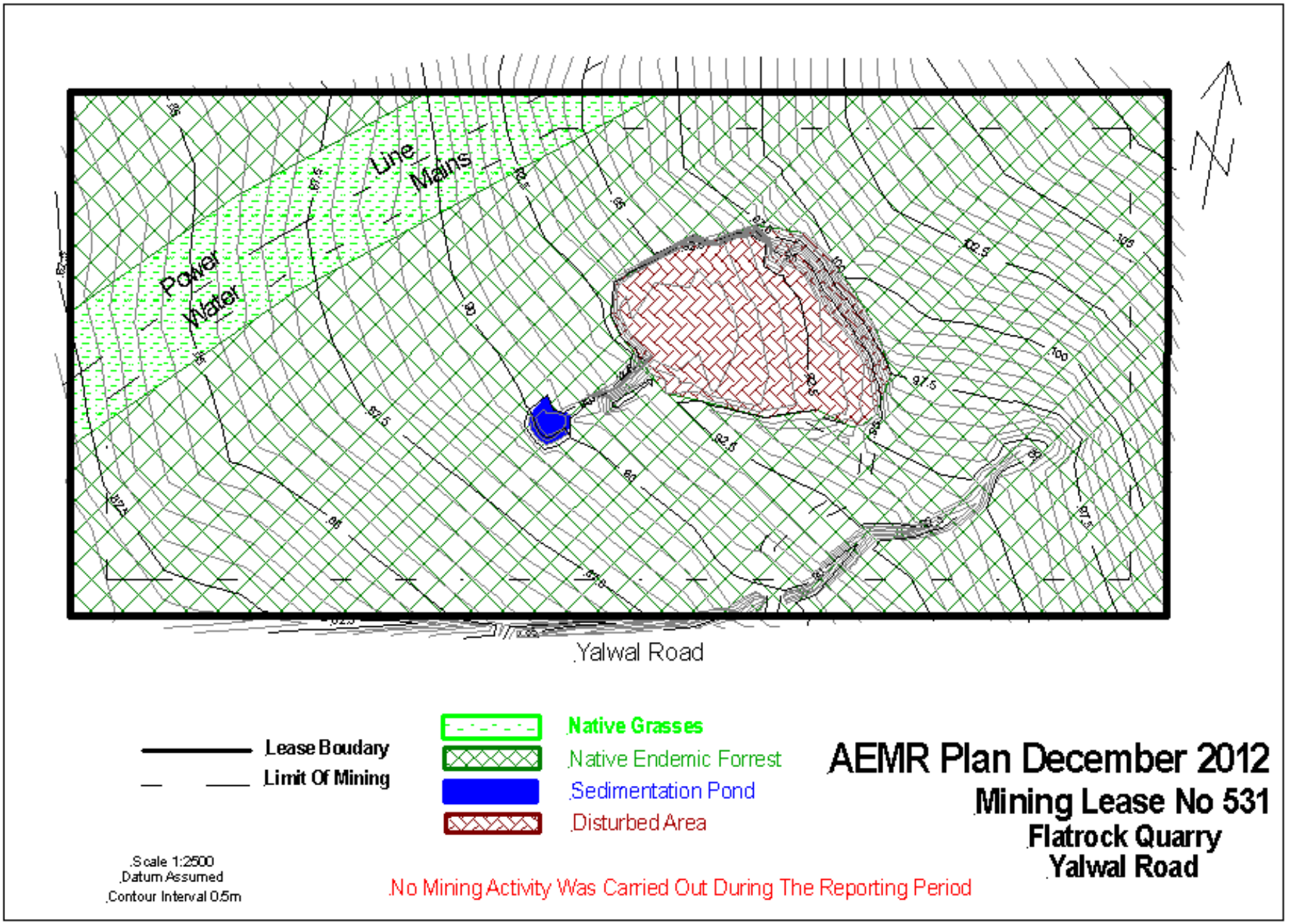
Appendix G – Contour Plans of Brickworks and Flat Rock Quarries

No activities have been carried out in Flat Rock Quarry during reporting period.




Princes
Highway
North
Water
Storage
Mining activities were confined within the existing
work area with no expansion during 2012.
Ore extraction during the next reporting period will also
be contained within the same area with no planned exansion
Mining Activities
Plan of ML5087 and ML6322
Nowra Brickworks Quarry,
Princes Highway, South Nowra, NSW
Scale 1:3500
Date December 2012


Princes
Highway
North
Floor Level 31.00
Floor Level 27.40
Floor Level 21.00
Drainage within undisturbed area.
Allowed to drain naturally to Nowra Creek
Drainage within the working and disturbed areas.
All contained within work area and pumped into
water storage. No water from these area goes into
Nowra Creek
Indicates position of borehole piezometers
to test subsurface flow and water quality
Scale 1:4000
Drainage Configuration
Plan of ML5087 and ML6322
Nowra Brickworks Quarry,
Princes Highway, South Nowra, NSW
Scale 1:3500
Date December 2012


Power
Water
Line
Mains
Yalwal Road
Lease Boudary
Limit Of Mining
Native Grasses
Native Endemic Forrest
Sedimentation Pond
Disturbed Area
AEMR Plan December 2012
Mining Lease No 531
Flatrock Quarry
Yalwal Road
Scale 1:2500
Datum Assumed
Contour Interval 0.5m
No Mining Activity Was Carried Out During The Reporting Period