

**ENVIRONMENTAL ASSESSMENT REPORT  
FOR EPIC MINING PTY LIMITED  
275 ADAMS ROAD, LUDDENHAM, NSW**

**Prepared for:** Epic Mining Pty Limited

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BENBOW ENVIRONMENTAL

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*Engineering a Sustainable Future for Our Environment*

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## **ABBREVIATIONS**

AS	Australian Standard
BCA	Building Code of Australia
BE	Benbow Environmental Pty Ltd
DCP	Development Control Plan
DECC	Department of Environment and Climate Change
DP	Deposited Plan
DNR	Department of Natural Resources
the Department	Department of Planning and Infrastructure
EAR	Environmental Assessment Report
EP&A Act	Environmental Planning & Assessment Act 1979
ESD	Environmentally Sustainable Development
INP	NSW Industrial Noise Policy
LCC	Liverpool City Council
LLEP	Liverpool Local Environmental Plan
LEP	Local Environmental Plan
LGA	Local Government Area
NPI	National Pollutant Inventory
NPWS	National Parks & Wildlife Service
NSW EPA	New South Wales Environment Protection Authority
ODU	Odour Detection Unit
OEH	Office of Environment and Heritage

pa	per annum
POEO	Protection of the Environment Operations Act 1997
QA	Quality Assurance
QC	Quality Control
REP	Regional Environmental Plan
SEPP	Sydney Regional Environmental Plan

## UNITS OF MEASUREMENT

°C	degree centigrade	(unit of temperature)
dB(A)	A-weighted decibels	(unit of noise)
dB(lin)	Linear-weighted decibels	(unit of noise)
D/T	Dilutions to threshold	(unit of odour)
g	gram	(unit of mass)
kg	kilogram	(unit of mass)
m	metre	(unit of length)
m <sup>3</sup>	cubic meter	(unit of volume)
T	Tonnes	(measurement of weight)
µg	microgram	(10 <sup>-6</sup> gm – unit of mass)
µg/m <sup>3</sup>	microgram/cubic meter	(concentration)
ODU	odour detection unit	(unit of odour)



## **EXECUTIVE SUMMARY**

This Environmental Assessment Report (EAR) has been prepared by Benbow Environmental Pty Ltd (BE) on behalf of Epic Mining Pty Limited (the applicant). The EAR is based on the original Environmental Assessment Report prepared by Planning Direction Pty Ltd in April 2013. This report provides the information contained within the original EA and includes additional studies and information to ensure that the report adequately addresses the requirements of the planning and other regulatory authorities.

The applicant proposes to modify their existing consent DA No 315-7-2003 to facilitate stockpiling of excavated clay and shale on-site in combination with the approved works at 275 Adams Road, Luddenham. In addition to the above proposed modification the matters outlined below are also addressed in this report as requested by the applicant in consistency with the advice obtained from the NSW Department of Planning and Infrastructure (Department):

- facilitate stockpiling of clay and shale in combination with the approved work at the commonwealth land (Lot 1 in DP 838361),
- to review the locations of all environmental monitoring points as requested by the NSW Environment Protection Authority (EPA),
- to review the frequency of all monitoring requirements in accordance with the EPA's licensing requirements,
- to address the community consultation issue as requested by the Department; and
- to address the non-commercial composting activities as requested by the Department.

The EAR has considered all aspects of the proposed modifications and it will be demonstrated that the proposed modifications as designed will readily satisfies all statutory requirements in current planning and environmental legislation.

The operations at the premises commenced in January 2010 by Blue Sky Mining (Aust) Pty Ltd. Soon after Epic Mining Pty Limited (the applicant) was formed and took over the operations at that site.

The applicant holds an Environment Protection Licence No 12863 (EPL) which was issued by the EPA on 5 June 2009 and was varied on 15 March 2010 and 28 November 2011.

The EPL authorises the applicant to quarry materials within the scale of 100000 – 500000 tonnes per year, however the Consent was granted for a maximum of 300000 tonnes per year for 15 years. This upper limit has not been reached so far and it will remain the same throughout the life of the project. The proposed modification does not alter the scale or the upper limit.

The existing development was classified as State Significant Development under section 76A(7) of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The quarry operation was also classified as Integrated Development due to its proximity to Oaky Creek (and proposed construction of a road to Elizabeth Drive).



The development was classified as Designated Development due to the requirements for other approval/licences from other authorities.

The original application, lodged in 2004, was prepared on the basis of the quarry operating as a 'shovel and truck activity'. Changes to operational circumstances of suppliers, has meant that there is a need for product to be stored on-site rather than at the site of the brick works. Also stockpiling of product on-site ensures that the necessary scouring and fretting process of the extracted raw material occurs in a controlled and well managed environment. Stockpiling enables greater flexibility to provide the correct clay/shale mixes and allows for the removal of unwanted shale-sandstone materials. This process ensures that the best quality of raw material is delivered to local brickworks. More detailed information is included in other Sections of this document.

The proposed stockpiling works are contained within the approved quarry operation area as well as temporary stockpiling of materials within the adjacent land owned by the Commonwealth.

It will be demonstrated that appropriate environmental measures and management practices are in place to minimise any potential impacts (i.e. environmental, social or economic) associated with the proposed activities as a result of the proposed modification works. Further, no changes are required to the existing quarry operations to facilitate the proposed modification works.

It will also be demonstrated in this EAR that all proposed modifications to the existing activities will have negligible impact on human health and the environment provided that all recommended additional mitigation measures and amelioration strategies, where required, are implemented.

It is anticipated that there will be directly additional 3-5 full time staff as a result of the proposed modifications. There will also be tens of indirectly additional jobs as a result of the modifications.

The aspects that have been addressed in this EAR are: Statutory Environmental and Planning Context, Air Quality, Noise, Groundwater and Surface Water, Flora and Fauna, Aboriginal and Cultural Heritage, Visual, Traffic and Transport, Social and Economic, Waste Management, Environmental Monitoring and Reporting, Environmental Discharge/Monitoring Points, Non-Commercial Composting, Other Stockpiling Aspects, Chemicals, Community Consultation, Hours of Operations.

#### Statutory Environmental and Planning Context

The existing development is subject to several planning and environmental legislations as well as planning policies and plans.

The proposed modifications do not alter in any way these requirements and this will be demonstrated in details in Section 3 of this report. This Section includes all applicable legislation, policies and plans under both State and Commonwealth Governments. Section 3 includes detailed information regarding this aspect.



### Air Quality

Air emissions have been based on our extensive experience with similar activities and subsequently for the proposed activities it is anticipated that no additional air, odorous or nuisance impact is likely to occur as a result of the modifications. This arises from the nature of the materials being handled which are dominantly clay and shale. There are no chemical reactions at the site or any chemical processes that may result in air emissions other than some minor localised dust from the normal quarry activities. Section 4 includes detailed information regarding this aspect.

### Noise

The applicant has always complied with the criteria specified in both the EPL and Development Consent. We believe that the noise levels from the proposed modifications will comply with the EPA's Industrial Noise Policy as well as the criteria specified in both the EPL and Development Consent. Section 5 includes detailed information regarding this aspect. The applicant has also noted the comments received so far from the Acoustic Consultants in relation to the current background noise levels in the area and the fact that due to many changes in the area in the past 10-12 years, this has caused the background noise levels to be much higher than those used during the preparation of the EIS at which time the project specific noise level was set to 41 dB(A). The applicant is of the opinion that this limit be reviewed in light of the current environmental status of the area in the absence of its activities on the site.

### Groundwater and Surface Water

The status of the groundwater will not be affected by the development modifications since the groundwater is not altered or disturbed in any activity conducted on site.

In addition to the fact that the applicant has implemented a "nil water discharge policy" since day one of its operations, surface water within the site will not be affected by the stockpiling activities to a great degree and this is addressed in Section 6 of this report. Also, surface water of the stockpiling activities within both the approved area and the Commonwealth land will be managed in accordance with this report.

No adverse impact on the stormwater system or any waterway is likely to eventuate as a result of the modifications provided that the recommended mitigation measures are implemented on site. Section 6 includes detailed information regarding this aspect.

### Flora and Fauna

Despite the fact that site was subjected to extensive flora and fauna studies as part of the preparation of the EIS and as part of the assessment undertaken for the second Airport at Badgerys Creek. It was determined that a brief assessment be conducted by suitably qualified consultants to confirm the previous findings. No fauna or flora impact was found due to the proposed development modifications. Section 7 includes detailed information regarding this aspect.



### Aboriginal and Cultural Heritage

Based on previous assessments by qualified consultants conducted at the site and the adjoining properties as part of the proposal's EIS, and the assessment for the second airport at Badgerys Creek in nearby properties including the subject parcel of the Commonwealth, no Aboriginal or European items of cultural heritage were identified or found within the areas subject to the modifications. However, the area adjacent to the Riparian Zone has been identified that it may contain some items of Aboriginal Heritage and hence it is fully segregated from the remainder of the site, fenced and locked. Access to this zone is available to authorised people and the Aboriginal community only. Section 8 includes detailed information regarding this aspect.

### Visual Impact

Due to the fact that quarrying activities are located away from residential premises and the installation of an earth berm, the visual impact was determined to be minimal. The proposed activities within and outside the approved areas have been assessed and the outcomes of the assessments are included in the relevant Sections of this report. Generally, the visual impact is greatly reduced by the general topography of the area. The visual impact will be further reduced provided that the recommended mitigation measures are implemented by the applicant. Section 9 includes detailed information regarding this aspect.

### Traffic and Transport

A comprehensive traffic impact assessment was conducted as part of the preparation of the original EIS. As a result of the assessment an access road was built from the quarry to Elizabeth Drive. The intersection of Elizabeth Drive and the access road was upgraded in accordance with RTA's instructions. The proposed development modifications do not alter or change the traffic as previously assessed but rather it improves the flow of the traffic by reducing the number of truck movements for short durations and spreads the truck movements for a longer period of time without changing the daily number of movements or their classifications. Section 10 includes detailed information regarding this aspect.

### Social and Economic

The existing development has resulted in considerable social and economic benefits at both the local and regional levels.

The proposed modifications are expected to increase these benefits and possibly extend them to include the State level as well. Section 11 includes detailed information regarding this aspect.

### Waste Management

Due to the nature and scale of activities, waste is not generated on site except from the employees and the workshop. The proposed modifications do not influence greatly the generation or management of waste on site. Section 12 includes detailed information regarding this aspect.



### Environmental Monitoring and Reporting

The applicant has been so far complying with all monitoring and reporting requirements included in all statutory instruments.

Following consultation with the EPA regarding the provision included in the EPL which requires the EPA to review the monitoring and reporting requirements after 12 months of operations, comprehensive environmental inspections and reviewing of monitoring and reporting results, the EPA advised the applicant that these requirements should be reviewed in consultation with relevant parties including the Department since these modifications will require changes to the Development Consent. Section 13 includes detailed information regarding this aspect.

### Environmental Discharge and Monitoring Points

Following several site inspections by EPA officers and environmental consultants, and reviewing of environmental monitoring results, both parties advised that it is necessary to review the locations of some of these points to ensure that they reflect the impacts from the activities conducted by the applicant only rather than from other activities that are not associated with the applicant. In addition, the EPA believes that the number of environmental monitoring points is too excessive for a variety of reasons including the location and scale of the quarry and suggested that the number be reduced from 5 to a maximum of 4 locations. Section 14 includes detailed information regarding this aspect.

### Non-Commercial Composting

Despite the fact that this activity does not meet the definition of composting included in the Protection of the Environment Operations Act 1997 (POEO Act), for the purpose of this document, it will be referred to as a non-commercial composting activity.

A small scale non-commercial composting activity is currently being conducted on an adjacent site which is leased by the applicant from the Commonwealth Government. This parcel of land is used for the sole purpose of composting. The composting activity is not for commercial purposes but rather for in-house use only as part of the site rehabilitation plan including the riparian zone. These activities were approved by both the EPA and the Department previously. No other approvals were required mainly due to the fact that the scale of these activities was well below the threshold under both the POEO Act 1997 and the Environmental Planning and Assessment Act 1979 and that the materials used in this process are exempt materials under the POEO Waste Regulation 2005. An assessment of these activities has been undertaken and it is included in Section 15. Based on that assessment these activities will have no adverse impact on the environment.

### Other Stockpiling Aspects

There are temporary stockpiling activities conducted by the applicant on an adjacent parcel of land owned by the Commonwealth Government under a special agreement. These activities are considered as part of the applicant's overall quarrying activities. Section 16 includes detailed information regarding this aspect.





### Chemicals

There are no processes undertaken on site requiring chemicals and therefore only very small quantities of chemicals would be kept on site. There is a small quantity of diesel which is located inside the workshop. Section 17 includes detailed information regarding this aspect.

### Community Consultation

The applicant has conducted community consultation in accordance with the development consent for the first 12-15 months of the operations. However, due to the lack of attendance of community representatives, the applicant determined that a more appropriate approach to continue with community consultation is to meet regularly with all neighbouring residents on an individual basis. This has proven to be a successful approach since residents could easily raise any concerns directly with the quarry management. Section 18 includes detailed information regarding this aspect.

### Hours of Operations

The applicant has always complied with the hours of operations specified in the development consent and the EPL.

The modifications do not require any changes to these approved hours of operations and the applicant is committed to comply fully with the approved hours. Section 19 includes detailed information regarding this aspect.

### Justifications for the Modifications

This Section provides comprehensive list of justifications for the modifications in addition to addressing the Ecologically Sustainable Development considerations.

It is noted that the proponent has always acted in good faith in its attempt to comply with all statutory requirements as specified by all government departments. In relation to the temporary stockpiling activities conducted on the Commonwealth land, the proponent was advised that state legislation does not apply to the activities conducted on this site and that no other approvals were required for these activities from NSW Government since they are endorsed by the Commonwealth Government. In any case, detailed assessments of the potential impacts of these activities show that these activities do not have any adverse impact on human health and/or the environment.

Details of the Environmental Assessment report (EAR) are provided within this document.

Approval from the Department in respect of the proposed modifications is requested.



## 1. INTRODUCTION

Benbow Environmental was commissioned by Epic Mining Pty Limited (the applicant) to prepare an Environmental Assessment Report (EAR) to support a modification to their current development application for their clay shale quarry. The modification involves mainly stockpiling of excavated clay and shale on-site and on an adjoining land in combination with the approved works at 275 Adams Road, Luddenham.

This report is based on the original Environmental Assessment (EA) report prepared by Planning Direction P/L dated April 2013 with more comprehensive assessments of several aspects as advised by the Department of Planning and Infrastructure (Department) and the inclusion of additional information to ensure adequacy.

This Environmental Assessment Report (EAR) considers the potential impacts of the development with respect to the following environmental aspects:

**Statutory Environmental and Planning Context, Air Quality, Noise, Groundwater and Surface Water, Flora and Fauna, Aboriginal and Cultural Heritage, Visual, Traffic and Transport, Social and Economic, Waste Management, Environmental Monitoring and Reporting, Environmental Discharge/Monitoring Points, Non-Commercial Composting, Other Stockpiling Aspects, Chemicals, Community Consultation, Hours of Operations.**

These are assessed in differing levels of details depending on the relevancy to the proposed modifications and the potential impacts on human health and the environment.

### 1.1 BACKGROUND

The applicant submitted an application pursuant to the provisions of section 75W of the Environmental Planning and Assessment Act 1979 on 7 December 2010 requesting modification of existing development consent No 315-7-2003.

The Department of Planning and Infrastructure (Department) by a letter dated 24 January 2012 (Ref 10/23791-1) requested additional information to be submitted by the applicant in the form of an Environmental Assessment Report. The additional information required by the Department was obtained and submitted in a report in 2013. Subsequently further additional information was requested by the Department in 2013 as a result of correspondences between the applicant and the Department to ensure that all modifications are addressed in this report including the assessment of the stockpiling activities.

The original development consent for works at the subject site was issued on 23 May 2004 to undertake the following activities:

*“The development and operation of a clay/shale quarry on Lot 3, DP 623 799 and the construction and use of an access road and service facilities on Lot 1, DP 838 361.”*



The original Development Consent (A copy is included in **APPENDIX B**) was issued to *Badger Mining Company P/L* being the original applicant. The applicant and company in charge of the mining operation on-site is currently *Epic Mining Pty Limited*.

The existing development was classified as **State Significant Development** under section 76A(7) of the Environmental Planning and Assessment Act 1979. The quarry operation was also classified as **Integrated Development** (owing to the need for the applicant to obtain other licences/approvals/permits from other government department, its proximity to Oaky Creek and works proposed to a main road – Elizabeth Drive) and **Designated Development** (because *it would disturb a total surface area of more than 2 hectares of land by clearing or excavating*).

The development consent relates to the quarrying of clay and shale products for the manufacturing of bricks off site. Under the development consent conditions the applicant is permitted to quarry up to 300,000 tonnes per year of any combination of products. The Consent is valid for 15 years which means that the development consent will expire on 31 December 2024 unless the applicant applies for an extension of quarrying beyond that date.

The Department of Planning approved a modification application to modify minor aspects of the consent relating to the formalisation of noise attenuation bund wall works and the time period applying to the consent which is consistent with the date specified in the above paragraph.

Works on-site have commenced in accordance with the development consent including payment of the environment bond. All environmental procedures and management requirements are now in place. The road works are complete and the weighbridge and office amenities have been installed. Clay and Shale products along with ancillary overburden and Minchinbury sandstones have been extracted from the approved quarry.

Inspections conducted by officers of the Department of Planning and Infrastructure (the Department), the Environment Protection Authority (EPA), Liverpool Council and Environmental Consultancies have revealed that the quarry is operating in accordance with current guidelines and conditions of respective licences/approvals.

The applicant has prepared a consolidated site plan including updated survey work, inclusion of the road and bridge over the creek in its approved location, inclusion of the location of the site office and weighbridge and the proposed location of stockpiles within the approved quarry area. **APPENDIX D** includes relevant drawings and maps.

The applicant seeks with the subject application to further amend the development consent so as to permit temporary stockpiling of extracted clay and shale products within the approved quarry footprint and within an adjoining parcel of Commonwealth land prior to its transportation to respective brick works companies. Some additional modifications are also requested in this report in accordance with the Department's instructions and they are outlined in details in Section 2 of this document. *The applicant proposes to amend condition 2 of schedule 3 of the consent by inserting reference to plan reference No 01019-T5 & T6 and 01019 - T1-T4 prepared by Monaghan Surveyors P/L, dated the 8/11/10.* This plan is included as **APPENDIX D**.



## 1.2 OPERATIONS

### 1.2.1 Approved Operations

The approved operations are the same with any typical operations of an open cut mine with no underground activities being undertaken.

The approved operations include the quarrying activities within the approved foot print as shown in Figure 1-1. The approved operations included also the installation of a conveyor from within the quarrying area to the surface where trucks will be waiting for loading the excavated materials directly onto them. This meant that the excavated materials (clay/shale) will be conveyed from the quarry to the trucks directly and the trucks will transport the materials off site to the brick manufacturing companies. It appears that at the time of the initial assessment, the assessors including environmental consultants, applicant's representatives and representatives of relevant government and non-government organisations were not fully aware of the requirements of the brick manufacturing companies and the brick making processes especially prior to firing the bricks with these materials. Also, not all excavated materials are useful for the brick manufacturing since there is a percentage of that material that cannot be used for brick manufacturing and they are only suitable as top soil and/or fill.

The current industry best extraction method for brickmaking selective mined technique of ripping and cross ripping of shale/sandstone/clay with a bulldozer and pushing up material into stockpiles, to be loaded into articulated dump trucks and then layered into stockpiles for external sale, will be used and maintained. This selective extraction technique gives the greatest flexibility to provide the correct clay-shale mixes, reduce colour variations, increases fretting and scouring and removes unwanted shale-sandstone materials.

Numerous raw material product types are to be extracted from the site: These include: Red Clay, Pink-White Clay, Brown Shale, Apricot Shale, Sandstone and Cream Shale. These materials will be stockpiled separately behind the operational mine face and loaded out for sale to the brick manufacturing industry using an excavator or front-end loader.

Extraction will progress from the East towards the west from Oak Creek and will continue with benches and batters at heights as required. A typical benching, slopes, ramp design and batters are shown in **Attachment E** of the **Mining & Extraction Operational Plan (APPENDIX H)** and have been included in this document as Figure 1-1, Figure 1-2 and Figure 1-3.

Figure 1-1: Adams Road Quarry Stockpiling & Quarry Layout





Figure 1-2: Adams Road Quarry Layout

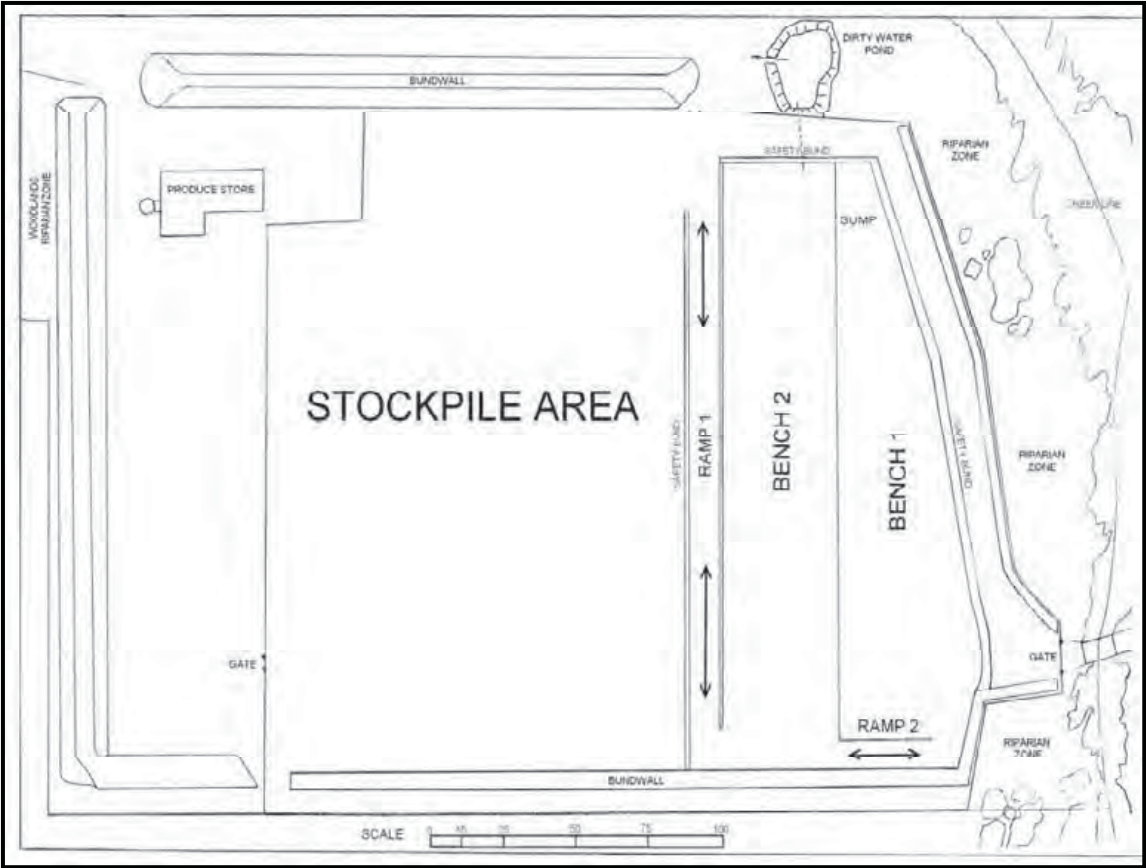
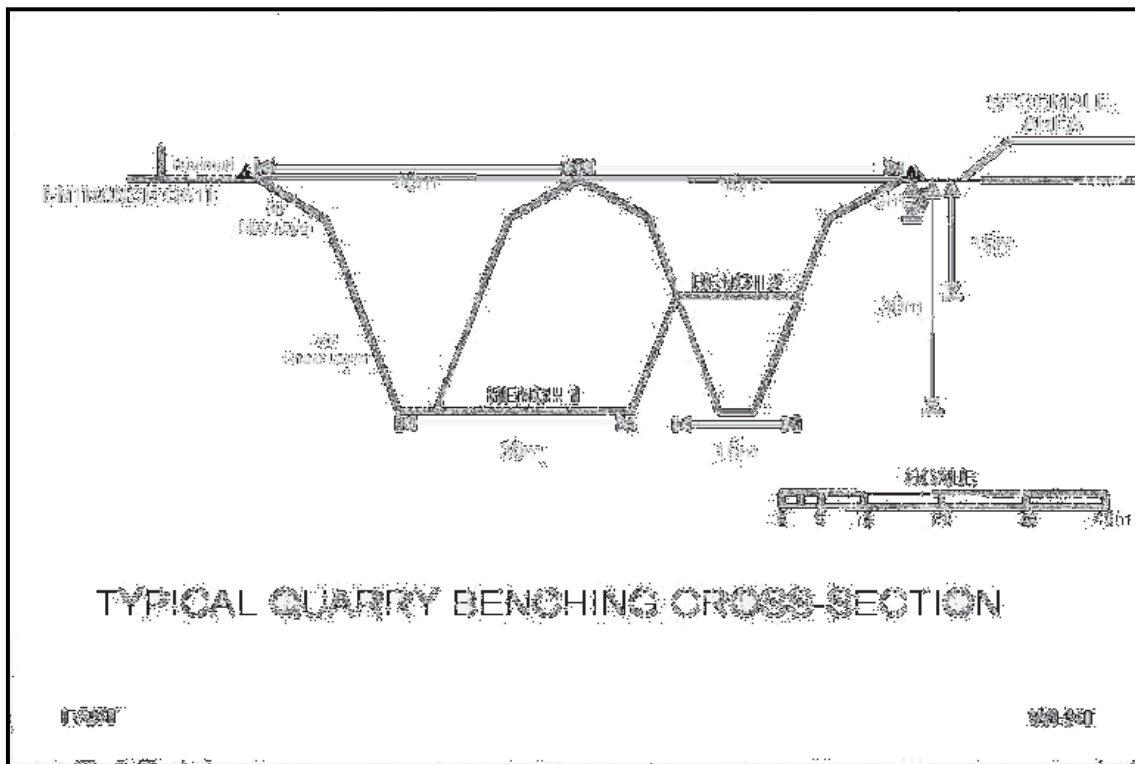




Figure 1-3: Adams Road Quarry Layout Cross Section





In addition most quarries operate on a campaign based principle which means that they excavate materials for a certain period (i.e. 6 months only) every year rather than during the whole 12 months. This means that the whole yearly production will be transported away during the campaign period. This is likely to have significant environmental impact especially dust, noise and traffic associated aspects. This is likely to also have financial implications for the employees and their families if they are working part of the year rather than the whole year.

### **1.2.2 Proposed Operations**

The proposed operations are, in principal, very much the same with the approved operations in all aspects except the conveyance and transport of excavated materials off site.

Rather than conveying the materials directly onto trucks, they will be carted from the quarry to a storage area for stockpiling.

Stockpiling of the materials is of utmost importance to the manufacturing of the bricks and most importantly to the quality and consistency of bricks produced including the reduction of brick wastage. Stockpiling of excavated materials is required to ensure that the necessary scouring and fretting process occur in a well-managed and controlled environment prior to being transported in a better environmentally responsible manner to the brick manufacturing companies.

Both approaches; the stockpiling of materials and the campaign principle are very consistent with all similar quarries within Australia and across the world.

The maximum area that is likely to be used for stockpiling activities is 60,000 m<sup>2</sup> within the Epic site and 140,000 m<sup>2</sup> within the leased commonwealth land. However, on average, stockpiling is likely to occupy 30,000 m<sup>2</sup> within the Epic site and 60,000 m<sup>2</sup> within the Commonwealth land.

The maximum volume of clay and shale to be stockpiled is 100,000 m<sup>3</sup> within the Epic site and 190,000 m<sup>3</sup> within the Commonwealth land. However, as discussed in the EAR, this is very dynamic activity and the average is very much lower than these values.

Storage and handling of clay/shale stockpiling is very much the same with any other stockpiling activity conducted on a quarry, on a construction site, as part of a road construction, as part of raw materials storage within a concrete batching plant, etc.. . However, below is an outline of storage and handling of clay/shale stockpiling by Epic Mining.

- excavation of materials
- site preparation of the stockpiling area
- carting of materials
- unloading of the materials
- reshaping of the stockpiles
- loading of materials on road trucks
- transporting of materials





Under normal circumstances, the mobile plants included in Table 1-1 are used.

Table 1-1: Mobile Plants/Machinery Used for the Stockpiling Activities	
Activity Associated with Stockpiling	Mobile Plant/Machinery Used
During the excavation of materials	Excavator, Bulldozer, Dump Truck and Front End Loader
During the site preparation of the stockpiling area	Bulldozer
During the carting of materials from the quarry face to the storage/stockpiling area	Excavator and Dump truck
During the unloading of the materials	Dump truck and Bulldozer
During reshaping of the stockpiles	Bulldozer and Excavator
During the loading of materials onto road trucks	Front End Loader and road trucks
During the transporting of materials to external clients	Road trucks

The stockpiles located within the Epic Mining site are less dynamic than the stockpiles located within the Commonwealth land simply due to the fact that the materials stored within the Epic Mining site are mostly clay whilst the materials stored on the Commonwealth land are shale. Also, the materials stored on the Commonwealth land will provide more popular colours when fired in the kilns.

In addition, for the construction of bricks, it is required to have 70% of shale and 30% of clay to ensure that bricks are of good quality and strength.

The stockpiles within the Epic Site have a life cycle of approximately 12-15 months whilst the stockpiles within the Commonwealth land site have a life cycle of approximately 4-7 months.

### **1.3 NON-COMMERCIAL COMPOSTING ACTIVITIES**

Following consultation with both the Department and the EPA, it was determined that small scale non-commercial composting activities are more environmentally and financially viable option to be conducted on site rather than importing required materials off site for the implementation of rehabilitation, vegetation and landscaping plans including materials required for the Riparian Zone.

#### **1.3.1 Approved Activities**

Currently, these activities were not included as part of the original DC except some reference to a plant nursery which was intended to assist in the rehabilitation of the site on a long term basis. However, they have been approved verbally and in writing by both the Department and the EPA.

#### **1.3.2 Proposed Activities**

It is proposed that these activities be reflected in the DC. A condition to the effect of “*small scale non-commercial in house composting activities are permitted to be conducted by the applicant provided that the activities are conducted in accordance with current planning and environmental legislation*”.

A comprehensive Environmental Assessment of this proposed activity is included in Section 15 of this document.



#### 1.4 TEMPORARY STOCKPILING ACTIVITIES WITHIN COMMONWEALTH LAND

Due to the requirements for the clay and shale to be stored for a certain period of time to ensure that it is ready for manufacturing and the slow demand by the construction industry in the last 3-5 years, it was evident that the excavated materials should be stored in the vicinity of the site to ensure easy access to the materials since there was insufficient space within the approved site to do so.

This was required by the brick manufacturing companies since these companies sold some of their lands for developments when Sydney land was in great demand for public, commercial, industrial and residential developments during the last 2-3 decades due to business booming.

##### 1.4.1 Approved Activities

For unknown reasons, stockpiling activities were not considered during the planning stage and subsequently were not included in the DC despite the advice of a very senior officer of your department at that time that the quarry consent should include stockpiling activities as well. This applies to both the stockpiling activities within and outside the approved site.

##### 1.4.2 Proposed Activities

It is proposed that the DC be modified to include a condition to permit the stockpiling activities within the approved site and the temporary stockpiling of materials within the adjacent Commonwealth-owned land. The Department should consider the inclusion of a condition to the effect: *“stockpiling of excavated materials is permitted to be conducted by the applicant. Stockpiling must be conducted within the approved site. Temporary stockpiling of excavated materials is also permitted to be conducted outside the approved site provided that the land owner has consented to these activities and that these activities are conducted in compliance with current planning and environmental legislation”*.

#### 1.5 ENVIRONMENTAL MONITORING AND REPORTING REQUIREMENTS

Currently, the approved requirements for environmental monitoring and reporting are included in both the development consent No 315-7-2003 and the Environment Protection Licence No 12863 (EPL). The EPA recommended that these requirements be varied to ensure compliance with EPL conditions and current relevant environmental monitoring policies, however the EPA advised that the EPL will be varied after the Consent is varied to ensure consistency between the requirements of the two statutory instruments.

##### 1.5.1 Approved Requirements

The currently approved requirements, that are the subject of this modification, are included in condition 15 of schedule 4 and they are:

***“Monitoring***

*15 The Applicant shall prepare noise compliance assessment of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.”*

Similar requirements are included in conditions M2 and M8 of the EPL.



### 1.5.2 Proposed Requirements

The proposed requirements are included in section 13.3 of this EAR and they are associated with the noise monitoring and reporting only. These are:

#### **“Monitoring**

*15 The applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department. **Following the first 3 years of monitoring, the monitoring shall be conducted on a yearly basis, unless otherwise directed by the Director-General**”.*

More detailed information about this aspect is included in Section 13 of this document.

### 1.6 ENVIRONMENTAL DISCHARGE AND MONITORING POINTS

Following extensive consultation with the EPA and review of approved locations of environmental discharge & monitoring points in combination with the results of monitoring, the EPA recommended that some of these locations be changed to better reflect the impact of Epic Mining activities on the surrounding environment rather than a combination of activities that may not necessary be associated with Epic Mining activities as it is the case for the monitoring points located within the Hubertus Country Club’s car park where dust and exhaust car emissions make a great contribution to the dust monitoring results at that location.

#### 1.6.1 Approved Requirements

The approved requirements are included in both the Consent and the EPL. Specifically, the requirements are included in conditions 7 and 19 of the Consent’s schedule 4 and they are:

#### **“Monitoring**

*7 The Applicant shall establish air quality monitoring stations at a minimum of 5 locations around the site, (including the Hubertus Country Club, the “northern” residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:.....”.*

#### **“Environmental Management**

*19 Prior to carrying out.....a program for monitoring noise generated by the development at a minimum of 5 locations around the site. (including the Hubertus Country Club, the “northern” residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12.”*

Similar requirements are included in conditions M2 and M8 of the EPL.



### 1.6.2 Proposed Requirements

Following the receiving of the Department's comments on the EAR Rev01, we have determined that it is a good opportunity to review the accuracy of the coordinates of all environmental monitoring point locations to get more accurate values. Hence, all coordinates were measured by using the latest GPS technology to ensure that the locations are defined with measured rather than estimated coordinate values. The new more accurate coordinate values have been reflected in all proposed modifications and are included in Table 14-1 and Table 14-2.

More detailed information about this aspect is included in Section 14 of this document.

The proposed requirements are included in section 14.3 of this EAR and they are:

#### **"Monitoring**

7 The Applicant shall establish air quality monitoring stations at a minimum **of 4 locations** around the site, (including ~~the Hubertus Country Club~~, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:.....".

#### **"Environmental Management**

19 Prior to carrying out.....a program for monitoring noise generated by the development at a minimum **of 4 locations** around the site. (including ~~the Hubertus Country Club~~, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12."

## 1.7 THE APPLICANT

The applicant is *Epic Mining Pty Limited* (previously called *Blue Sky Mining Pty Ltd*) with an ABN 86 144 713 931.

Physical Address:	275 Adams Road, Luddenham NSW 2745
Site Entry:	2420 Elizabeth Drive, Badgerys Creek NSW 2555
Postal Address:	PO Box 177 Kemps Creek NSW 2178

Current applicant contact details are:

Phone:	(02) 4774 9334
Fax:	(02) 4774 9338
Contact Person:	Samuel Tarabori
Email:	<a href="mailto:info@epicmining.com.au">info@epicmining.com.au</a>

Grid reference:	289000E and 6249400N
Local Government Area:	Liverpool City Council



Zoning: RU-1 Primary Production

## **1.8 THE SITE**

The subject site is legally identified as:

Lot 3 in DP 623799 and Lot 1 in DP 838361 and is rated as No 275 Adams Road Luddenham. The subject site is battle-axe in shape and benefits from approved truck access off Elizabeth Drive via a Right Of Way (ROW) over the adjoining Commonwealth Government land.

Given the authorised access from Elizabeth Drive, the subject site is known by clients and Government Authorities as No 2420 Elizabeth Drive, Badgerys Creek NSW 2555.

## **1.9 SITE LOCATION, CURRENT AND PROPOSED LAND USE**

**APPENDIX A** includes several maps identifying the subject site and adjoining property owners.

The subject site is located within SREP No 9, Extractive Industry (No2) Schedule 1, Division 1 and is identified as being of state significance.

The subject site is also included in the Planning NSW document Shaping Western Sydney and identified as a significant resource that should be utilised before sterilisation by unsympathetic development. The document was developed to promote and manage Sydney's growth and outline a vision for the future to 2031 based on anticipated population, economic and demographic trends.

The subject site is surrounded to the east by Commonwealth owned land. Land set aside for the possible use as a second Sydney airport. Should an airport be developed on the adjoining land the current operation will not be adversely affected. The quarry site sits independent of any land set aside for the second airport. Additionally it is envisaged that the acoustic, water, dust etc. considerations, which currently exist will be less onerous for the future quarry operations should the second airport be approved and become operational.

Figure 1-4 shows the site location. Figure 1-5 and Figure 1-6 provide aerial views of the site and surrounds. Figure 1-7 shows the approved revised site layout.



Figure 1-4: Site Location

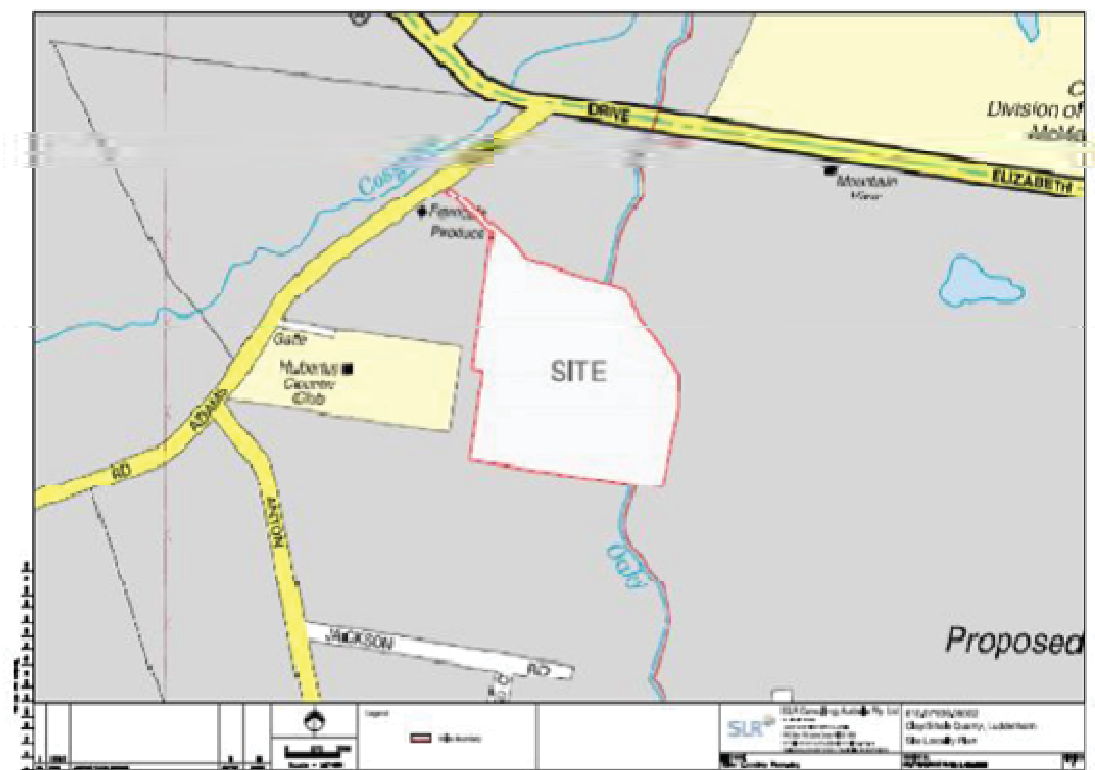




Figure 1-5: Recent Aerial View of the Site



Figure 1-6: Aerial View of the Site in the Regional Context



Source: Planning Direction P/L Environmental Assessment Report, April 2013.



Figure 1-7: Approved Revised Site Layout





## 2. PROJECT PROPOSAL

### 2.1 PROPOSED MODIFICATIONS

The applicant is seeking to vary its Development Consent to incorporate the modifications summarised below and included in Section 1 of this document. Greater details are provided in relevant Sections of this document. These modifications have been previously discussed with both the Environment Protection Authority (EPA) and the Department of Planning and Infrastructure (Department). These modifications are assessed at different levels of details in accordance with advice from the Department. This report includes assessments of the modifications outlined below:

1. Modify Condition 2 of Schedule 3 to relate to the subject plans;
2. Review the operational procedure by providing temporary stockpiling on-site of raw extracted material within the approved quarry footprint area. Extraction of material will also progress in stages with benches running in a westerly direction from the eastern boundary;

Once extraction of raw materials has reached close to the midway point of the total extraction from the approved quarry footprint, temporary stockpiles will be constructed inside the quarry void on the exposed pit floor. This will reduce the need for the temporary stockpiling on the quarry surface within the approved quarry area. It is expected that this will occur within the next 5-7 years;

The total number and footprint area of the temporary stockpiles will continuously vary over time. The temporary stockpiles are to be built to suit final customers' needs and consumption usage of the materials as demanded by the construction sector. Thus the temporary stockpile area is to be of a dynamic nature with constant changes to the number and footprint areas of the stockpiles. A maximum height of 5 metres is proposed for the stockpiles to minimise its potential visual, noise and dust impact. This maximum 5 m height is consistent with site acoustic testing and modelling. Stockpiles will be proof rolled and regularly maintained to minimise erosion and sediment runoff. The plans included in **APPENDIX D** are universal adaptation of the likely appearance of the temporary stockpiling area. These plans are also included in Section 1 of this document;

The staging and stockpiling of raw extracted material on-site represents a small change to the nature of the approved operations as outlined in the initial EIS and approved by the Department in the existing development consent. A detailed description of operational procedures is provided in the '*Epic Mining Mine Operation Plan*' which is included in **APPENDIX H**;

3. To permit the temporary stockpiling within an adjoining parcel of Commonwealth land located to the east of the approved area;
4. To review the locations of all environmental monitoring points and reduce their number from 5 to 4 as requested by the NSW Environment Protection Authority (EPA);



5. To review the frequency of environmental monitoring requirements in accordance with the EPA's current policies, guidelines and licensing requirements;
6. To review the noise limit of 41 dB(A)  $L_{Aeq(15min)}$  in light of the current environment of the area rather than relying on information which is more than 10 years old since the environment of that area has changed greatly from the time the noise assessment was conducted until the time the Development Consent was issued by the Department and the Environment Protection Licence was granted by the EPA; and
7. To permit the on-site non-commercial composting activities for the sole purpose of in-house use as part of the landscaping and rehabilitation works approved by the Department.

The application is being made to the Department of Planning and Infrastructure being the consent authority under the provisions of section 75W of the EP&A Act 1979.



### 3. STATUTORY ENVIRONMENTAL AND PLANNING CONTEXT

This Section outlines the statutory requirements relevant to the assessment of the proposed Modification. It also provides a discussion for the proposed modifications on economic, social and environmental grounds when considered against the objects of the Environmental Planning and Assessment Act 1979 (EP&A Act).

#### 3.1 APPLICABLE LEGISLATION, POLICIES AND PLANS

For the existing development and the proposed modifications of the development, there are several statutory environmental and planning legislation, policies and plans that would apply, including the following:

- Environment Protection and Biodiversity Conservation Act 1999
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Protection of the Environment Operations Act 1997
- Water Act 1912
- Water Management Act 2000
- Threatened Species Conservation Act 1995
- Native Vegetation Act 2003
- State Environmental Planning Policy (Major Development) 2005
- State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
- State Environmental Planning Policy (Sydney Region Growth Centres) 2006
- State Environmental Planning Policy No. 33 – Hazardous and Offensive Industries
- State Environmental Planning Policy No. 44 – Koala Habitat Protection
- State Environmental Planning Policy No. 55 – Remediation of Land
- Sydney Regional Environmental Plan No.9 – Extractive Industries (No2)
- Liverpool City Council Local Environment Plan
- Liverpool City Council Development Control Plan

We believe that the modifications comply with the all statutory requirements included in the above documents as outlined below.

#### 3.2 COMMONWEALTH LEGISLATION

##### 3.2.1 Environment Protection and Biodiversity Conservation Act 1999

The objective of the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) is to provide for the protection of those aspects of the environment that are of *national environmental significance*. Proposals that are likely to have a significant impact on a matter of environmental significance are defined as a *controlled action* under the EPBC Act. Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister for the Environment, Water, Heritage and the Arts for determination as to whether or not the proposed action is a controlled action.



Based on the assessments conducted during the preparation of the EIS and further Flora & Fauna and Ecological assessments conducted by BioDesign (refer to Section 7 of this report) for the subject Commonwealth land, it is concluded that there are no aspects of the environment that are considered to be of national environmental significance. Hence no further action is required under this Act.

### 3.2.2 Commonwealth and the Applicant Lease Arrangements

On the subject of leasing arrangement with the Commonwealth, we confirm that part of Lot 1 DP 838361 as shown in Figure 3-2 with Ref: NICS142001\_FIG005 are leased from the Commonwealth and have been used since 2007. Specifically, Epic Mining Pty Ltd (previously called Blue Sky Mining) entered into a leasing arrangement (refer to title search for Lot 1 DP 838361 which is included in **APPENDIX A** of the EAR and Attachment B of the Mine Operation Plan) with the Commonwealth for a three (3) years lease plus three (3) years option for renewal giving the applicant a total of six (6) years commencing on 1/06/2007. The modification application was lodged with the Department on 10 December 2010 which is well within the leasing period. However, for a variety of reasons a new lease was not drawn after that date since it was mutually agreed between the two parties that such a formal arrangement is not required as outlined below.

Figure 3-1 with Ref: NICS142001\_FIG001 shows the relationship between the Commonwealth land (Lot 1 DP 838361) and the Epic Mining site (Lot 3 DP 623799). It can be clearly seen, the size of the Epic Mining site is very small when compared with the size of the Commonwealth land in that specific area.

As you may be aware, while the modification application was being considered by your Department, several events have occurred in the area including this year's final decision for the construction of Sydney's second airport in Badgerys Creek. Many parts of the second airport will be constructed within Lot 1 DP 838361 but they may not encroach on the areas currently used by the applicant for temporary stockpiling activities. The applicant has been advised that within this specific Commonwealth land, there are approximately 400 tenants that have been leasing from the Commonwealth for many years and for a diverse range of activities. The commonwealth has informed all tenants that no long-term new leases will be drawn at this stage but rather on a monthly basis until the exact locations of all airport associated facilities have been decided. This is consistent with most States laws for commercial, residential and industrial leasing arrangement. The Commonwealth has also informed the tenants that they may continue with their activities as per usual until they are directed to vacate the specific areas, if required. This is required to give the Commonwealth the flexibility to make fast decisions on the tenants who will go and those who could remain based on confirmation of the final airport designs.

Based on the latest advice by relevant staff from the Commonwealth, it appears that the part of the Commonwealth land used by the applicant may remain unchanged since it is not included in the airport footprint.

Notwithstanding the above, the applicant is currently considering other options for its temporary stockpiling activities and will seek the Department's views on these options when they are confirmed. It is highly likely that that the new locations will be within the applicant's site.



Figure 3-1: Relationship between the Commonwealth Land (Lot 1 DP 838361) and the Epic Mining Site (Lot 3 DP 623799)



Figure 3-2: The area leased by Epic Mining from the Commonwealth





### 3.3 NSW LEGISLATION

#### 3.3.1 Environmental Planning and Assessment Act 1979 and Regulation 2000

The Environmental Planning and Assessment Act 1979 (EP&A Act) and *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) set the framework for planning and environmental assessment in NSW. Modification of the applicant's Development Consent is sought under section 75W, which falls within Part 3A of the EP&A Act.

Section 75W of the EP&A Act states:

##### **75W Modification of Minister's approval**

(1) *In this section:*

**Minister's approval** means an approval to carry out a project under this Part, and includes an approval of a concept plan.

**Modification of approval** means changing the terms of a Minister's approval, including:

- (a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and
  - (b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.
- (2) *The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*
- (3) *The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*
- (4) *The Minister may modify the approval (with or without conditions) or disapprove of the modification.*

Accordingly, an approval granted by the Minister under Part 3A of the EP&A Act to carry out a project may be modified under section 75W.

In addition, clause 8J(8) of the EP&A Regulation provides that certain development consents granted under Part 4 of the EP&A Act may also be modified under section 75W of the EP&A Act. Clause 8J(8) of the EP&A Regulation relevantly states:





## 8J Transitional Provisions

*(8) For the purposes only of modification, the following development consents are taken to be approvals under Part 3A of the Act and section 75W of the Act applies to any modification of such a consent:*

*...*

*(b) a development consent granted by the Minister under State Environmental Planning Policy No 34—Major Employment-Generating Industrial Development,*

*(c) a development consent granted by the Minister under Division 4 of Part 4 of the Act (relating to State significant development) before 1 August 2005 or under clause 89 of Schedule 6 to the Act,...*

*The development consent, if so modified, does not become an approval under Part 3A of the Act.*

The subject quarry operation was approved by the Minister for Infrastructure, Planning and Natural Resources (being the consent authority) in May 2004- DA No 315-2003. This approval was granted under the NSW Environmental Planning and Assessment Act 1979. The development was determined to be State Significance Development, Integrated Development and Designated Development as outlined below.

The proposed modifications continue to be assessed as submitted pursuant to the transitional provisions.

## State Significance Development

The proposal was classified as being “**State Significance Development** under section 76A(7) of the *Environmental Planning and Assessment Act 1979* because it is a class of development listed in the Minister’s declaration of 3 August 1999” (as described on the front page of the consent).

It should be noted that section 76A(7) has since been repealed, however ‘Transitional Arrangements’ have been facilitated under Schedule 6A clause 12 of the EP&A Act 1979 enabling the continued assessment of the application as follows:

### 12 Continuing application of Part 3A to modifications of certain development consents

*Section 75W of Part 3A continues to apply to modifications of the development consents referred to in clause 8J (8) of the Environmental Planning and Assessment Regulation 2000, and so applies whether an application for modification is made before or after the commencement of this clause.*

## Integrated Development

The proposal was classified as **Integrated Development** under section 91 of the Environmental Planning and Assessment Act 1979 because it required approvals under the following:

- Protection of the Environment Operations Act 1997;
- Rivers and foreshores Improvements Act 1948;
- Water Act 1912; and
- Roads Act 1993.



Pursuant to the Protection of the Environment Operations Act 1997, licence No 12863 was issued by the Environment Protection Authority on 14 December 2009 and was varied on 15 March 2010 and 28 November 2011. The scheduled activity approved was for 'Land-based extractive activities'. The approved scale is 100,000-500,000 tonnes per year.

Approval for road works in Elizabeth Drive were obtained from the Roads and Traffic Authority and all necessary works off and on-site have been completed in accordance with the RTA's requirements. In addition, extensive consultation was conducted with Liverpool and Penrith City Councils during the planning stages to ensure that any local traffic/transport requirements were complied with.

### **Designated Development**

The proposal was also classified as "**Designated Development**" under section 77A of the *Environmental Planning and Assessment Act 1979* because it would disturb a total surface area of more than 2 hectares of land clearing or excavating and consequently meets the criteria in Schedule 3 of the *Environmental Planning and Assessment Act Regulation 2000*" (as described on the front page of the consent).

#### **3.3.1.1 Section 79 C (1) – Matters for Consideration**

The following provides an assessment of the proposal against the provisions of section 79(C) of the *Environmental Planning and Assessment Act 1979*.

#### **Matters for consideration – General**

In determining a development application (in this case it is a proposed modification of an existing development consent), a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

##### **a Provisions**

*(a) the provisions of :*

*(i) any environmental planning instruments, and*

*(ii) any draft environmental planning instruments that is or has been placed on public exhibition and details of which have been notified to the consent authority, and*

*(iii) any development control plan, and*

*(iv) any matters prescribed by the regulations, that apply to the land to which the development application relates.*



### Comment

The modification is permissible in the context of the governing planning instruments and warrants approval given that the intent and purpose of the development consent remains the same. The quantity of extracted material will not exceed the approved 300 000 tonnes annual limit as per the condition of consent.

The onerous nature of other consent conditions and compliance requirements ensures that all the necessary safeguards are in place to protect the ecology, residential amenity and the environment.

### **b** Likely Impact

*(b) The likely impacts of that development, including environmental impacts on both the natural and built environments and social and economic impacts in the locality.*

### Comment

The proposal introduces no adverse environmental impacts. Existing bund walls will provide the necessary screening and acoustic protection consistent with the terms of the development consent. In addition, the outcomes of the environmental assessments included in this report demonstrate that potential impacts on the environment and human health, as a result of the proposed modifications, are none to minimal.

The proposed development is appropriate in respect of the natural and built environment, social and economic considerations.

The proposed modification will assist in attaining the *objectives specified in section 5(a)(i) and (ii) of the EPA Act*.

Section 5(a) of the EPA Act 1979 seeks to encourage;

***The promotion and co-ordination of the orderly and economic use of and development of land***;

### **c** Suitability

*(c) The suitability of the site for the development.*

### Comment

The approved quarry area is of a sufficient size to ensure that stockpiling can effectively occur without disrupting extraction works and is suitably distant from the riparian zone and creek bed.

The staging of extraction works is consistent with typical extraction operations and ensures stockpiling can be facilitated.



The proposed amendments to the consent will greatly assist in the day to day quarry operation and the extraction of high grade clay over an anticipated time frame as established by the Department of Planning and Infrastructure.

Furthermore, the additional stockpiling within the Commonwealth land is of a temporary nature and has been fully assessed in this document.

**d Submissions**

*(d)Any submissions made in accordance with the Act or the regulations.*

**Comment**

The applicant has not received any submissions or is aware of any submissions received by any government department in relation to the proposed modifications.

**e Public Interest (e)The public interest**

**Comment**

No adverse matters relating to the public interest arise from the modifications.

The quarry operations on-site have been operating in the public interest as it provides employment opportunities on-site and via associated industries.

The quarry also produces valuable quality clay of a high quality as identified under SREP No 9 Extractive Industries. The quality of clay likely to be extracted from the site is in short supply in the Sydney Metropolitan area and the continued extraction of the clay from the site over the next 15 years can ensure the demand is met.

Consultative committee meetings have been held so far on-site or off-site and gained public endorsement of the proposed quarry operation.

**f Substantially the Same Development**

The development as modified is substantially the same as that approved by the consent authority.

The modification will enable the development to proceed in a manner consistent with the intent of the original development application and consent.

**3.3.2 Protection of the Environment Operations Act 1997**

In preparing this report and particularly this Section of the report, many sections of NSW environmental legislation (i.e. POEO Act) were used to illustrate complete compliance with statutory requirements. Some of the sections referred to are outlined below:



### 3.3.2.1 General Provisions

The Protection of the Environment Operations Act 1997 (POEO Act 1997) establishes the NSW environmental regulatory framework and includes a licensing requirement for certain activities.

The POEO Act contains a list of activities that require an environment protection licence. These are listed in Schedule 1 of the POEO Act 1997.

Environment Protection Licences are a central means to control the localised, cumulative and acute impacts of pollution in NSW. In particular they aim to:

- protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development;
- provide increased opportunities for public involvement and participation in environment protection;
- ensure that the community has access to relevant and meaningful information about pollution;
- rationalise, simplify and strengthen the regulatory framework for environment protection;
- improve the efficiency of administration of the environment protection legislation; and
- reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following:
  - ▶ pollution prevention and cleaner production,
  - ▶ the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,
  - ▶ the reduction in the use of materials and the re-use or recycling of materials,
  - ▶ the making of progressive environmental improvements, including the reduction of pollution at source, and
  - ▶ the monitoring and reporting of environmental quality on a regular basis.

### 3.3.2.2 Specific Provisions

The current activities conducted on site are classified as premises-based scheduled activities under the provisions of the POEO Act 1997 being:

**land-based extractive activity**, meaning the extraction, processing or storage of extractive materials, either for sale or re-use, by means of excavation, blasting, tunnelling, quarrying or other such land-based methods.

1. In this clause, **extractive materials** means clay, sand, soil, stone, gravel, rock, sandstone or similar substances that are not minerals within the meaning of the Mining Act 1992.
2. Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if it meets the criteria set out in Column 2 of that Table.



**Table**

**Column 1**

**Activity**

land-based extractive activity

**Column 2**

**Criteria**

involves the extraction, processing or storage of more than 30,000 tonnes per year of extractive materials

The proposed modifications that include the stockpiling activities within both the approved area and the Commonwealth land are not classified as scheduled activities under the provisions of the POEO Act 1997 but rather part of the land-based extractive activity. Hence, no separate licensing requirements are required for the stockpiling activities on their own.

Due to the fact that the proposed modifications may result in modifications of the site's Environment Protection Licence No 12863 issued by the Environment Protection Authority, it was considered appropriate that relevant requirements be addressed in this section.

The applicant would need to make a separate application to the EPA for consideration of the proposed modifications following approval by the Department. The applicant has advised that the proposed modifications were approved, in principle, by the EPA and an appropriate application for a licence variation was lodged with the EPA last year.

**Section 45 of the POEO Act includes the matters to be taken into consideration in licensing functions (i.e. licence variation application) is outlined in Table 3.1 including comments, where relevant.**

Table 3-1: Factors to be Considered under Section 45 of the POEO Act		
Clause No	Requirements	Relevance
a	any protection of the environment policies,	No
b	the objectives of the EPA as referred to in section 6 of the <i>Protection of the Environment Administration Act 1991</i> ,	Yes
c	the pollution caused or likely to be caused by the carrying out of the activity or work concerned and the likely impact of that pollution on the environment,	Yes
d	the practical measures that could be taken: 1) to prevent, control, abate or mitigate that pollution, and 2) to protect the environment from harm as a result of that pollution,	Yes
e	any relevant green offset scheme, green offset works or tradable emission scheme or other scheme involving economic measures, as referred to in Part 9.3,	No
f	whether the person concerned is a fit and proper person (as referred to in section 83),	Yes
f1	in relation to an activity or work that causes, is likely to cause or has caused water pollution: 1) the environmental values of water affected by the activity or work, and 2) the practical measures that could be taken to restore or maintain	Yes



Table 3-1: Factors to be Considered under Section 45 of the POEO Act		
Clause No	Requirements	Relevance
	those environmental values	
g	in connection with a licence application relating to the control of the carrying out of non-scheduled activities for the purpose of regulating water pollution—whether the applicant is the appropriate person to hold the licence having regard to the role of the applicant in connection with the carrying out of those activities,	No
h	in connection with a licence application—any documents accompanying the application,	Yes
i	in connection with a licence application—any relevant environmental impact statement, or other statement of environmental effects, prepared or obtained by the applicant under the <i>Environmental Planning and Assessment Act 1979</i> ,	Yes
j	in connection with a licence application—any relevant species impact statement prepared or obtained by the applicant under the <i>Threatened Species Conservation Act 1995</i> or Part 7A of the <i>Fisheries Management Act 1994</i> ,	No
k	in connection with a licence application, any waste strategy in force under the <i>Waste Avoidance and Resource Recovery Act 2001</i> ,	No
l	in connection with a licence application: 1) any public submission in relation to the licence application received by the appropriate regulatory authority under this Act, and 2) any public submission that has been made under the <i>Environmental Planning and Assessment Act 1979</i> , in connection with the activity to which the licence application relates, and that has been received by the appropriate regulatory authority,	No
m	if the appropriate regulatory authority is not the EPA—any guidelines issued by the EPA to the authority relating to the exercise of functions under this Chapter	No

**Section 44 of the POEO Act includes clarification on the integration of licensing**

- 1) Licences may be issued or varied so as to cover either or both scheduled development work or scheduled activities.
- 2) Licences with respect to scheduled development work or scheduled activities may regulate all forms of pollution (including water pollution) resulting from that work or those activities.
- 3) Licences with respect to non-scheduled activities may also regulate any form of pollution in addition to water pollution resulting from those activities.

Licences authorising or controlling an activity carried on at any premises may also regulate pollution resulting from any other activity carried on at the premises to which the licence applies.



**Section 58 of the POEO Act provides the following provisions for any applications for variation of licences:**

- (1) The appropriate regulatory authority may vary a licence (including the conditions of a licence).
- (2) A variation includes the attaching of a condition to a licence (whether or not any conditions have already been attached), the substitution of a condition, the omission of a condition or the amendment of a condition.
- (3) A licence may be varied on application by the holder of the licence or on the initiative of the appropriate regulatory authority.
- (4) A licence may be varied at any time during its currency, including on its being transferred to another person.
- (5) A licence is varied by notice in writing given to the holder of the licence.
- (6) If:
  - (a) the variation of a licence will authorise a significant increase in the environmental impact of the activity authorised or controlled by the licence, and
  - (b) the proposed variation has not, for any reason, been the subject of environmental assessment and public consultation under the *Environmental Planning and Assessment Act 1979*, the appropriate regulatory authority is to invite and consider public submissions before it varies the licence.

**Section 59 of the POEO Act provides the following provisions for restrictions on making applications for variation of licences**

- (1) An application for the issue of a licence that relates to premises may be made only by or with the consent in writing of the occupier of the premises.
- (2) An application for the variation of a licence may be made only by or with the consent in writing of the holder of the licence.
- (3) An application for the transfer of a licence may be made only with the consent in writing of the holder of the licence.

### **3.3.2.3 Licensing**

The Environment Protection Licence No 12863 (EPL) was issued by the Environment Protection Authority (EPA) on 5 June 2009 and it was varied on 15 March 2010 and 28 November 2011. The EPL was initially issued to Blue Sky Mining Pty Ltd and then transferred to the current occupier Epic Mining Pty Limited (the applicant) on 18 January 2011. The EPL is subject to periodical compliance and monitoring requirements and its review is scheduled for 5 June 2014 unless the EPA decides to review it earlier as provided in the Protection of the Environment Operations Act 1997 (POEO Act 1997).

The EPL includes criteria which are specified in accordance with current environmental legislation, policies, guidelines and industry standards for water, noise and dust emissions. In addition, it includes monitoring and reporting conditions to ensure that the activities conducted on site are in compliance with the EPL conditions and the criteria referred to above.





### **3.3.3 Water Act 1912**

Licences for water conservation, irrigation, water supply or drainage as well as changing the course of a river can be applied for under the Water Act 1912.

The proposed development does not involve works for water conservation, irrigation, water supply or drainage and does not involve works that would change the course of a river. Water would be sourced from the existing earth dams. Therefore, the Water Act 1912 does not apply.

### **3.3.4 Water Management Act 2000**

The Water Management Act (WMA) 2000 provides requirements for the extraction of water, water use, floodplain and drainage management, the construction of works such as dams and weirs, and undertaking activities on or near water sources in NSW. This Act also incorporates the provisions of various Acts relating to the management of groundwater and surface water in NSW, and provides a single statute for the regulation of water use and works that affect groundwater and surface water, both marine and fresh. The New South Wales Office of Water administers this Act.

Approvals for the extraction and use of water and for the construction of works relating to water use can be obtained under the Act. However, the proposed modifications do not require the extraction of water from any Regulated River Water Source. Therefore, no approval is required under this Act.

### **3.3.5 Threatened Species Conservation Act 1995**

Any proposals (including modifications of existing activities) that are required to be determined by a NSW statutory authority are required to be assessed in accordance with the EP&A Act, as amended by the Threatened Species Conservation Act 1995.

A comprehensive assessment for the whole site was conducted during the preparation of the original EIS. No changes have occurred, within the approved area, which are likely to change these findings.

In relation to the parcel of land within the Commonwealth land a Flora and Fauna Assessment was conducted and it is included in Section 7 of this report. This assessment concluded that the proposed modifications are unlikely to have a significant impact on any threatened species or ecological communities since none exist in that area.

### **3.3.6 Native Vegetation Act 2003**

Clause 12 of the Native Vegetation Act is administered by the Office of Environment and Heritage (OEH) and requires consent from the Minister for the clearing of native vegetation. The proposed modifications do not include the clearing of any native vegetation.



### 3.4 STATE ENVIRONMENTAL PLANNING POLICIES

The following State Environmental Planning Policies (SEPPs) may also be relevant to the proposed modifications.

#### 3.4.1 State Environmental Planning Policy (Major Development) 2005

Defines certain developments that are major projects to be assessed under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. It also provides planning provisions for State significant sites. In addition, the SEPP identifies the council consent authority functions that may be carried out by joint regional planning panels (JRPPs) and classes of regional development to be determined by JRPPs. Note: This SEPP was formerly known as State Environmental Planning Policy (Major Projects) 2005.

#### 3.4.2 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

This Policy aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. The Policy establishes appropriate planning controls to encourage ecologically sustainable developments.

##### ***State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries), 2007***

The SEPP (Mining, Petroleum Production and Extractive Industries), 2007 (Mining SEPP), which commenced on 16 February 2007, regularises the various environmental planning instruments that previously controlled mining activities.

Clause 5(3) of the Mining SEPP gives it primacy where there is an inconsistency between the provisions of the Mining SEPP and the provisions of any other environmental planning instrument (except the Major Development SEPP, *State Environmental Planning Policy No. 14 [Coastal Wetlands]* and *State Environmental Planning Policy No. 26 [Littoral Rainforest]*).

##### **• Clause 2**

Clause 2 sets out the aims of the Mining SEPP as follows:

- (a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and*
- (b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and*
- (c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.*



• **Clause 12**

Clause 12 of the Mining SEPP requires that, before determining an application for consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must:

*(a) consider:*

*(i) the existing uses and approved uses of land in the vicinity of the development, and*

*(ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and*

*(iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and*

*(b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii), and*

*(c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a) (iii).*

Land use in the vicinity of the applicant's quarry is dominated by rural and agriculture in the flatter and more fertile areas to the south and west privately-owned land and the vacant Commonwealth-owned land to the east. The land in the immediate vicinity of the proposed modification is mainly owned by the Commonwealth. Accordingly the proposed modification would be generally consistent with the preferred use of the land in the vicinity of the development.

Noise and air quality impact assessments have been conducted for the modifications and these assessments indicate that it would result in none to minimal additional impacts on adjoining land uses near the approved quarry.

As described in Section 6, the modifications would not have any impact on regional water resources or users, and is not incompatible with the existing land uses within the vicinity of the approved quarry. As described in this report, the modifications would result in continued employment and business opportunities in the Liverpool LGA and other adjoining LGAs.

The applicant would, where practicable, continue to implement environmental management measures to avoid or minimise incompatibility with existing and future land uses in the vicinity of the quarry, if and when they arise.

• **Clause 14**

Clause 14(1) of the Mining SEPP requires that, before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following:



- (a) that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable,*
- (b) that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable,*
- (c) that greenhouse gas emissions are minimised to the greatest extent practicable.*

In addition, clause 14(2) requires that, without limiting clause 14(1), in determining a development application for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programmes or guidelines concerning greenhouse gas emissions.

The greenhouse gas emissions from the modifications were considered to be minimal in relation to the overall activities conducted by the applicant. Hence, it was determined that such assessment was not warranted for the proposed modifications.

The potential impacts of the modifications on surface water and groundwater resources are discussed in Section 6, including measures to minimise potential impacts. The potential impacts of the modifications on threatened species and biodiversity are discussed in Section 7, including measures to minimise potential impacts.

• **Clause 15**

Clause 15 of the Mining SEPP requires that:

- (1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider the efficiency or otherwise of the development in terms of resource recovery.*
- (2) Before granting consent for the development, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material.*
- (3) The consent authority may refuse to grant consent to development if it is not satisfied that the development will be carried out in such a way as to optimise the efficiency of recovery of minerals, petroleum or extractive materials and to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials.*

A review of potential quarry production indicated that the changes associated with the proposed modifications would ultimately result in more efficient recovery of shale, clay and other Excavated Natural Materials (ENM).

• **Clause 16**

Clause 16 (1) of the Mining SEPP requires that, before granting consent for development for the purposes of mining or extractive industry that involves the transport of materials, the consent authority must consider whether or not the consent should be issued subject to conditions that do any one or more of the following:



- (a) require that some or all of the transport of materials in connection with the development is not to be by public road,*
- (b) limit or preclude truck movements, in connection with the development, that occur on roads in residential areas or on roads near to schools,*
- (c) require the preparation and implementation, in relation to the development, of a code of conduct relating to the transport of materials on public roads.*

The proposed modifications do not involve any changes to the approved transport routes or traffic numbers.

Clause 16 (2) of the Mining SEPP requires that, if the consent authority considers that the development involves the transport of materials on a public road, the consent authority must, within seven days after receiving the development application, provide a copy of the application to each roads authority for the road, and the NSW Roads and Maritime Services (RMS) (if the RMS is not a roads authority for the road).

In addition, Clause 16 (3) of the Mining SEPP requires that the consent authority:

- (a) must not determine the application until it has taken into consideration any submissions that it receives in response from any roads authority or the Roads and Traffic Authority within 21 days after they were provided with a copy of the application,*

The applicant will continue to consult with the RTA/RMS as and when required in regard to traffic and road transport.

### **3.4.3 State Environmental Planning Policy (Sydney Region Growth Centres) 2006;**

This SEPP provides for the coordinated release of land for residential, employment and other urban development in the North West and South West growth centres of the Sydney Region (in conjunction with Environmental Planning and Assessment Regulation relating to precinct planning). At this stage, the applicant is unaware of land being developed or released for residential occupancy within the immediate vicinity of the quarry.

### **3.4.4 State Environmental Planning Policy No 33 - Hazardous and Offensive Development**

This SEPP provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The new definitions enable decisions to approve or refuse a development to be based on the merit of proposal. The consent authority must carefully consider the specifics of the case, the location and the way in which the proposed activity is to be carried out. The policy also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy.



For example, any application to carry out a potentially hazardous or potentially offensive development is to be advertised for public comment, and applications to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA). The policy does not change the role of Councils as consent authorities, land zoning, or the designated development provisions of the Environmental Planning and Assessment Act 1979.

The proposed modifications do not alter significantly the activities assessed previously and approved by the Department and the EPA. In addition and since the operational activities on-site would generally remain unchanged, the modifications would not change the potential impact mechanisms to the environment, public and public property, and their associated consequences or likelihoods, to the extent that risk levels would change from those previously assessed.

In any case, the quarry operates in accordance with the environmental management plans and management procedures required by the existing Development Consent. These plans and procedures have been developed to minimise the environmental risks associated with operation of the quarry.

#### **3.4.5 State Environmental Planning Policy No. 44 – Koala Habitat Protection**

Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas. Local councils cannot approve development in an area affected by the policy without an investigation of core koala habitat. The policy provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat. No koalas were found or observed within the site or adjoining properties during the preparation of the EIS or during the preparation of this report and as part of the overall assessment.

#### **3.4.6 State Environmental Planning Policy No. 55. – Remediation of Land**

Introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

The proposed modifications areas are located within an area that has always been used for agriculture rather than industrial activities. As a result no change of use is proposed and no preliminary land contamination investigation is required.



### 3.4.7 Sydney Regional Environmental Plan No9 – Extractive Industries (No2)

To facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land, which contains extractive material of regional significance.

Under this plan, the site was identified as a “clay/shale extraction area of regional significance”.

## 3.5 LOCAL PLANNING INSTRUMENTS

### 3.5.1 Liverpool Local Environment Plan 2008 (LLEP 2008)

This Plan aims to make local environmental planning provisions for land in Liverpool in accordance with the relevant standard environmental planning instrument under section 33A of the Act.

Under Division 1 of Schedule 1 of SREP No 9 – Extractive Industries, the subject site is identified as being a clay/shale extraction area of regional significance. Consideration was given with the issue of development consent to the heads of consideration contained in the SREP.

Notably Council is identified as being the consent authority under the SREP. However due to the circumstances at the time, it was considered more appropriate that the consent authority be the Department of Planning. Subsequently, the development consent was issued by the Minister. As a result of that decision, the Department of Planning remains the consent authority for planning issues associated with this site. This also includes any applications for modification of the development consent.

No significant issues or considerations arise from the above mentioned planning instrument in respect of the proposed modification.

### 3.5.2 Liverpool Development Control Plan (LDCP).

The objectives of Liverpool Development Control Plan (LDCP) are provided at Clause 1.2 as follows:

*“The objectives of this DCP are:*

- a) To provide more detailed provisions for regulating the carrying out of development.*
- b) To protect and improve the natural environment in the City of Liverpool.*
- c) To protect and improve the amenity of the City of Liverpool.*
- d) To protect personal safety and to minimise the risk of damage to areas subject to environmental hazards, particularly flooding.*
- f) To promote a high standard of urban and environmental design.*
- g) To conserve, protect and enhance the environmental heritage of the City of Liverpool.*
- h) To encourage a diversity of housing to meet the needs of the residents of the City of Liverpool.*
- j) To facilitate development that is environmentally sustainable.”*





There are also additional specific objectives for each section of each part of the DCP. The objectives of the LDCP were addressed previously as part of the EIS and subsequent reports to Liverpool City Council and the Department.

In any case, we believe that there are no aspects of the proposed modifications which are considered to be contrary to those objectives.

### **3.6 EXISTING EPIC MINING QUARRY APPROVALS**

As described in Sections 1 and 2, Epic Mining Quarry involves extraction and overburden placement of clay and shale, and transport of materials to a number of brick manufacturing plants. These activities are covered by various approvals and licences, key components of which are summarised in Table 3-2 below.

Table 3-2: Existing Epic Mining Quarry Approvals/Licences/Permits					
<b>ISSUING /RESPONSIBLE AUTHORITY</b>	<b>TYPE OF APPROVAL</b>	<b>NUMBER</b>	<b>DATE OF ISSUE</b>	<b>EXPIRY DATE</b>	<b>COMMENTS</b>
<b>Department of Planning and Infrastructure</b>	Development consent	DA 315-7-2003	23/05/2004	23/05/2022	Modified in 2006 and 28/01/2010
<b>NSW Environment Protection Authority</b>	Environment protection licence	12863	5/06/2009	Not applicable	Modified 15/03/2010 and 28/11/2011
<b>Department of Mineral Resources</b>	Approval for Exploration	M(Mo)LA3	13/11/12	Entire project life	Previously PMA 17
<b>NSW Office of Water</b>	Not required				
<b>Federal Government</b>	Lease of land	Not specified			
<b>NSW Department Of Trade and Industry, Regional Infrastructure and Services</b>	Mining lease	EL 7683	7/01/2011	06/01/2014	In the process of submitting a final report

Some management plans (e.g. Dust Management Plan) may require revision to reflect updated environmental management measures or changes to Development Consent (DA315-7-2003) conditions resulting from the modifications.





## 4. AIR QUALITY ASSESSMENT

### 4.1 BACKGROUND

The proposed modifications to the quarrying activities on site include only stockpiling activities. Some people may consider that the proposed modifications will have the potential to increase air emissions due to the perception of people when they hear that these modifications include stockpiling of materials on site. For the remainder of this document air emissions will be referred to as dust emissions since dust is the only noticeable and measurable air emission as a result of the activities conducted on site. This assumption is based on the facts that exhaust air emissions from machinery used on site are minimal and comply with current legislation.

The original dust management plan was included in the document title: "Air Quality (Dust) Monitoring Program – Report Number : 087623124 002 R Rev 1" prepared by Golder & Associates Pty Limited on behalf of Epic Mining Pty Limited and dated March 2009. This report was prepared to satisfy the requirements of conditions 7 and 8 of the development consent. Subsequently, five (5) dust monitoring stations were erected as required by the Development Consent and the EPL. Refer to the approved environmental monitoring point locations included in **APPENDIX F**. The initial dust monitoring was undertaken by Golder & Associates Pty Ltd and later undertaken by VGT Pty Ltd.

We will attempt to demonstrate in this assessment that these additional activities have minimal to no additional impact on human health or the environment. The materials to be stockpiled are mainly (more than 95%) made of clay and shale. These materials are stored temporarily on site to ensure that they are fully seasoned prior to being transported off-site to the brick and tile manufacturing companies.

Following many inspections by employees of government and non-government organisations including unannounced inspections by EPA authorised officers, it was established that the dust monitoring points are more than sufficient to cover all areas with potential dust emissions and all sensitive receivers. This extensive monitoring regime will also ensure that any dust emissions that are above the criteria, if any, will be promptly identified and the problem will be rectified.

### 4.2 AIR QUALITY ASSESSMENT APPROACH

The potential for additional dust emissions from the stockpiling activities is very minimal due to the fact that the stockpiled materials are mainly clay and shale and therefore free of dust particles that can become airborne. These materials when left in the open tend to form a crust on the top layer. This crust prevents dust emissions while the stockpiles are inactive.

When the stockpiles become active again the management of the quarry implements all mitigations measures recommended during the preparation of the initial EIS. Hence, it was determined that the most appropriate approach to follow in our attempt of assessing the potential dust emission impact on nearby sensitive residential receivers, is outlined below:



- Review all dust monitoring conducted since the installation of the dust deposition gauges in March 2009 despite the fact that quarrying activities did not commence until January 2011, this review should provide sound information of the dust emission levels prior to and after the activities commenced on site including stockpiling activities,
- Conduct site inspections to determine whether existing mitigations measures are effective in controlling dust emissions from the activities conducted on site with focus on stockpiling activities,
- Assess and highlight any major inconsistencies in the results and/or changes in the results,
- Establish a trend of the results and reflect any major changes in activities,
- Review and assess existing mitigation measures, and
- Provide recommendations on additional mitigation measures, if required.

### 4.3 AIR QUALITY ASSESSMENT CRITERIA

Air quality goals relate to the total dust present in the air, including air emission impacts from the activities conducted on site and the background levels. The air quality assessment criteria adopted by the NSW authorities are included in Table 4-1 and Table 4-2 below.

Table 4-1: NSW Air Quality Assessment Criteria			
POLLUTANT	AVERAGING PERIOD	CONCENTRATION µg/m <sup>3</sup>	ORGANISATION
<b>TSP<sup>(a)</sup></b>	Annual mean (including cumulative sources)	90	NHMRC <sup>(c)</sup>
<b>PM<sub>10</sub><sup>(b)</sup></b>	24 hour maximum	50	NSW EPA <sup>(d)</sup>
	Annual mean (including cumulative sources)	30	EPA long-term reporting goal
	24 – hour average 5 exceedances permitted per year	50	NEPAC <sup>(e)</sup>
Source: NSW EPA Notes: (a) TSP = Total Suspended Particulate (b) PM <sub>10</sub> = Particulate Matter with aerodynamic diameters less than 10 µm (c) NHMRC = National Health and Medical Research Council (d) NSW EPA = New South Wales Environment Protection Authority (e) NEPC = National Environment Protection Council			



Table 4-2: NSW EPA Criteria for Dust Fallout			
POLLUTANT	AVERAGING PERIOD	MAXIMUM INCREASE IN DEPOSITED DUST LEVEL	MAXIMUM TOTAL DEPOSITED DUST LEVEL
Deposited dust (insoluble solids)	Annual	2g/m <sup>2</sup> /month	4g/m <sup>2</sup> /month

#### 4.4 APPROVED DUST MONITORING LOCATIONS

The approved dust monitoring locations are included in Table 4-3 with their addresses and easting and northing. These locations were chosen by the environmental consultant at that time. These locations were approved by government authorities since they were considered at that time to provide sound representation of the potential impact of dust emission on the environment and human health.

Table 4-3: Approved Dust Monitoring Points				
LOCATION NUMBER	LOCATION ADDRESS	EASTING	NORTHING	COMMENTS
D1	Elizabeth Drive	289133	6249958	Adjacent to Elizabeth Drive
D2	Hubertus club	288713	6249427	Club's car park
D3	Jackson road	288685	6248867	Adjacent to trotting track
D4	South paddock	289381	6249156	Adjacent to dirt bike track
D5	East house	289782	6249330	Adjacent to industrial shed

#### 4.5 EXISTING AIR QUALITY

##### 4.5.1 Results of Dust Monitoring

The results of all dust monitoring conducted from March 2009 until July 2013 is presented in **APPENDIX 0**. This table includes results of monitoring before extraction activities commenced on site, with extractive activities, before stockpiling activities within the approved areas commenced, after the stockpiling activities within the approved area commenced, before the stockpiling activities on the Commonwealth land commenced and after the stockpiling activities within the Commonwealth land commenced.

Table 4-4 below provides a summary of the dust monitoring results for the period March 2009 to July 2013.



Table 4-4: Summary of Dust Monitoring Results				
YEAR	LOCATION NUMBER	DUST (g/m <sup>2</sup> /month)		COMMENTS
		MAXIMUM	AVERAGE	
<b>2009</b> Mar to Dec	D1	3.6	1.25	No extraction activities
	D2	5.1	1.2	
	D3	4	1.79	
	D4	6.4	1.79	
	D5	8.6	1.96	
<b>2010</b> Whole year	D1	4.3	1.32	No extraction activities
	D2	2.8	0.68	
	D3	2.9	1.36	
	D4	3.8	1.55	
	D5	4.6	1.36	
<b>2011</b> Whole year	D.1	3.2	1.01	Normal activities
	D.2	3.4	0.87	
	D.3	2.8	1.26	
	D.4	5.2	3.07	
	D.5	1.5	0.60	
<b>2012</b> Whole year	D1	3.6	1.14	Normal activities
	D2	0.90	0.50	
	D3	5.20	2.02	
	D4	5.60	2.27	
	D5	4.4	1.42	
<b>2013</b> Jan to July	D1	3.9	1.51	Normal activities
	D2	1.4	0.66	
	D3	5.5	2.01	
	D4	4.3	1.46	
	D5	2.8	1.31	
<b>Highest value</b>		8.6	3.07	
<b>Average value</b>		3.99	1.41	
<b>Highest per location</b>	D1	4.3		
	D2	5.1		
	D3	5.5		
	D4	6.4		
	D5	8.6		
<b>Average per location</b>	D1	1.24		
	D2	0.78		
	D3	1.69		
	D4	2.03		
	D5	1.33		



#### **4.5.2 Applied Mitigation Measures**

Since the activities commenced on site, the management has implemented all dust control mitigation measures as recommended in the EIS and the follow-up reports by Golder & Associates Pty Ltd, and the EPA's correspondence and advice including the EPL.

The dust control mitigation measures implemented so far include the continuous use of the water truck (cart) which is a permanent feature of the site, the prompt stabilisation of all excavated areas to reduce dust emissions, the rehabilitation of areas where identified and included in the short term and long term rehabilitation of the site, the enforcement of the very low speed limit (20km/h) of vehicles travelling within the site, the continuous availability of water in the ponds for dust suppressant purposes and the management commitments in minimising dust emissions from any activities conducted on site. It should be noted here that due to the nature and characteristics of the clay and shale materials excavated and stockpiled, dust emissions are very low.

#### **4.5.3 Current Status**

Based on the results of monitoring so far, dust emissions have always been in compliance with the EPA's long term impact criteria for deposited dust which is 4g/m<sup>2</sup>/month except under certain circumstances (i.e. bird droppings, insects, grass) that were beyond the control of the applicant. Monitoring of dust emissions has also included several real scenarios with the proposed stockpiling activities to ensure that any additional mitigation measures are implemented promptly, effectively and efficiently. So far, all monitoring tests have shown no dust emissions associated with the activities conducted on-site are above the specified criteria.

The effectiveness of the dust mitigation measures implemented on-site was confirmed first hand by representatives of the Department of Planning and the EPA during a joint site inspection which was conducted on 5 July 2011. This was also confirmed on many other occasions by government and non-government representatives following inspections of the site. Despite the fact that on that day, it was very windy and dry, no dust was emitted from any activities conducted on site including the stockpiles which demonstrate that the mitigation measures currently implemented on-site are more than adequate to control dust emissions. In addition to the existing dust mitigation measures, the materials characteristics being clay and shale do have a great contribution to the reduced dust emission process due to their heavy particle properties.

In addition to the abovementioned information, since the activities commenced on site only one (1) dust-related complaint was received by the EPA and following a comprehensive investigation of the complaint by both the EPA and the applicant in consultation with the complainant, it was concluded that the dust observed by the complainant was not associated with the applicant's activities.



## **4.6 SITE INSPECTIONS**

### **4.6.1 Site Inspections by BE Personnel**

Two site inspections were conducted by Benbow Environmental personnel following commissioning of our services by the applicant; the first inspection was conducted on 4 September 2013 and the second inspection was conducted on 5 December 2013.

Based on the observations made during both inspections, it can be concluded that the activities are conducted on site in a proper and efficient manner and that the mitigation measures implemented on site are more than adequate in managing dust emissions from all activities conducted on site. No visible dust emissions were noticed during the two inspections.

During both inspections stockpiling as well as extraction activities were conducted as per normal daily activities.

### **4.6.2 Site Inspections by Government Authorities**

Many inspections (announced and unannounced) were conducted by authorised officers of Government Authorities including:

1. Department of Planning and Infrastructure,
2. Environment Protection Authority,
3. Department of Primary Industry, and
4. Liverpool City Council.

All officers provided positive feedback in relation to the fact that no dust emissions were observed during the inspections whilst the quarry was operating normally. The activities included extraction of materials from the quarry pit and stockpiling of materials in either the stockpiling areas. In addition, the officers informed the applicant that the dust mitigation measures implemented on site were adequate to control, minimise and prevent dust emissions from the site.

## **4.7 POTENTIAL DUST EMISSION SOURCES AT THE QUARRY**

Based on our extensive experience with environmental assessments of similar activities and the extensive experience of the Quarry management with similar projects, we believe that the potential dust emission sources include the following:

- Vehicle Travel;
- Wind Erosion from Stockpiles;
- Loading, Unloading and Material Handling; and
- Excavation Process.



However and as previously stated due to the nature and characteristics of the clay and shale materials excavated and stockpiled, the potential for dust emissions is minimal.

#### **4.8 METEOROLOGICAL CONDITIONS**

A weather monitoring station was installed before activities commenced on site as recommended by the EPA and the environmental consultants at that time to ensure that the weather monitoring data obtained is more accurate, reliable and more importantly site specific rather than generic for the whole area.

Hence, meteorological conditions have been monitored by this weather monitoring station. Monitoring is being conducted on a continuous basis to ensure compliance with EPL and Development Consent conditions. Annual summaries of onsite meteorological conditions for 2011 and 2012 are included in **APPENDIX G**.

#### **4.9 MODIFIED QUARRY OPERATIONS**

We believe that the modifications to the quarry operations that include the stockpiling of clay and shale rather than using conveyor to transfer the materials onto trucks will reduce dust emissions by 10%-15% from those that were predicted during the preparation of the original EIS for the following reasons:

- During conveying, the materials are too dry and they are likely to generate greater amounts of dust emissions,
- During conveying, the material has not had the time to form the protective crust layer on the surface to prevent dust generation,
- During conveying, the materials are exposed to the atmosphere for a greater time,
- During conveying, the materials are exposed to the atmosphere with a greater surface area which increases the likelihood of an increase in dust emissions.

Notwithstanding the above, to ensure that this reduction is continuously achieved, the proponent must continue implementing all dust mitigation measures at all times and in particular under severe adverse weather conditions.

#### **4.10 CUMULATIVE IMPACT**

In our opinion the cumulative dust emission impact will most certainly be lower with the modification rather than without it. This has been clearly shown when reviewing the results before and after commencing the excavation and, before and after commencing stockpiling activities on site.

#### **4.11 MITIGATION MEASURES**

Based on the information provided in the previous Sections, we believe that the existing dust mitigation measures are adequate to ensure compliance with statutory requirements since the applicant is already in full compliance with these requirements unless there are external factors that influence the results such as bird droppings.



It is, though, of utmost importance for the continued viability of the project and to avoid the potential of any regulatory actions by regulatory authorities that all previously recommended dust mitigation measures whether they were included in the environmental management plan or other follow-up reports be adhered to at all times.

#### **4.12 PROPOSED ADDITIONAL MITIGATION MEASURES**

Based on the outcomes of the assessment, observations made during the site inspections by Government and non-Government employees and the results of monitoring in the last three (3) years, and under normal circumstances no additional dust mitigation measures would be required. However, to avoid any exceedances of the dust criteria even under the worst case scenario, we recommend that the applicant consider the following additional mitigation measures. This is derived from the fact that the management of the quarry has always been very proactive in its environmental obligations since the quarrying activities commenced on site:

1. Readiness of all employees on-site through regular training sessions to address any potential for excessive dust emissions when severe adverse weather conditions are encountered or predicted;
2. More frequent water spraying on days where adverse weather conditions are present; and
3. More accelerated rehabilitation work to be conducted on selected areas, if determined to be necessary.

#### **4.13 CONCLUSION**

Based on the above information it can be concluded and confirmed that the proposed modifications will have none to minimal additional impact on the environment or human health from a dust generation perspective. The dust mitigation measures already implemented on site and those recommended will ensure that any potential of increased dust emissions from the modifications will be prevented or at least greatly minimised promptly in an efficient and effective manner. The heavy clay/shale particles nature of the stockpiled materials provides ease of compaction and minimal dust generation.

In addition, we believe that the dust mitigation measures (including staff training) are capable of managing any dust generation situation that may arise in future as a result of the proposed modifications and under any weather condition.





## 5. NOISE IMPACT ASSESSMENT

### 5.1 BACKGROUND

A Noise Management Plan prepared by Golder & Associates, dated December 2009 (Report Number 087623124 001 R Rev2), has been established and implemented for the project. This Noise Management Plan was submitted to the Department of Planning and the EPA in order to meet the requirements of the Development Consent and the Environment Protection Licence (EPL).

#### 5.1.1 Existing Noise Sources

All existing noise sources will continue to have a noise contribution at different levels and depending on the activities conducted at these times will have different impacts. Based on the latest noise assessments, the noise sources outside the boundaries of the site appear to be making a greater contribution since the EIS was produced in 2003. Examples of external noise sources are heavy vehicle traffic on Elizabeth Drive, flight training exercises of light aircraft in the air space above the quarry and the use of neighbouring land as a dirt bike track. This has the potential of increasing the background noise levels that the initial EIS did not take into consideration. In this regard, consideration should be given to the review of the current background level in the area and the re-establishment of a new and more realistic project-specific noise criterion which would be based on the current activities in the area.

Noise sources within the boundaries of the site remain essentially the same with only a minor increase in noise associated with the stockpiling activities.

#### 5.1.2 Potential Impacts

The proposed stockpiling activities have the potential to slightly increase noise from the machinery involved in the formation of the stockpiles only in the case that appropriate noise mitigation measures are not fully implemented on-site by the applicant. Hence, it is strongly recommended that these mitigation measures are fully implemented to ensure that any increase in noise levels does not cause any exceedances of the specified noise criterion but rather they remain within the acceptable criteria at the receivers' premises'.

All noise monitoring required in accordance with the Development Consent and the EPL was undertaken by several appropriately qualified and very experienced Acoustic Consultants to ensure that the monitoring complies with all statutory requirements, Australian Standards and NSW Government policies and guidelines.

#### 5.1.3 Existing and Continued Mitigation Measures

The applicant continued to apply all recommended noise mitigation measures on site in accordance with the EIS and the follow-up noise surveys conducted by Golder & Associates and others.



The applicant achieves the criteria by applying all feasible and reasonable mitigation measures requested by all government authorities and as required by the relevant NSW guidelines including the construction of earth bunds (noise barriers) and the regular service/maintenance of all vehicles/plant/equipment used on-site including those used in the excavation and stockpiling activities to ensure that sound power levels of these items is not altered or increased due to wear and tear issues.

All implemented noise mitigation measures have been extremely successful and this is evident by the fact that:

- So far neither the company nor the authorities have received any noise-related complaints associated with the activities carried out on-site; and
- All measurements results conducted so far have shown that the levels of noise emanating from the activities conducted on site is in compliance with the noise criteria specified in the Development consent and the EPL.

#### **5.1.4 Modification Impact**

SLR Consulting Australia Pty Ltd (SLR Consulting) has undertaken comprehensive noise monitoring since the activities commenced on-site in January 2011. The noise monitoring including computer modelling simulating the activities conducted on-site. The modelling included most probable operating combinations of noise sources (plant and equipment) to ensure that worst case scenarios were taken into consideration especially for stockpiling activities which are the subject of this modification application. The project computer noise model was prepared using Renzo Tonin & Associates Software's Environmental Noise Model(ENM for Windows, Version 3.06), a commercial software system developed in conjunction with the NSW EPA. The acoustical algorithms utilised by this software have been endorsed by the EPA and all State Environmental Authorities throughout Australia as representing one of the most appropriate predictive methodologies currently available.

It should be noted that noise testing is currently conducted by Global Acoustics of Newcastle.

We understand that the project-specific noise level was determined to be 41 dBA  $L_{Aeq(15min)}$ , however, the Industrial Noise Policy (INP) provides recommended  $L_{Aeq}$  noise levels from industrial noise sources in table 2.1-amenity criteria. For residential receivers in rural areas, the recommended acceptable  $L_{Aeq}$  noise level is 50 dBA and the recommended maximum  $L_{Aeq}$  noise level is 55 dBA.

Hence, based on the same table, the noise levels determined for all receivers and for all scenarios are well below the recommended acceptable criteria of 50 dBA  $L_{Aeq}$  and that for most modelled scenarios the noise levels comply with the 41 dB(A)  $L_{Aeq(15min)}$  criterion.

Following the review of noise monitoring results for the first four rounds of monitoring, the applicant, the EPA and the acoustic consultants have agreed that the potential of noise impact on residential receivers as a result of the introduction of the stockpiling activities is minimal.



However, due to the results of the third round, three (3) additional noise amelioration measures were implemented following consultation with the EPA and the acoustic consultant. These are:

1. For unknown reasons, the computer modelling was performed with the assumption that the earth bunds (noise barriers) were 4 metres high. Hence it was recommended that when the next modelling is conducted, the height of the bunds be changed to 5 metres which is the current actual height of the bunds. This should reduce the predicted noise levels by at least 1-3 dB(A).
2. The height of the existing stockpiles has been reduced by 1.6 metres to an average height of 5m. Hence, the noise levels monitored by attended or unattended methodologies including computer modelling should be lower at the residential receivers even further (may be 1-3 dB(A)).
3. Plant, equipment and other heavy vehicles used on-site should be fitted with noise reduction kits where feasible and practical to reduce even further the noise level contribution at the receivers.

All parties involved have also agreed that the effectiveness of these measures will be re-assessed following their implementation and the conduction of noise monitoring for the next 4 rounds.

All noise monitoring conducted after the implementation of these mitigation measures have demonstrated that the level of noise emanating from the activities conducted on site comply with the criterion of 41 dB(A)  $L_{Aeq(15min)}$  at all locations. On the day of noise testing, a variety of machinery was used on site as per normal operations.

Recent noise monitoring has indicated that the surrounding land and air activities contribute a higher noise background level than the 41 dB(A)  $L_{Aeq(15min)}$  noise criterion set for the site.

#### **5.1.5 Potential Additional Noise Sensitive Receivers**

The proposed modification to the quarrying activities on site to include the stockpiling activities may have the potential to require modification to the anticipated noise emissions at surrounding representative receptors.

No additional residential properties have been constructed nearby or been identified as being subjected to additional noise since the quarrying and stockpiling activities have commenced on site.

Notwithstanding the above and to address potential noise impacts at sensitive receptors (in this case noise monitoring points) arising from the proposed modifications to the quarrying activities, a noise assessment was undertaken in accordance with the EPA's industrial noise policy (INP) and current best practice.



## 5.2 NOISE ASSESSMENT APPROACH

Following extensive consultations with stakeholders including government authorities and the proponent, it was determined that the best and most appropriate noise impact assessment approach should include the following steps:

- Review all noise monitoring conducted since the quarrying activities commenced on site, noise modelling conducted by acoustic consultants and attended noise monitoring results,
- Conduct attended noise monitoring at all environmental monitoring points under normal operating conditions,
- Assess various scenarios to include a combination of activities that are likely to be conducted at the same time,
- Provide recommendations on the best scenario with the least noise impact to be implemented, and
- Provide recommendations of any additional mitigation measures, if required, to be implemented on site.

## 5.3 NOISE SENSITIVE RECEPTORS (APPROVED NOISE MONITORING POINTS)

The approved noise monitoring points are included in Figure 5-1 and Table 5-1 with their addresses and their easting and northing. The noise criteria for these points, as specified in the development consent conditions and the environment protection licence, are also included.

Table 5-1: Noise Sensitive receptors and Project Specific Noise Criteria					
LOCATION NUMBER	LOCATION ADDRESS	EASTING	NORTHING	CRITERION dB(A)	DESCRIPTOR
N1	Elizabeth Drive, Luddenham	289130	6249975	41	L <sub>Aeq</sub> (15 min)
N2	Hubertus Country club, 205 Adams Road, Luddenham	288680	6249460	41	L <sub>Aeq</sub> (15 min)
N3	Jackson Road, Luddenham	288950	6248930	41	L <sub>Aeq</sub> (15 min)
N4	Ferndale Road, Luddenham	289480	6248890	41	L <sub>Aeq</sub> (15 min)
N5	2370 Elizabeth Drive, Luddenham	289790	6249330	41	L <sub>Aeq</sub> (15 min)

The above criteria apply to day time operations only since the approved hours of operations are within the day time period (7.00am to 7.00pm) as specified in the INP. The approved hours of operations are 7.00am to 6.00pm.

Figure 5-1: Existing Noise Monitoring Locations



## 5.4 NOISE MONITORING SUMMARY

Table 5-2 includes a summary of all noise monitoring conducted since January 2011 whether it was attended or unattended using computer modelling. These results were extracted from all the noise reports submitted to the applicant and the EPA. It should be noted that abovementioned additional noise mitigation measures were recommended after the third round of monitoring and since their implementation no exceedances of the noise criterion was noted.



Table 5-2: Noise Monitoring Summary								
DATE	MACHINERY	DESCRIPTION	NOISE LEVELS - L <sub>Aeq</sub> (15min)					STATUS OF USE
			N1	N2	N3	N4	N5	
18/01/2011	Excavator (CAT 345)	Loading trucks						Full-time
	Water truck (ACCO inter)	Dust suppression	37	33	40	35	32	Part-time
	2x dump trucks (CAT 740)	Hauling top soil from quarry area						Full-time
11/03/2011	Excavator (CAT 345)	Loading dump trucks						Full-time
	Bulldozer (CAT D8R)	Pushing up materials						Full-time
	Dump trucks x 2 (CAT 740)	Hauling topsoil from quarry area	30	31	37	35	32	Full-time
	Water truck (ACCO INTER)	Dust suppression						Part-time
20/06/2011	Excavator (CAT 345)	Loading dump trucks						Full-time
	Bulldozer (KOMATSU 375-3)	Pushing up materials						Full-time
	Dump truck x2 (CAT 740)	Hauling top soil from quarry	39	33	42	45	44	Full-time
	Dump truck x3 (CAT D400)	Hauling top soil from quarry						Full-time
	Water truck (ACCO INTER)	Dust suppression						Part-time
22/09/2011	Front-end loaded (CAT9726)	Load road trucks						Full- time
	Road truck x 6	Carting material off site	40	27	36	33	36	Full-time
	Water truck (ACCO inter)	Dust suppression						Full-time
19/12/2011	Water truck (ACCO inter)	Dust suppression	35	23	29	22	28	Part-time
19/03/2012	Water truck (ACCO inter)	Dust suppression	35	23	29	22	28	Part-time





Table 5-2: Noise Monitoring Summary								
DATE	MACHINERY	DESCRIPTION	NOISE LEVELS - L <sub>Aeq</sub> (15min)					STATUS OF USE
			N1	N2	N3	N4	N5	
8/06/2012	Front-end loader (CAT9726)	Loading road trucks						Full-time
	Road truck x 4	Carting material off-site	40	27	36	33	36	Full-time
	Water truck (ACCO inter)	Dust suppression						Part-time
11/04/2013	Bulldozer (CAT D8N)	Pushing up materials						Full – time
	Dump trucks x 2 (VOLVO A25D)	Hauling top soil from quarry						Full – time
	Water truck (ACCO inter)	Dust suppression	<41	35	NM	<41	<30	Part – time
	Excavator (HITACHI 330CL-3)	Loading dump trucks						Full – time
	Front-end loader (CAT7926-19)	Loading dump trucks						Full - time
20/06/2013	Bulldozer (CAT D8N)	Pushing up materials						Full – time
	Dump trucks x 2 (VOLVO A25D)	Hauling top soil from quarry						Full – time
	Water truck (ACCO inter)	Dust suppression						Part – time
	Excavator (HITACHI 330CL-3)	Loading dump trucks	23	34	NM	<41	36	Full – time
	Front-end loader (CAT 7926-11)	Loading dump trucks						Full – time
	Road trucks x 2	Carting material off site						Full – time





## 5.5 ATTENDED NOISE MONITORING

### 5.5.1 4 September 2013

On 4 September 2013, BE personnel conducted attended noise testing at all five (5) noise monitoring locations. The results of the testing are summarised in Table 5-3 below.

Table 5-3: Summary of Attended Noise Testing Results (04/09/2013)				
DATE	TIME	LOCATION	NOISE LEVEL L <sub>Aeq</sub> (15min)	WEATHER
4/09/2013	10.00	N1	38	Fine
4/09/2013	10.45	N2	36	Fine
4/09/2013	11.10	N3	34	Fine
4/09/2013	11.35	N4	39	Fine
4/09/2013	10.25	N5	35	Fine

### 5.5.2 5 December 2013

On 5 December 2013, BE personnel conducted noise testing at all five (5) noise monitoring locations. The results of the testing are summarised in Table 5-4 below.

Table 5-4: Summary of Attended Noise Testing Results (05/12/2013)				
DATE	TIME	LOCATION	NOISE LEVEL L <sub>Aeq</sub> (15min)	WEATHER
5/12/2013	11.40	N1	32	Fine
5/12/2013	11.15	N2	37	Fine
5/12/2013	11.00	N3	33	Some clouds
5/12/2013	10.15	N4	37	Some clouds
5/12/2013	10.40	N5	34	Fine

It should be noted that, during both rounds of noise testing, the noise from the activities was either inaudible or barely audible at all locations. This has made it very difficult to undertake attended noise measurements without the need for additional calculations to determine the quarry activities' (including excavation and stockpiling) contribution to the overall noise measured at these locations.

## 5.6 WORST CASE SCENARIO ASSESSMENT

Following review of all noise monitoring reports, consultation with the proponent and conducting attended noise testing, it can be concluded that the worst case scenario for noise assessment would be when the following activities are conducted at the same time:



- Excavation at the quarry is being undertaken at the surface (and up to about 2 m below the surface) of the quarry,
- Materials are being transported to one stockpiling area, and
- Other materials are being removed from the other stockpiling area and transported off site.

According to the quarry manager this scenario is very highly unlikely to occur at any time and so far has not occurred.

In any case, if this scenario was to occur, the noise criterion is not likely to be exceeded by more than 3 dB(A)  $L_{Aeq,15min}$ . Hence, it is recommended that the site management implement an additional noise amelioration strategy to prevent this scenario from occurring.

All other scenarios would comply with the noise criterion specified in the Consent and the EPL provided that the following are fully adhered to:

- All noise mitigation measures recommended in the initial EIS;
- All mitigation measures recommended in the noise management plan;
- All mitigation measures recommended after the third round of monitoring; and
- All mitigation measures recommended in this report.

## **5.7 RECOMMENDATIONS**

Following careful consideration of all matters associated with the noise emissions from the applicant's quarry site including the stockpiling activities conducted in both areas; the western stockpiles located within the approved area and the eastern stockpiles located within a parcel of the Commonwealth land, the recommendations outlined below are made. These recommendations are made to ensure that all activities conducted on site including the temporary stockpiling of materials within the Commonwealth land, comply with the noise criterion specified in both the Development Consent and the Environment Protection Licence No12863.

1. The applicant would continue to regularly service and maintain all machinery used on site to ensure that wear and tear of any item is promptly rectified,
2. The proponent would not allow the scenario outlined in 5.6 from occurring,
3. Continuous training would be provided to all employees, visitors and contractors to reduce their speed to below 20km/h to reduce both engine and exhaust noise levels,
4. All road registered vehicles would comply with current NSW noise levels specified in the POEO Act and relevant regulations,
5. Heavy vehicles idling for long periods would be avoided at any cost as this would increase the overall noise level and has the potential to increase noise impact on residents,
6. Trucks that are noticeably louder than others would be identified and their drivers would be given warning to rectify the problems, and
7. Reversing alarm beepers on all machinery are being upgraded to Quarck beepers rather than high tonality reversing alarm beepers.



## **6. GROUNDWATER AND SURFACE WATER IMPACT ASSESSMENT**

### **6.1 GROUNDWATER**

#### **6.1.1 Existing Conditions**

Groundwater management on-site was fully addressed in a report titled: "Groundwater Management Plan – Blue Sky Mining Clay-Shale Quarry – 275 Adams Road Luddenham – Report No 09103-A" (GMP) which was prepared by Larry Cook & Associates Pty Ltd on behalf of Blue Sky Mining Pty Ltd and dated February 2009. This report was prepared to satisfy the requirements of conditions 24 and 26 of the development consent.

The groundwater considerations arise from the quarrying operations and not from stockpiling of materials above ground.

#### **6.1.2 Existing Mitigation Measures**

All mitigation measures recommended in the EIS and the above report were implemented on site to prevent any potential adverse impact on the groundwater. Since the activities commenced in January 2011, groundwater has not been altered or changed in any way. One of the main reasons is that groundwater is much deeper than the lowest point reached so far at the quarry. So in this case avoidance of encroachment on groundwater has been proven a very successful strategy.

#### **6.1.3 Potential Impacts of Proposed Modifications**

Under normal circumstances, stockpiling activities have the potential to increase speed of water run-off from the stockpiling area. This means that the existing sedimentation ponds and other stormwater retention ponds could fill slightly quicker than what previously occurred. However, due to the proposed surface water management strategies and diversions already implemented on site, the fact that stockpiling activities occur above ground levels rather than deep in ground and that groundwater is so much deeper than ground level it is highly unlikely that these activities will have any adverse impact on groundwater. In addition to the above, the characteristics of the stockpiled materials will assist rainwater to slow down rather than accelerate as it is moving on the stockpiles.

Accordingly there will be no anticipated change to groundwater as the quarry operation is occurring as per the approval with no change to any of the parameters that are likely to change the behaviours of groundwater such as the extraction depth or area of operation.

#### **6.1.4 Proposed Mitigation Measures**

Since the mitigation measures already implemented on site, the topography of the subject areas and the depth of groundwater have assisted in preventing any adverse impact on groundwater, no additional mitigation measures are required.



## 6.2 SURFACE WATER

Since the commencement of activities on site, the management of the quarry has implemented a “*nil water discharge policy*” on site. This has so far been achieved by implementing several mitigations measures including the installation of diversion drains, the de-silting of existing ponds and the use of the void to capture most of the water from that particular catchment. In addition, the use of rainwater for dust suppression on site including the stockpiling areas and, irrigation of areas included in the rehabilitation and landscaping plan, and Riparian Zone.

### 6.2.1 Existing Water Supply

The existing surface water management practice is to redirect and capture all sediment laden runoff in the existing pit sump void. The surface water is then used within the site for dust suppression and vegetation management.

The proposed temporary stockpiling will not have any effect on increasing the volume of surface water being captured as per current site operations. The proposal will have the effect of possible increase in the sediment runoff within these waters. Although the pit sump void is adequately capable to cope with this increase.

The subject site continues to operate with a “*nil water discharge policy*” to the environment and would continue to do so under the proposed modifications.

It should be noted that works have been recently implemented. A comprehensive refurbishment of sedimentation ponds 1, 2, 3 and 4 has also occurred. This work included de-silting to remove any excess material and increase their capacities by increasing depth, shore stabilisation to assist in erosion/sediment controls and to have cleaner water for use on-site. Also the compaction of the bottom and side walls was undertaken to ensure that water is not escaping from the ponds. Following completion of all abovementioned works, the capacities of these sedimentation ponds have increased by more than 100%.

In accordance with the site's approved Stormwater Management Plan (SWMP), surface run-off flows via roadways and open grassed drains from parts of the site to the main Pit Sump during periods of peak rainfall. Rainfall also contributes directly to water stored in the Pit Sump. Surface water detained in the Pit Sump is re-used for dust suppression and vegetation management activities across the site.

Clean water diversions from undisturbed land is captured and channelled to Sediment Basins 1 and 2 to the Northeast boundary for storage and use in the site's dust suppression & vegetation management activities.

Existing site drainage and proposed surface water management are detailed in the drawings included in Below is Table 6-1 which illustrates the current use of water for the different areas of the site to ensure that water is always available in all ponds/dams and that all areas and water requirements are met including dust suppression needs.



Table 6-1: Current Water Use Arrangements

Activity/Area	Water Drawn		
	First Preference	Second Preference	Third Preference
Dust suppression	Pit Sump	Sedimentation Pond 1	Sedimentation Pond 2
Vegetation Riparian	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Irrigation Paddock	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Western Stockpiles	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Eastern Stockpiles			
Bund Walls	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Riparian Zone and other Landscaping	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Offices, Workshop and Amenities	Potable water	Potable water	Potable Water



Figure 6-1, and Figure 6-3 of this Section. More details of surface water management for both the approved area and the commonwealth land are illustrated in the drawings of **Appendices D, I and Q**.

Water balance modelling has been undertaken to assess the potential impacts of the project on surface water flows on the site and recommendations are made as to the management of these impacts.

## **6.2.2 Water Use on Site**

### **6.2.2.1 Existing Circumstances**

Below is Table 6-1 which illustrates the current use of water for the different areas of the site to ensure that water is always available in all ponds/dams and that all areas and water requirements are met including dust suppression needs.

Table 6-1: Current Water Use Arrangements			
Activity/Area	Water Drawn		
	First Preference	Second Preference	Third Preference
Dust suppression	Pit Sump	Sedimentation Pond 1	Sedimentation Pond 2
Vegetation Riparian	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Irrigation Paddock	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Western Stockpiles	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Eastern Stockpiles			
Bund Walls	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Riparian Zone and other Landscaping	Sedimentation Pond 1	Sedimentation Pond 2	Pit Sump
Offices, Workshop and Amenities	Potable water	Potable water	Potable Water

Figure 6-1: Existing Site Drainage and Proposed Surface Water Management





**EPIC Mining Pty Ltd**  
**Limestone Quarry**  
Water Management Plan

**Legend**

- Proposed Extraction Infrastructure
- Vegetation
- Clean Water
- Dirty Water
- Property Boundary
- Approved Quarry Area
- Fences
- Riparian Zone
- Irrigation

0 40 80 120 160 200 m  
SCALE

N

Irrigation Area Approx. 2.1Ha

Elizabeth Drive

Water from the reservoir will be used for stock suppression and irrigation

Plastic cover (4") installed under the stockpile

Proposed Stockpile

Proposed Processing Unit

vgt

G:\VGT\_Blue Sky Mining (SPC)\2010\plan10.cdr  
Source: Monaghan Surveyors Pty Ltd  
Version: 30/11/2010

Figure 6-3: Proposed Surface Water Management within the Commonwealth land





### **6.2.3 Existing and Continued Mitigation Measures**

Soil and water management on the subject site is well established and the existing operation is managed under a SWMP with nil discharge to the receiving environment. The SWMP investigated the existing stormwater catchment areas and identified management measures which have been implemented on the site. These management measures include bunding, silt fences, an emergency spill kit and stormwater reporting and testing for monitoring purposes.

As part of this EA, the SWMP has been updated via an addendum to reflect the proposed future operations over the next twenty years (Figure 6-1, Figure 6-2 and Figure 6-3) and includes recommendations with regard to the management of stormwater runoff over the life of the project. These recommendations include the following:

- a. Further reconfiguration of the disturbed surface water catchment to proportion runoff to the Main Pit Sump. This would maximise the timeframe before any discharge would be required.
- b. Investigation of options for the reuse of water stored on-site for beneficial use in order to increase the extraction regime to improve on- site storage capacity.
- c. Monitoring of storage levels in the Main Pit Sump and both sedimentation ponds 1 and 2 such that spill risk is managed and the need for additional storage and/or extraction can be readily identified. Under normal operating conditions, both sedimentation ponds are operated at 30-80 % of their capacity for two reasons; the first is to ensure that the bottom of the pond is not disturbed where sediments are likely to be pumped out and the second is to prevent the ponds from overflowing into Oaky Creek in case of extremely high rainfall events. In addition, and in such an emergency situation, the applicant has the flexibility of pumping water between the Main Pit Sump and the two sedimentation ponds 1 and 2 depending of water levels and rain duration and intensity.

Additional mitigation measures to be implemented on the site in relation to proposed operations include:

- The continued use of drains, silt fences and bunding to direct site runoff into appropriate sediment basins and to control erosion;
- Stabilisation of slow-moving stockpiles to minimise the risk of erosion;
- The use of flocculants in sedimentation basins to increase sediment removal rates if required;
- The maintenance of a riparian corridor of over 40m in width along Oaky Creek; and
- Routine maintenance and inspections of drains, sediment basins and bunds.

### **6.2.4 Site Water Demand**

The site has a yearly minimum water requirement of approximately 24.8ML.

This quantity of water usage is likely to increase as a result of the need to water the stockpiled raw materials to assist in dust suppression, fretting and souring in the short term.



Dust Suppression is undertaken with the use of the site's own 20,000L water truck (cart). Irrigation of the site's vegetation is undertaken by the use of a network of pipe work and sprinklers as well as the use of the site's water truck (cart). Water demand will be reduced as the excavation of the pit increases and stockpiling can then be transferred to the pit floor.

### **6.2.5 Ponds Capacity**

Detailed survey of current Sedimentation Ponds 1 and 2, and main Pit Sump is included in **APPENDIX D**.

Table 6-2: Current Sizes and Capacities of Existing Sediment-laden Water Storage Structures				
	<b>Surface Area m<sup>2</sup></b>	<b>Depth m</b>	<b>Volume m<sup>3</sup></b>	<b>Volume ML</b>
<b>Sedimentation Pond 1</b>	1,015	11	11,165	11.165
<b>Sedimentation Pond 2</b>	2,825	11	31,075	31.075
<b>Sedimentation Pond 3 Near Bridge</b>	1502	10	15,020	15.020
<b>Main Pit Sump</b>			163,990	163.99
<b>Total Capacity</b>			<b>221,250</b>	<b>221.25</b>

It is noted that Table 6-2 does not include clean water diversion dams.



Site rainfall has been calculated within the site's SWMP.

By using the 5 day, 90th percentile rainfall event data of 48.4mm (Wallacia) and the entire quarry footprint of 6.66Ha as disturbed areas, the entire site would generate 3.22ML of surface water runoff at 100% runoff. The capacity of the two sedimentation ponds alone would hold approximately 8 times the amount of runoff generated by each 5 day, 90<sup>th</sup> percentile rainfall event.

Similarly, when adding the footprint of the stockpiling area within the Commonwealth land which has an area of 96 Hectares, the surface water runoff at 100% runoff would be approximately 4.6 ML. Sedimentation Pond 3 on its own has a capacity of approximately 15 ML which is more than three (3) time the annual rainfall at 100% runoff.

It should be noted that the surface water runoff from the quarry extraction area flows directly into the main Pit Sump then into the sedimentation ponds. However, the temporary stockpiling area within the Commonwealth land flows directly into sedimentation pond 3.

The capacity of the current Pit Sump is capable of storing more than 50 times the quantity of rainfall (5 day, 90<sup>th</sup> percentile rainfall event data of 48.4 mm) without discharge to the local water course.

As future extraction of clay/shale continues in a westerly direction the capacity of the excavated cell will continue to increase and therefore be able to hold and store more surface water runoff.

#### **6.2.6 Proposed Modifications within the Approved Area**

A detailed survey of the stockpiling area within the approved area (western stockpiles) was prepared by Monaghan Surveyors Pty Ltd. The survey reference number is REF: 01019-V1 and dated 21/05/12. The survey is included in **APPENDIX I**.

Water sourced for the proposed operations, which include the temporary stockpiling, will be the same as the existing operations as the amount of water captured during rainfall will not increase.

There will be an increase to the site's overall water usage figure, due to the increase in dust suppression activities associated with the temporary stockpiling. Extra water for these activities will be sourced in times of drought from existing leased properties that the applicant currently holds.

The overall Site Surface Water Management Plan Schematic (flowchart) is attached in **APPENDIX M** and the surface water management plan for this area is included in **APPENDICES D, I and Q**.

It must be noted that the original Oaky Creek line has been altered some decades ago (many years prior to any quarrying activities commencing on-site) to divert creek water flows into two large holding dams built on Lot 1. This land is currently leased by the applicant from the Commonwealth.





Any water collected from on-site activities run-off will be fully contained within the existing pit sump, sedimentation pond 1 and sedimentation pond 2. No run-off water from any disturbed area included the stockpiling areas will leave the site to Oaky Creek. No creek water flows directly into or through the two Sedimentation Ponds used by the applicant in its SWMP. Therefore the two Sedimentation holding dams only capture surface water runoff from the irrigation zone and the clean water diversions from within the extraction operations area.

The current site operation uses some 24.8ML per year of water. This figure comprises the use of 10.8ML pa to irrigate the 2.1Ha paddock located to the north on Lot 3 and an estimated, low range figure of 14ML pa for site Dust Suppression and Vegetation Management. The high range water usage figure for Dust Suppression and Vegetation Management could be in the order of 30ML pa.

The total yearly usage comprises water sourced from the Pit Sump and various site sedimentation ponds - sedimentation Pond 1 and Pond 2.

Additional water for stockpiling, should it be needed during dry periods will be sourced from adjoining leased land leased by the applicant and consisting of 4 dams.

#### **6.2.7 Potential Impacts due to Proposed Modifications within the Approved Area**

It is anticipated that the proposed modification would not have any significant impacts on surface water on the site or in the surrounding waterways. Any sediment-laden water from the proposed stockpile area will be captured by the mitigation measures already implemented and outlined in the SWMP prepared by VGT. This water will mainly be diverted and channelled into the existing Pit Sump, and it will be re-used on-site for either dust control and/or vegetation management. Any silt collected in the Pit Sump will be removed on a regular basis and blended with the clay products for use by the brick makers.

#### **6.2.8 Proposed Mitigation Measures for the Approved Area**

As previously stated, the mitigation measures proposed for the approved area have been included in the SWMP prepared by VGT and included in **APPENDIX I**. These measures have been implemented since the stockpiling on that site commenced. It has been confirmed by water testing and advice from relevant environmental consultants that the mitigation measures already implemented on that site are adequate to manage surface water to prevent any potential impact on the surrounding environment and in particular Oaky Creek.

Provided that all these structures and mitigations measures are fully maintained by the applicant and the "nil water discharge policy" is adhered to, no additional mitigation measures are required for this area.



Although no water has been discharged from the site since the commencement of the project, water monitoring has been conducted in accordance with the environmental monitoring specified in the Environment Protection Licence (EPL). Water monitoring has been conducted both upstream and downstream of the quarry on Oaky Creek in accordance with the requirements specified in the EPL regular basics.

Currently there are two licensed water discharge points in accordance with the EPL #12863. Condition M2 of the EPL requires regular monitoring for a variety of pollutants. Test results of sampling conducted so far indicate that the natural water flow in Oaky Creek is of high sediment when tested upstream of the site (before entering the site). Due to the fact that this water travels through the natural sedimentation process into the two larger holding dams built on the diverted Oaky Creek line, the water tested downstream of the site is significantly cleaner.

#### **6.2.9 Proposed Modifications within the Commonwealth Land**

At this stage, the stockpiling activities are conducted at the south western portion of Lot 1 DP 838361 of the Commonwealth land. Following consultation with both the department and the EPA, it was agreed that the survey should include most of Lot 1 DP 838361 of the Commonwealth land to ensure that firstly any sub-catchments in that land that may have impact on the surface water flow is considered in the preparation of the Surface Water Management Plan (SWMP) for that portion of land as shown in Appendices I and Q, and secondly to ensure that any activities associated with the quarry and are likely to encroach on that area are also addressed in the SWMP for that portion of land.

The land survey was conducted by Monaghan Surveyors Pty Ltd on 25 September 2013 and the Plan No is T-01019-10 dated 29/10/2013 and included in **APPENDIX I**.

The modifications include the stockpiling of excavated materials in the south western portion of the subject commonwealth land. The stockpiles run in an East-West direction parallel to Elizabeth Drive for mainly two reasons:

- (a) To facilitate the safe and easy access to these stockpiles from both the quarry and the access road, and
- (b) To provide a better surface water management to ensure that the applicant's "nil water discharge policy" continues to apply and is implemented in this area as well.

#### **6.2.10 Potential Impacts due to Proposed Modifications within the Commonwealth Land**

Based on the detailed land survey of most of Lot 1 DP 838361, it appears that there are four (4) separate sub-catchments that drain in four (4) different directions as outlined below:

**Sub-catchment 1** is the closest to existing residential premises within the Commonwealth land. This sub-catchment is mainly located to the west of these houses. This area is considered to be undisturbed land. The applicant has confirmed that no activities associated with the quarry have been conducted in that area. The natural flow of surface water drains into Oaky Creek by crossing over the access road (built between the quarry and Elizabeth Drive) and through existing paddocks.





**Sub-catchment 2** is located to the south of sub-catchment 1 and covers a greater area that is located mainly to the south and south-west of the residential area. This sub-catchment has undisturbed land that has not impacted on by any activities associated with the quarry. The natural flow of surface water drains into Oak Creek by crossing over the access road and through existing paddocks.

**Sub-catchment 3** is located in the eastern section of Lot 1 DP 838361 and forms approximately 1/3 of the southern half of Lot 1 DP 838361. This sub-catchment is partially disturbed by stockpiling activities associated with the quarry and it includes stockpile 3. Most surface water from this sub-catchment drains into an existing dam (sedimentation pond 4) which was recently de-silted and refurbished to increase its capacity. New dimensions for this dam are base area is 1800 m<sup>2</sup>, surface area is 2100 m<sup>2</sup> and depth is 11 m. Hence, this dam is capable of storing up to 21.45 ML of water. This is more than 18 times the required sub-catchment surface water run-off which is estimated at 1.16 ML based on the same 5 day, 90<sup>th</sup> percentile rainfall event. In addition, a small quantity of surface water drains from the undisturbed section of this sub-catchment into Oak Creek.

**Sub-catchment 4** is located in the south western part of Lot 1 DP 838361 and includes both stockpile 1 and 2. The surface water from this sub-catchment drains mainly into the existing sedimentation pond 3 and partially into Oak Creek. The capacity of sedimentation pond 3 following recent de-silting and refurbishments is estimated at 15.02 ML of water. This is more than 10 times the required sub-catchment surface water run-off which is estimated at 1.21 ML based on the same 5 day, 90<sup>th</sup> percentile rainfall event.

Based on the above information and the detailed calculations included in this report, it is anticipated that the temporary stockpiling will have no impact on the surface water behaviour and/or potential for any environmental impact on adjacent waterways provided that the applicant extends the implementation of current generic mitigation measures to this area as well as implements the proposed mitigation measures that are specifically designed for that area and included in Section 6.2.11 below.

The survey conducted on the Commonwealth land included a greater area than that used for the temporary stockpiles. Similarly, the surface water management plan was extended to cover greater areas that are currently undisturbed. In the case that for some unforeseen reasons there was a need to extend the temporary stockpiling to these areas, similar mitigation measures will be implemented to prevent any sediment-laden water from entering Oak Creek. Surface water will then be diverted to sedimentation 3 and 4.

#### **6.2.11 Proposed Mitigation Measures for the Commonwealth Land**

As stated in different Sections of this document, the applicant has always implemented a “nil water discharge policy” since the commencement of normal activities associated with the extraction of clay and shale on site.

The applicant is proposing to implement similar strategy in the stockpiling area of the Commonwealth land. To enable the applicant to achieve the above commitment, the mitigation measures outlined below will be implemented in addition to any existing mitigation measures.



- 1) An earth berm of approximately 2 metres high would be maintained along the southern boundary of that area. The berm would extend along the eastern boundary for approximately 100 metres at a height of 1 metre and along the western boundary for about 30 metres at about 1 metre high,
- 2) This earth berm would be combined with a grassed dish drain (also called diversion drain) along the length of the earth berm and located at the base of the upstream side of the earth berm,
- 3) Install appropriate geo-fabric materials and sandstones at the entry points to the two (2) relevant existing sedimentations ponds (3 and 4) to prevent scouring of the walls and to reduce turbulence that may cause sediment disturbance,
- 4) Install an earth berm of approximately 1 metre high along the western and north western sides of the stockpiling area to prevent surface water from entering Oaky creek and redirect it to the existing sedimentation pond 3 which is located in the south western portion of this area near the bridge,
- 5) This earth berm would be combined with a grassed dish drain along the length of the earth berm and located at the base of the upstream side of the earth berm,
- 6) Ensure that no sediment-laden is discharged to Oaky creek under any circumstances,
- 7) Ensure that all sedimentations ponds and the Pit Sump are monitored regularly by visually inspecting them to ensure that they continue to operate at 30-80 % levels. This should prevent sediment-laden water from being used for dust suppression, landscaping and rehabilitation purposes and the ponds from overflowing into Oaky creek or other areas,
- 8) Ensure that all sedimentation ponds and the Pit Sump are maintained regularly including de-silting to maintain their capacity at a close range within their intended capacity, and
- 9) All sediments removed from these ponds will be blended with the extracted materials and sold to brick manufacturing companies.

Refer to the drawings included in **APPENDIX Q** for more details on this aspect.

### **6.2.12 Conclusion**

The potential water quality and management impacts associated with the proposed modification include an increase in the volume of on-site water storage, through future extraction as well as an increase in the amount of water reused onsite. This is a direct result of the proposed modification works as the site would continue to operate with “nil water discharge policy”.

For the stockpiling activities within the approved area, all captured sediment laden water is diverted away from the stockpiles and captured within the extracted pit void. All sediments captured from this process will be blended with the extracted clay products and sold to the brick manufacturing companies.

For the stockpiling activities within the Commonwealth land, all water is diverted away from the stockpiles and Oaky creek and drained into the existing sedimentation ponds 3 and 4. All sediments removed from these ponds will be blended with the extracted materials and sold to brick manufacturing companies.

The increased risk of sediment-laden runoff entering nearby waterways due to increased surface disturbance and increased duration of the existing quarrying activities at the site would be significantly reduced by the containment of water on-site.

Based on the above, it can be concluded that no additional or potential additional impact of surface water on the adjacent waterways or lands are likely to eventuate as a result of the modifications provided that the applicant complies fully with all recommended mitigations measures included above, continues to implement a “nil water discharge policy” and maintains all installed and to be installed mitigation measures.

Figure 6-4 shows a photo of Sedimentation Pond 1.

Figure 6-4: Photo of Sedimentation Pond 1



Figure 6-5 shows a photo of sedimentation Pond 2.

Figure 6-5: Photo of Sedimentation Pond 2



Figure 6-6 shows three photos of Sedimentation Pond 3 during and after refurbishment.

Figure 6-6: Photos of Sedimentation Pond 3



Sedimentation pond 3 – Near empty





Sedimentation Pond 3 being de-silted



Aerial view of Sedimentation Pond 3 after completion of de-silting and refurbishment

Figure 6-7 shows three photos of Sedimentation Pond 4 before and after refurbishment.

Figure 6-7: Photos of Sedimentation Pond 4



Sedimentation Pond 4 prior to being de-silted and refurbished



Sedimentation Pond 4 after being de-silted and refurbished





Aerial view of Sedimentation Pond 4 after completion of de-silting and refurbishment

### 6.3 SEWERAGE DISPOSAL

Sewage is discharged from the Main Office & Ablution block into a 3,000L septic holding tank. The septic tank is monitored visually as part of a monthly site inspection report and pumped out by use of approved licensed contractors when required.

No change is anticipated to sewerage circumstances on-site as the proposed modifications will not increase the generation of septic waste.





## 7. FLORA AND FAUNA IMPACT ASSESSMENT

### 7.1 WITHIN THE APPROVED AREA

#### 7.1.1 Background

A flora and fauna assessment was first undertaken by UBM Ecological Consultants Pty Ltd on 19 February 2009 prior to the issuing of the development consent by the Department.

This assessment was included in a report titled: "Vegetation Management Plan for a Clay Shale Quarry, Adams Road, Luddenham" which was prepared by UBM Ecological Consultants Pty Ltd on behalf of Blue Sky Mining Pty Limited and dated 19 February 2009 (VMP). This report was prepared to satisfy the requirements included in Condition No 34 of the Development Consent which required the preparation of a Site rehabilitation Plan in accordance with the rehabilitation guidelines of Sydney Regional Environmental Plan No 9 – Extractive Industry (No 2) – Planning Report. The Plan was required to incorporate a Vegetation Management Plan and hence the report was prepared by UBM.

The footprint of the temporary western stockpile area falls within the already approved quarry extraction footprint. Accordingly, no impacts to flora or fauna are likely to occur as a result of the western stockpile.

#### 7.1.2 Identified Flora and Fauna within the Approved Area

The Vegetation Management Plan (VMP) referred to in the above Section was implemented immediately before the beginning of any works on site.

Planting along the Creek bed in accordance with the VMP was undertaken approximately three (3) years ago comprising of local native woodland shrubs and trees. The riparian zone is isolated and has restricted access via fencing and signage. ***The riparian zone will not be adversely affected by the proposed modification works.***

Based on previous studies conducted during the planning stages, it can be concluded that no identified fauna species required protection within the footprint of the western stockpiling area.

#### 7.1.3 Mitigation Measures Implemented

Current measures include spraying of weed species at least once every 3 months. Regular watering and maintenance of plants is also undertaken on-site on a regular basis. Details of mitigation measures are outlined in the VMP.

The proposed modifications will not alter or require modifications of these mitigation measures.



#### 7.1.4 Watering

Currently the site draws water for vegetation through the use of a water truck (cart) and a network of pipes and sprinklers. Irrigation water is either drawn from the two sedimentation ponds or from the main pit sump.

Watering of vegetation is conducted concurrently with the site's dust suppression management plan. There is enough water from surface water runoff and plenty of storage capacities to satisfy all requirements of the vegetation plan and the dust emission management plan.

As previously explained the site operates on a 'nil water discharge policy'.

In the very unlikely event that the site does exhaust all water stored on-site. Water will be drawn from neighbouring ponds located on the leased Commonwealth property.

Chris Carne of *Carne Specialist Horticultural Services Pty Ltd* is the current Vegetation project manager for the site. Chris has examined the proposed modification and provided a letter confirming that the proposal will have no adverse impact on the protected species on-site. The letter is included in **APPENDIX J**.

#### 7.1.5 Potential Modification Impact

All requirements included in the Vegetation Management Plan (VMP) have been fully complied with including the rehabilitation and revegetation of the native riparian vegetation on the western banks of Oaky Creek, site preparation, including weeding, ripping and soil remediation and the stand of Eucalypt Woodland on the western property boundary – this being a remnant of the State and Federally-listed Cumberland Plain Woodland Ecological Community.

***The proposed modification of activities will have no impact on the requirements of the VMP.***

In addition, the existing timetable for the implementation of works was included in the Plan. A generic set of performance indicators and a basic monitoring program to assess the progress of the rehabilitation works were also provided. So far, the applicant has been in full compliance with the timetable.

#### 7.1.6 Conclusion

The proposed modification will have no impact on the site's Flora and Fauna. The 40m riparian zone set back from Oaky Creek is not impacted by any works associated with the stockpiling activities as the temporary stockpiles are contained within the approved quarry footprint and these are located hundreds of metres away from the Riparian Zone.

### 7.2 WITHIN THE COMMONWEALTH LAND

A Flora and Fauna Statement were prepared by BioDesign and Associates. This statement has been reproduced in this Section.



### 7.2.1 Background

This statement relates to the ecological values associated with the portion of land identified as Lot 1 DP 838361 which lies approximately 600 metres south of Elizabeth Drive on the eastern side of Oaky Creek, in the suburb of Badgerys Creek (the site). Figure 1-5 shows the site in the local context and Figure 1-6 shows the site in the regional context. The southern section of this site is currently used for stockpiling of shale and clay material extracted by Epic Mining Pty Limited (the applicant) from its quarry which is located in the adjacent land (Lot 3 DP 623799) at Adams Road, Luddenham. The statement is based on site visits conducted on 2<sup>nd</sup> September 2013 by Wendy Wright (landscape architect/horticulturist) and by Susan Hobley (ecologist) on 1<sup>st</sup> October 2013. Weather conditions were fine during the first visit. During the second visit conditions were initially fine but later on they became windy and overcast during the inspection. Rain began to fall shortly after completion of the inspection.

Due to the time of the year (many snakes have been sighted by workers during the period covered and during the assessment a large red-bellied black snake was observed – see photo attached) and difficulties of accessing perimeter areas from the earth berms installed around the site, it was not possible to carry out a detailed survey of the vegetation in the creek corridor.

Nevertheless, the assessment was able to confirm the literature review findings with regard to the ecological community it contained.

### 7.2.2 Site Overview

The site is located in the South Creek catchment of the Hawkesbury – Nepean River, due east of the settlement of Wallacia. It is roughly rectangular in shape and has a frontage to Oaky Creek to the west. Further to the west beyond Oaky Creek, the applicant is carrying out an extractive industry to mine clay and shale for brick making purposes.

The southern boundary of the site is fenced and adjoins land to the south that is cleared in a manner typical of pastoral uses. An artificial soil berm has been constructed along the full length of the site between the boundary fence and the areas containing the stockpiles and the sedimentation pond. To the east, the site adjoins a property that has been substantially cleared and contains a large agriculture shed close to the boundary in a pastoral/agricultural land – use setting. The land between the site and Elizabeth Drive to the north is similarly cleared and contains a residential dwelling in a rural setting. The site and the adjoining properties have been substantially or entirely cleared of native vegetation. Other than a few isolated specimens or small clumps of remnant trees, the only remnant vegetation consists of forbs, grasses, sedges and rushes amongst introduced grassland species and woody weed shrubs.

The site drains mainly to Oaky Creek, the south – eastern branch of Cosgroves Creek, a tributary of South Creek which flows into the Hawkesbury River. The Riparian corridor of Oaky Creek contains the only intact, continuous stay of remnant vegetation within the surrounds of the site. The vegetation in the corridor between the applicant's extraction area and the subject site is being managed to control weeds and support regeneration of the indigenous vegetation community. Practices include restorative plantings – see attached photo of the Riparian zone and this area in **APPENDIX E**.



Access to the site is via a partly sealed, partly unsealed road that continues into the applicant site to the west. The road separates the stockpiling areas of the site from Oaky Creek. It gives access to the stockpiles and to a turning area/parking area suitable for large trucks in the south – western portion of the site. A large sedimentation pond is situated in the south western section of the site between the turning bay/parking area and Oaky Creek. A small landscape area near the midpoint of the north to south line of the road within the site contains a small, dense clump of semi-mature *Casuarina Glauca* (swamp sheoak) specimens that have germinated from the Riparian zone. Seed-stock introduced into the area as part of the rehabilitation program and restoration activities (in accordance with the original approved rehabilitation plan).

In the perimeter areas of the site, a few swampy areas were noted, including a small former dam within the site itself.

### **7.2.3 Ecological Overview**

The ecological values of the site are extremely low due to the absence of any canopy cover, shrub thickets or indigenous vegetation, and its active use as a stockpiling facility. It would once have been covered with woodland ecological communities associated with the Cumberland plain but the only remnants now occur along the edge of its creek frontage and in the few swampy places around the perimeter. Other vegetation across the site consists of herbaceous, graminaceous and small woody weeds.

The preliminary ecological assessment involved a “walk-over” to determine whether any detailed surveys or studies were required. In view of the highly disturbed and degraded ecological context of the property, the condition of the site itself, the proposed extent of site usage, and the existing mitigation measures in place to protect and manage the Riparian corridor of Oaky Creek, no more comprehensive flora or fauna survey was deemed necessary. A literature search was, however, carried out to establish the ecological context of the site (geology, soils and vegetation) as the basis for future landscape management.

The site is mapped within a Blacktown soil landscape A and a South Creek fluvial soil landscape (Hazelton ET AL, 1989). The stockpile site stands on mapped Blacktown soils and the Riparian Zone along Oaky Creek is mapped as South Creek – fluvial soils.

According to JOZER (2003), the most likely ecological communities associated with the site would be Riparian woodland (map unit 5) (along Oaky Creek) and shale plain woodland (map unit 10) (in the area now containing the stockpiles and associated infrastructure) of the Cumberland plain vegetation communities. Riparian woodland occurs within creek lines and adjacent swampy areas draining Wianamatta shale soils. The dominant tree species include *Casuarina Glauca*, *Eucalyptus Amplifolia* and *Melaleuca Styphelioides*. The shrub stratum is not present, however the ground stratum would be dense including *Alternanthera Denticulata*, *Carex Appressa*, *Persicaria Decipiens* and *Juncus Usitatus*. Dominant tree species in the shale plain woodland community include *Eucalyptus Molluccami*, *E. Tereti Cornis* with *E. Crebra*, *E. Eugenioides* and *Corymbia Maculata* occurring less frequently. The shrub stratum is dominated by *Bursaria Spinosa* and the ground cover species include *Dichondra Repens*, *Aristida Vagans*, *Microlaena Stipoeides*, *Themeda Austalis* and other herbs and grasses.



The more detailed site assessment revealed that the perimeter areas of the site to the north, east and south, including the earth berm along the southern boundary, contain invasive species of exotic grasses, forbs and small shrubs (figures 7-2 and 7-3). In the few swampy areas (south east of the sedimentation pond and in the vicinity of the former dam), two indigenous wetland species were surveyed: *Juncus Ustitatus* (common sedge) and *Persicaria Decipiens* (slender Knot Weed). The Riparian corridor contains a dominant over storey of *Casuarina Glauca* (Swamp Sheoak) with scattered specimens of *Melaleuca Styphollioides* (Prickly Paper Bark). *Bursaria Spinosa* (Thorn Bush) was surveyed in the under storey shrub layer where solar access was high. *Cynodon Dactylodon* (Couch Grass) was surveyed on a section of the berm in the north eastern section of the site and the presence of what appeared to be *Microlaena Stipoides* (Weeping Grass) was noted in the inaccessible lower areas below the southern edge of the earth berm.

#### **7.2.4 Recommendations**

1. The Riparian zone along the creek frontage should continue to be maintained as an exclusion zone where no activities associated with the site's stockpile uses are permitted. Vegetation management should be carried out to control weeds and support the Cumberland Plain Riparian woodland ecological community in the Riparian zone.
2. The site should be managed to minimise soil erosion and sediment-laden runoff into Oak Creek. Due to the proposed future establishment of an airport, the feasibility of re-establishing shale plain woodland around the perimeter of the site is unknown. Tree plantings in this area are unlikely to be acceptable if the second airport is constructed. Nevertheless, a reasonable goal would be to control weeds and establish native grasses and forbs in these areas. While the site is actively being used for stockpiling associated with an extractive industry, a revegetation program is not practical. When extraction ceases and the area is decommissioned, the ecological improvement of the site should form part of the remediation strategy. Species selection for any future plantings on the site should be based on the proposed location (Riparian corridor or shale plain) and the ecological communities associated with them (Cumberland Plain Riparian Woodland or shale plain woodland).



## **8. ABORIGINAL AND CULTURAL HERITAGE**

### **8.1 WITHIN THE APPROVED AREA**

#### **8.1.1 Existing Environment**

Two archaeological assessments were carried out as part of the original EIS. An area of Aboriginal cultural significance was identified within the riparian zone on the western side of Oaky Creek. A suitable development consent condition was framed requiring the fencing of the area so as to prevent vehicle access, stormwater or other discharges to be directed across the site.

The proposed works are distant from quarry footprint and will in no way be affected by the proposed works.

A search of the NSW State Heritage Register concluded there are no Heritage listed sites within the vicinity of the subject site under the NSW Heritage Act. The site itself is not listed as being a heritage item or containing heritage items under the Liverpool Local Environmental Plan (LEP) 2008.

#### **8.1.2 Mitigation Measures Implemented**

All relevant stormwater management and drainage strategies have been implemented on site to prevent any interference with the area identified of Aboriginal cultural significance. This area has been fenced off and locked to prevent unauthorised access by employees, visitors, contractors or strangers. Only authorised employees and Aboriginal people are allowed to enter this area.

### **8.2 WITHIN THE STOCKPILING AREA OF THE COMMONWEALTH LAND**

#### **8.2.1 Existing Environment**

Based on the Liverpool local environmental plan 2008 and Liverpool development control plan 2008 no items of heritage significance were identified in the subject parcel of the Commonwealth land where temporary stockpiling activities are conducted.

In addition, this area was subjected to several rigorous and comprehensive studies associated with the proposed second airport at Badgerys Creek. These studies confirmed that no Aboriginal or European items of heritage significance were found or identified in this parcel of the Commonwealth land.

#### **8.2.2 Mitigation Measures Implemented**

Since no items of heritage significance were identified in this parcel of Commonwealth land, no mitigation measures have been implemented and none are required.



### **8.2.3 Proposed Mitigation Measures**

No impact on the Aboriginal cultural significance area identified due to its considerable distance from the proposed stockpiling and benching works. In addition existing and future surface water is and will continue to be directed via a formal system away from the Aboriginal cultural significance area.

For the same reasons outlined above, no mitigation measures are proposed for this parcel of Commonwealth land.

Continue implementing appropriate groundwater and surface water management and drainage strategies. No additional mitigation measures are required due to the modification.





## 9. VISUAL IMPACT ASSESSMENT

### 9.1 BACKGROUND

The quarrying commenced from the south eastern segment of the site during stage 1, which is on the low side of the site approximately 20 metres below the top of the landscaped bund wall on the western and north western boundaries. The excavation work was therefore hidden from the view of all residents adjoining the northern and western boundaries by the bund walls and the natural slope of the site.

Observers on the southern boundary will be screened by the landscape plantings and those on the eastern boundary by the tree line along Oaky Creek.

Excavation activity will be hidden from the view of persons on Elizabeth Drive by the landscaped bund wall on the northern boundary of the quarry area and by the existing growth of trees around the online dam, the banks of Oaky Creek and the existing roadside planting on Elizabeth Drive. The expanded planting in the riparian zone centred on Oaky Creek will provide further cover to any view of the operations from Elizabeth Drive or anywhere east of the site.

The Hubertus Club is already partly screened by a high earthen bund constructed by the club in the south west corner of the common boundary. The construction of the boundary bund will however completely obscure any view of extraction operations from that property.

Additional screen bunds will not be required along the southern boundary because there is no residential development within view from the proposed development.

This boundary will however be planted in accordance with the vegetation management plan prepared previously for the site. No bunds are proposed for the boundary of Lot 1 because it is under the management and control of the proponent and the creek line is heavily planted with existing trees.

Because operation of the quarry will be limited to between the hours of 0700 and 1800 (Monday to Friday) and 0700 and 1300 (Saturday) there is no requirement for any lighting on the quarry site. Hence, there are no impacts arising in terms of illumination overspill affecting either of the residences or the Hubertus Club.

**APPENDIX N** includes some photos taken from different locations within and outside the approved area. These photos demonstrate that the stockpiles are barely visible from outside the approved area.

Notwithstanding the above, a comprehensive Visual Analysis for both the Eastern and Western Stockpiles was conducted by experienced environmental consultants. These analysis and the outcomes are reproduced below. Illustrations of the visual analysis for both stockpiles are included in **APPENDIX P**.



## 9.2 METHODOLOGY

In relation to the visual impact of any activity/structure on the surrounding environment, an acceptable method of assessing impact is to use the so called “scale of impact” which is done by percentage visibility and categorised as per Table 9-1 below.

Table 9-1: Scale of Visual Impact	
Scale of Visual Impact	Percentage of Visibility
None	no visibility
Very low	10%
Low	25%
Moderate	50%
High	75%
Extreme	100%

The best approach in this site specific case is to assess the visual impact at various locations from various directions and from different properties. These views should also be Internal and external to the approved area and to the Commonwealth land as well since the western stockpiles are located within the approved area.

## 9.3 EASTERN STOCKPILES (WITHIN COMMONWEALTH LAND)

### 9.3.1 Background

The stockpile has been visually assessed on the 01/10/2013 from key points including public roads, private properties and internal views from Commonwealth leased residences. The analysis has been divided into external views from outside Commonwealth land or roads bisecting Commonwealth land and internal views from leased residences in Commonwealth land. Recommendations to mitigate adverse view impacts are proposed. Photo 1 (refer to **APPENDIX P** to see all relevant photos) provides the baseline Extreme view used as an analytical standard.

### 9.3.2 Context

The stockpile of extracted clay and shale sits on Commonwealth Land Lot 1 DP 838361, Badgerys Creek. The Commonwealth land extends for approximately 1km to the east and greater than 1km to the south; it is dissected to the north by Elizabeth Drive. Within the Commonwealth land there are several leased residential properties. To the west there are several private lots as shown on the aerial map. The applicant is carrying out extractive industry processes in the property immediately to the west of the stockpile area.



### **9.3.3 Description**

The stockpile is located 600 m south of Elizabeth Drive at number 2420. The area comprises three piles of clay-shale running east-west totalling approximately 2.74 ha. Stockpile 3 to the east has its highest point at an RL 74.5m, 0.5m above the natural ground level of the highest surveyed point of the site. The view from the base of stockpile 1 represents the most extreme view point of the pile; the pile is 7m high from its base at the western end and 4m high from its base at the eastern end. The view in Photo 1 shows the pile from its western end. Stockpile 2 raises to a maximum of 4m above the immediate surrounding ground levels.

### **9.3.4 External Views**

Interrupted distant views of the stockpile are available from Elizabeth Drive, as shown in Photos 3, 4 & 5. The impact visibility is Low. All other external views are obscured by the natural topography and/or constructed earth berms as shown on the plan and in Photo 2. The impact is none.

### **9.3.5 Internal Views**

The immediate view from the base of the stockpiles is shown in Photo 1. This represents the Extreme visual aspect of the stockpile. This view is only available from Oaky Creek directly beneath the stockpiles; otherwise this view is blocked by the riparian vegetation and topography to the west. Stockpile 1 is visible from the leased residences at the end of Ferndale Street (Photo 8) and Jackson Road (Photo 9). Existing vegetation makes the impact from Jackson Road Low and from Ferndale St Moderate.

Photo 6 is taken from the leased residences north of the stockpile looking towards the south and shows a High visual impact. Photo 7 is taken immediately to the east of the stockpile. There is no residence located for over 600 metres and no road for over 1000 metres further east. The impact from the east of the site looking west is Very Low to None. All internal views from the west looking east are none.

### **9.3.6 Recommendations**

The visual external impact is Low to None so no mitigation measures are necessary with regard to these aspects. The visual impact from leased residences on Commonwealth land is Low to Moderate south of the stockpile and High directly north of the piles. To reduce the internal visual impact it is recommended that clump plantings of 3 to 5 indigenous trees along the existing earth berm to the south and scattered clump plantings to the north be undertaken to mitigate these visual impacts. The feasibility of implementing this recommendation is dependent on the acceptability of these plantings under any future plans for the Commonwealth site.



## 9.4 WESTERN STOCKPILES (WITHIN APPROVED AREA)

### 9.4.1 Activities

The activities on site include the extraction of clay and shale from the quarry, stockpiling the extracted materials at two different locations where several stockpiles are established to separate materials by colours and uses. The stockpiled materials are left in these stockpiles for seasoning and then they are transported to brick and tile manufacturing facilities.

### 9.4.2 Context

The stockpiles of extracted clay and shale are within the approved land of Lot 3 DP 629799, Luddenham (275 Adams Road, Luddenham). The land is approximately 19 hectares and was shown in previous figures of this document. These stockpiles are also shown in the visual analysis figure included in **APPENDIX P**. The site is traversed by Oaky Creek from south to north. Commonwealth Land is located to the east and a large parcel of it, specifically Lot 1 DP 838361 is leased by the applicant for the temporary storage of extracted clay and shale for seasoning purposes only.

Elizabeth Drive is located to the north of the site in addition to some privately owned properties to the west in addition to private properties. Hubertus club is located at the western side of the site. Privately owned properties are also located to the south of the site. Refer to aerial photo below for an illustration of all relevant features inside and outside the site.

### 9.4.3 External Views

1. The stockpile is not visible from Elizabeth Drive due to the topography of the area and the noise barrier (earth berms) installed in the northern side of the quarry footprint.
2. The stockpile is not visible from Adams Road due to the topography of the area and the noise barrier (earth berm) installed on both north and west of the quarry footprint.
3. The stockpile is barely visible from the southern adjoining properties due to the topography of the area.
4. The stockpile is slightly visible from the eastern adjoining properties due to the topography of the area.

Hence, the external visibility impact is low.



#### **9.4.4 Internal Views**

1. The stockpile is visible from within the quarry footprint.
2. The stockpile is barely visible from the northern section of the site due to the topography of the area and the noise barrier (earth berm) installed on site.
3. The stockpile is barely visible from the southern section of the site due to the topography of the area and the additional noise barriers (earth berms) installed on site.
4. The stockpile is slightly visible from the eastern section of the site due to the topography of the area and the shielding provided by the large trees and bushes located along Oaky Creek.
5. The stockpile is not visible from the western section of the site due to the noise barrier (earth berm) installed on the site.

Hence, the internal visibility impact is low.

#### **9.4.5 Recommendations**

The visual external impact is low to none so no mitigation measures are necessary in regard to the external views. The visual impact from eastern adjoining properties is low to none from some areas and moderate to low from others. The only mitigation measures necessary in this case is continuation of maintenance of the trees along Oaky tree and Riparian zone.

Notwithstanding the above, it is recommended that some sporadic plantings of indigenous trees at strategic locations as indicated in the relevant drawing included in **APPENDIX P** will assist in minimising the visual impact from all directions.

### **9.5 CONCLUSION**

Based on the above information, it can be concluded that the proposed modifications will have low to none visual impact on residents or people standing in a public place provided that the recommendations outlined above are implemented by the applicant.



## 10. TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

### 10.1 EXISTING ENVIRONMENT

The site legal address is 275 Adams Road, Luddenham. During the preparation for the EIS it was determined by all stakeholders including government authorities that the best approach to reduce traffic impact including traffic noise on nearby residential properties is to develop and implement a road transport protocol which would include the construction of a new access road to the Quarry via Elizabeth Drive. The road transport protocol was prepared and implemented for the site. The roadway off Elizabeth Drive internal of the site has been properly created and vehicles gain safe access to the site from Elizabeth Drive via a slip lane.

The access road also incorporates a weighbridge and site office to ensure that access is continuously monitored by the Quarry management at all times during normal operations. This access road has already been properly established in accordance with the protocol and vehicles gain safe access to the site via Elizabeth Drive via a slip lane. The specific number of trucks entering and leaving the site is listed varies depending of the demand for the clay and shale. Due to the small number of truck movements, it anticipated that these movements have none to minimal impact on the traffic in the vicinity of the site including Elizabeth Drive.

At a nominal 32 tonnes per vehicle, approximately 20 vehicles will be required per day for the transport of raw materials, which equates to approximately 40 vehicle movements over a daily ten hour period.

Haulage vehicles will travel east from the site along Elizabeth Drive and return to the site travelling west along Elizabeth Drive. No haulage vehicles may enter or leave the site between 6pm and 7am seven days a week including public holidays.

### 10.2 NEW ENVIRONMENT (STOCKPILING ACTIVITIES)

Based on the information provided by the Quarry management which is based on the records kept on a daily basis, the number of vehicles entering and leaving the site has not exceeded the number of vehicle movements prior to the stockpiling activities commencing on the Commonwealth land. This number is still below the number that was used to undertake the traffic and transport impact assessment during the preparation of the initial EIS.

### 10.3 POTENTIAL ADDITIONAL IMPACTS

No additional impacts are likely to be noticeable due to the stockpiling activities provided that all vehicles used in the stockpiling activities comply with current NSW legislation in respect to exhaust gas emissions and noise levels.



There is no expected change to the road transport protocol or anticipated vehicle trips with the proposed modification works. The transport protocol related specifically to the removal of clay product and is based on a typical operation on-site. The proposed stockpiling of product on-site does not add to the total number of truck movements on-site or off-site as the remnant excavated material will be reused on-site.

#### **10.4 IMPLEMENTED MITIGATION MEASURES**

All mitigation measures associated with the traffic and transport management as recommended in the EIS and other studies conducted during the planning stage, have been implemented with all required works. Following careful review of the information obtained from the proponent, the EIS, the road transport protocol, a comprehensive site inspection and the outcome of the recent independent environmental audit, we are confident that the mitigation measures implemented on site are sufficient to eliminate any potential impact due to the traffic associated with the stockpiling activities.

#### **10.5 PROPOSED MITIGATION MEASURES**

Based on the information provided in 10.4 above, no additional mitigation measures are proposed.

#### **10.6 CONCLUSION**

Based on the information presented above, it can be concluded that the proposed modifications have no impact on any aspect of the traffic and transport conditions within and outside the site.





## 11. SOCIAL AND ECONOMIC IMPACT ASSESSMENT

### 11.1 EXISTING ENVIRONMENT

The workforce associated with the activities conducted on site use is expected to be up to 12 people under normal operating conditions, with a possible increase to a maximum of 15 people.

It is likely that some employees will buy petrol, food, drinks etc. from the nearest shops, which are at Luddenham or Kemps Creek depending on their direction of approach. This would be beneficial to local businesses. Other business locations that may benefit from increased trade generated by the project include Bonnyrigg Heights, Cecil Park, Wetherill Park and Penrith.

In operation, the applicant would likely prefer to source needs from local suppliers wherever possible.

With regards to economic considerations the subject site has been identified as containing high quality white clay under SREP No 9. The closure of other quarries recently places a greater demand for this clay product from the subject site.

There is a continuous demand from brick manufacturing companies for this type of clay since it is the only remaining source of such clay in the Sydney Metropolitan area. Subsequently, the continuation of quarrying activities on-site will also ensure an ongoing supply of light coloured bricks for the expanding Sydney domestic and commercial building markets.

The activities currently conducted on-site have not exerted any negative impacts on the local community in terms of producing an unacceptable demand on any local services. There are positive implications in terms of the involvement of the applicant in the regeneration of threatened flora species and the associated reduction of noxious weeds on the two properties involved in the project.

The applicant has been active in holding community consultation meetings and is in constant contact with adjoining property owners.

It is understood that the applicant has not received any complaints from adjoining land owners since the operation commenced in January 2011. The *Environment Protection Authority* has not received any substantiated complaints from residents.

### 11.2 ADDITIONAL POTENTIAL POSITIVE IMPACTS

The consent and consequent operations associated with the site have provided and will continue to provide economic benefit to a range of individuals involved in the management and implementation of the project, as well as to the business and community sectors involved in the transportation of the excavated materials, manufacture of the bricks and the ultimate distribution, use and enjoyment of the structures they form.



The stockpiling activities are most likely to result in considerable social and economic benefits at both the local and State level. The main economic benefit of the proposal is related to the security of supply of clay and shale materials for the Sydney brick and tile manufacturing companies.

The stockpiling activities will have the additional benefits to ensure that the clay and shale materials are stockpiled in the correct colours and are fully seasoned prior to being transported off site. The community will have the opportunity to have a greater selection of brick and tile colours and will continue to be benefiting from this choice.

Another significant outcome of the modification is the employment of 2-3 additional people (direct benefit) and many more are employed by companies associated with the transport of such materials off-site.

The operation is also cost effective and the stockpiling has the inherent benefit of reducing travel cost associated with stockpiling the product elsewhere.

Furthermore the subject site has the added future benefit as a landfill site which at that time will be of great demand by all Sydney residents. Following from the landfilling activities the site will be rehabilitated and re-used for other purposes as well. This is a great on-going economic benefit that could last for many years to come.



## 12. WASTE MANAGEMENT

There are several sources of wastes on-site as outlined below:

1. Waste is generated at the site office and personnel amenities near the weighbridge. These wastes are three types:
  - ▶ Food scrapping and other domestic waste – these are disposed of in the general waste bin and removed regularly.
  - ▶ Recyclable materials such as aluminium cans, plastic containers, papers and cardboard – these materials are given away and collected regularly.
  - ▶ Sewerage and other human wastes from the toilets and shower – these wastes are collected in the site's storage tank and are collected regularly by a licensed transporter.
2. Waste is generated at the site's workshop where all vehicles/equipment are serviced and maintained – this waste is stored in dedicated bins and transported off-site by a licensed transporter.
3. Waste is also generated at the working site by employees – this waste is collected daily and placed in the appropriate bins for collection.

It should be noted that the applicant imports small quantities of EPA approved and exempted wastes for re-using on-site. Most of the waste is used in the rehabilitation of excavated areas including the riparian zone. Some of the waste is also used in landscaping activities within the site. This aspect is addressed in greater details in Section 15.

***The proposed modifications do not have any impact on the generation, storage or disposal of wastes associated with the activities conducted on-site.***



## 13. ENVIRONMENTAL MONITORING & REPORTING REQUIREMENTS

### 13.1 BACKGROUND

The applicant is seeking to vary the frequency of environmental monitoring (and reporting) in the Development Consent (and the Environment Protection Licence No 12863 (EPL)) to reflect quarry operations which are 6-8 months per year and to implement the provisions of the EPL which included that *“the monitoring will be reviewed by the EPA in consultation with the licensee (applicant) after 12 months of normal operations”*.

Following extensive consultation with and advice from the EPA, the applicant prepared and submitted a comprehensive supporting report to assist the EPA in its assessment of the application to vary the current EPL so as to reduce the frequency of monitoring without compromising the integrity of the EPL and compliance with environmental legislation.

The proposed variations are very consistent with EPA current policies, guidelines and strategies to reduce the cost of additional monitoring that has no environmental benefits and replace the monitoring with environmental improvement programs, rehabilitation plans and the like. It will be demonstrated in this report that no adverse environmental impacts of any aspect, associated with the activities currently conducted on site, will occur as a result of this proposed variation. Also, no changes to existing normal quarry activities will eventuate as a result of the proposed variation since these are of administrative nature rather than operational.

The applicant is simply seeking to vary the monitoring and reporting frequency to release some funds for environmental improvement programs and other related works on site.

The original development consent for works at the subject site was issued on 23 May 2004 to undertake the following activities:

*“The development and operation of a clay/shale quarry on Lot 3, DP 623 799 and the construction and use of an access road and service facilities on Lot 1, DP 838 361.”*

Works on-site have commenced in accordance with the development consent and the EPL including payment of the environment bond. All environmental procedures and management requirements are now in place. The road works are complete and the weighbridge and office amenities have been installed. Clay and Shale products along with ancillary overburden and Minchinbury sandstones have been extracted from the approved quarry.

Inspections conducted by officers of the Department of Planning and Infrastructure (Department), the EPA, Liverpool Council and Environmental Consultancies revealed that this quarry is the best environmentally friendly quarry they have seen in recent years from all environmental aspects.



In making the subject application for modification, the applicant has consulted the Office of Environment and Heritage (OEH now EPA). The EPA has reviewed the proposal and provided a letter which is included in **APPENDIX K**. In summary, the EPA has concluded that the advantages of the proposed modification outweigh the disadvantages by far having regard to the viability of the quarry, socio-economic and environmental implications and the potential for minimal environmental impacts associated with the modification. Such is based on the activities being conducted on site, the environmental monitoring performed by the applicant and Government Authorities, the studies undertaken so far by several environmental experts, the minimal extent of neighbour complaints, the minimal adverse environmental impacts arising from the operation and the fact that the deeper excavation goes into the ground the potential for impacts are reduced.

### 13.2 CURRENT ENVIRONMENTAL MONITORING AND REPORTING REQUIREMENTS

The Development Consent includes many monitoring requirements. However, the requirement subject to this proposed modification is included in condition 15 under the Noise Monitoring Section of Schedule 4 – Environmental Performance of the current Development Consent. This condition states: *“The applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.”*

### 13.3 PROPOSED ENVIRONMENTAL MONITORING AND REPORTING REQUIREMENTS

It is proposed that the condition be modified to the following requirement: *“The applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department. **Following the first 3 years of monitoring, the monitoring shall be conducted on a yearly basis, unless otherwise directed by the Director-General**”.*

### 13.4 CONCLUSION

The proposed modifications are of an administrative nature which is considered to be minor in the context of the overall Development Consent and effectively assists in facilitating the implementation of additional environmental improvement plans and rehabilitation programs on-site.

Overall the proposed modifications are reasonable, justifiable, practical, desirable and feasible without altering the intent of the Development Consent.

The purpose of the development and development consent remains as originally submitted – a quarry operation for the extraction of clay and shale.



## 14. ENVIRONMENTAL DISCHARGE & MONITORING POINTS

### 14.1 PROPOSED MODIFICATIONS

The applicant is seeking from the Department a modification to relocate some of the environmental discharge and monitoring points and reduce their number from 5 to 4 based on the following reasons:

- Several inspections by officers of the Environment Protection Authority revealed that some of these environmental discharge and monitoring points may not accurately reflect the potential environmental impacts of the activities conducted by the applicant and recommended that these locations be reconsidered;
- Several inspections of Environmental Consultants revealed that some of these environmental discharge and monitoring points reflected a greater contribution to the environmental impacts from external activities not associated with the applicant activities;
- Review of the results of all monitoring conducted for over two (2) years revealed that many external activities in particular some seasonal events made a greater contribution to the results of the monitoring than the activities conducted by the applicant;
- The dust monitoring at the Hubertus Country Club is greatly affected by exhaust car emissions and dust generated from the traffic in the car park especially on certain days or whenever special events are held at the club; and
- The noise monitoring at the Hubertus Country Club is greatly affected by traffic noise from cars entering, idling and leaving the car park in addition to noise from club customers.

**APPENDIX F** includes current Environmental Discharge and Monitoring Points and **APPENDIX R** includes the proposed Environmental Discharge and Monitoring Points. In addition, Table 14-1 includes detailed description and accurate locations of existing environmental monitoring points whilst Table 14-2 includes detailed description and accurate locations of proposed environmental monitoring points. It should be noted that the Coordinates of these points were measured using the latest GPS technology rather than being estimated based on maps.



Table 14-1: Epic Mining - Existing Environmental Monitoring Points

POINT ID	DESCRIPTION	LOCATION	EASTING	NORTHING
D1	Dust Monitoring Point 1	Elizabeth Drive Luddenham	289130	6249975
D2	Dust Monitoring Point 2	Hubertus Country club car park, 205 Adams Road, Luddenham	288713	6249427
D3	Dust Monitoring Point 3	Jackson Road, Luddenham-adjacent to Trotting track	288675	6248867
D4	Dust Monitoring Point 4	South of site Paddock-adjacent to dirt bike track	289381	6249156
D5	Dust Monitoring Point 5	East of site house adjacent to industrial shed	289782	6249330
N1	Noise Monitoring Point 1	Elizabeth Drive Luddenham	289130	6249975
N2	Noise Monitoring Point 2	Hubertus Country club-205 Adams Road, Luddenham	288680	6249460
N3	Noise Monitoring Point 3	Jackson Road Luddenham	288950	6248930
N4	Noise Monitoring Point 4	Ferndale Road, Luddenham	289480	6248890
N5	Noise Monitoring Point 5	2370 Elizabeth Drive, Luddenham	289790	6249330
WS1	Water Sampling Point 1	Near Elizabeth Drive-upstream of site-on Oaky Creek	289160	6249975
WS2	Water Sampling Point 2	South of site-downstream of site on Oaky creek	289200	6249110
WMS1	Weather Monitoring Station 1	Adjacent to workshop	289410	6249615
BMS1	Groundwater Monitoring Bore 1	Near South East boundary of site	288935	6249230
BMS2	Groundwater Monitoring Bore 2	Near Riparian zone	289220	6249340
BMS3	Groundwater Monitoring Bore 3	Near Riparian zone	289220	6249400





Table 14-2: Epic Mining - Proposed Environmental Monitoring Points

POINT ID	DESCRIPTION	LOCATION	EASTING	NORTHING
D1	Dust Monitoring Point 1	Near existing residence North of site	288909	6249690
D2	Dust Monitoring Point 2	Near existing Dam East of Commonwealth land	289843	6249430
D3	Dust Monitoring Point 3	Jackson Road Luddenham. Adjacent to Trotting Track	288675	6248860
D4	Dust Monitoring Point 4	South of site Paddock-adjacent to dirt bike track	289502	6249145
N1	Noise Monitoring Point 1	Near existing residence North of site	288909	6249690
N2	Noise Monitoring Point 2	Near existing residence East of Commonwealth land	289843	6249430
N3	Noise Monitoring Point 3	Jackson Road Luddenham	288950	6248930
N4	Noise Monitoring Point 4	Ferndale Road Luddenham	289547	6248773
WS1	Water Sampling Point 1	Near Elizabeth Drive	289160	6249975
WS2	Water Sampling Point 2	South of Epic site	289200	6249110
WMS1	Weather Monitoring Station 1	Neat workshop	289410	6249615
BMS1	Groundwater Monitoring Bore 1	Near South East of site	288990	6249230
BMS2	Groundwater Monitoring Bore 2	Near Riparian zone	289197	6249323
BMS3	Groundwater Monitoring Bore 3	Near Riparian zone	289193	6249376

Therefore, it is recommended that the Department considers approving this modification.

## 14.2 CURRENT ENVIRONMENTAL DISCHARGE AND MONITORING POINTS

The Development Consent includes many monitoring requirements. However, the requirement subject to this proposed modification is included in:

1. Condition 7 under the Air Quality Monitoring Section of Schedule 4 – Environmental Performance of the current Development Consent states: *“The Applicant shall establish air quality monitoring stations at a minimum of 5 locations around the site, (including the Hubertus Country Club, the “northern” residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by*



*sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:.....".*

2. Condition 19 under the Noise Environmental Management Section States: *"Prior to carrying out.....a program for monitoring noise generated by the development at a minimum of 5 locations around the site. (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12."*

### 14.3 PROPOSED ENVIRONMENTAL DISCHARGE AND MONITORING POINTS

It is proposed that the conditions be modified to the following requirements:

1. Condition 7 under the Air Quality Monitoring Section of Schedule 4 – Environmental Performance of the current Development Consent should be modified to state: *"The Applicant shall establish air quality monitoring stations at a minimum **of 4 locations** around the site, (including ~~the Hubertus Country Club~~, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:.....".*
2. Condition 19 under the Noise Environmental Management Section should be modified to State: *"Prior to carrying out.....a program for monitoring noise generated by the development at a minimum **of 4 locations** around the site. (including ~~the Hubertus Country Club~~, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12."*

### 14.4 CONCLUSION

The conclusions for this proposed modification are very similar to the conclusions included in the previous Section "Environmental Monitoring and Reporting Requirements" since they fall in the same category of environmental requirements except the fact that this is not only of an administrative nature but rather it also includes changing the physical locations of some points and reduce their number.



## 15. NON-COMMERCIAL COMPOSTING IMPACT ASSESSMENT

### 15.1 BACKGROUND

Based on the information available to BE, it appears that the relevant activity may not accurately meet the definition of composting included in the Protection of the Environment Operations Act 1997 (POEO Act 1997). However, for the purpose of this document, it will be referred to as non-commercial composting activity and it will be assessed in a similar manner to a small scale composting activity.

Small scale non-commercial composting activity is currently being conducted on an adjacent land which is leased by Epic Mining Pty Ltd (the applicant) from the Commonwealth. This land does not have any residential premises or is occupied by people and that is the reason for it being used for the sole purpose of composting. The composting activity is not for commercial purposes but rather for in-house use only as part of the site rehabilitation plan including the riparian zone. These activities were approved by both the EPA and the Department previously. No other approvals were required mainly due to the fact that the scale of these activities was well below the threshold under both the POEO Act 1997 and the Environmental Planning and Assessment Act 1979. An assessment of these activities has been undertaken and it is included in this Section. Based on this assessment this activity will have no adverse impact on human health or the environment.

Composting is the transformation of raw organic materials into biologically stable humus rich substances for growing plants (T. Halbach, University of Minnesota). The organic materials are decomposed by microorganisms such as bacteria and fungi, and invertebrates such as worms by utilising the carbon and nitrogen content as an energy source with oxygen and water. This process results in the production of carbon dioxide, heat, water and nutrient rich compost.

In normal composting facilities the finished products are garden mixes and top dressing mixes that are applied to the surface of lawn, turf or a field to improve the quality of the soil and promote good growth. These types of mixes compact well and contain materials such as paper & cardboard, leaf mulch, ground tree waste, wood chips, saw dust and shavings, duck litter and mushroom compost. However, on this site the finished product is only one which was formulated initially by composting experts from a reputable company which specialises in waste recycling and resource recovery activities such as this. Hence, the finished product was made to the applicant's specific requirements, for specific locations and to suit particular types of plants that are being managed by the applicant within the area under its control.

Some information included in this Section was extracted from documents prepared by other consultants for the applicant composting activities such as the document titled: *"REHABILITATION ACTION AGENDA – Epic Mining Pty Ltd – Site Rehabilitation and Environmental Management Procedures"* dated March 2011 and prepared for the applicant by Centre for Organics and Resource Enterprises.



The objectives of this activity are listed below:

1. To recycle materials normally sent to landfills;
2. To produce a soil conditioner that is specifically designed for the soil found within the Epic Mining site;
3. To assist the rehabilitation program by having continuous supply of soil conditioner to ensure full compliance with the approved rehabilitation plan;
4. To reduce the excessive cost of using commercially produced composted materials in such large quantities that are required to cover the whole site especially the areas that are subject to the rehabilitation plan and Riparian Zone. This will free up some funds to be used for other environmental management programs on site;
5. To assist in complying with the approved vegetation and landscaping plan by having continuous supply of a soil conditioner that is specifically designed for the site's soil;
6. To assist in stabilising certain existing structures on site such as earth berms including noise barriers by accelerating the growth of grass and plants; and
7. To assist in the acceleration of the growth of grass in several areas such as diversion drains, swales, and small earth berms that are used to assist in the surface water management.

The Company currently conducting these activities in collaboration with the applicant is Soilco Pty Ltd which is a very reputable Company and specialises in the manufacturing of composting materials and soil conditioners. Soilco is certified for the following:

- Included in the Global- mark certification program including AS/NZS ISO 9001-2008
- Conformance with AS 4454-2003: Composts, soil conditioners and mulches
- National Heavy Vehicles Accreditation Scheme – Basic Fatigue Management (BFM) Module
- National Heavy Vehicles Accreditation Scheme – Maintenance Management (MAINT) Module
- National Heavy Vehicles Accreditation Scheme – Mass Management (MASS) Module

Soilco has also a comprehensive “Quality Policy” that aims at providing the best quality of services and products in the composting and soil conditioners industry.

## **15.2 REGULATORY REQUIREMENTS**

### **15.2.1 Environment Protection Authority**

Under the provisions of the POEO Act 1997 the activities would be classified as outlined below and would have been required to be licensed by the EPA accordingly. However, due to its small scale which is well below the threshold and the fact that the activities are not conducted for commercial purposes but rather in-house use only, these activities do not require licensing by the EPA. This determination was communicated to the applicant from the EPA in a formal letter dated 22 July 2011.



**Clause 41 of Schedule 1 of the POEO Act 1997 defines “Waste processing (non-thermal treatment)”**

(1) This clause applies to the following activities:

**non-thermal treatment of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste ) from off site and its processing otherwise than by thermal treatment.

**non-thermal treatment of hazardous and other waste**, meaning the receiving of hazardous waste, restricted solid waste, clinical and related waste or asbestos waste, whether from on site or off site, and its processing otherwise than by thermal treatment.

**non-thermal treatment of liquid waste**, meaning the receiving of liquid waste (other than waste oil), whether from on site or off site, and its processing otherwise than by thermal treatment.

**non-thermal treatment of waste oil**, meaning the receiving of waste oil from off site and its processing otherwise than by thermal treatment.

**non-thermal treatment of waste tyres**, meaning the receiving of waste tyres from off site and their processing otherwise than by thermal treatment.

(2) However this clause does not apply to any of the following:

- (a) processing of contaminated soil or groundwater, or sewage within a sewage treatment system (whether or not that system is licensed), and
- (b) the storage and transfer of liquid waste that is generated and treated on site prior to sewer discharge, or lawful discharge to waters.

(2A) The activity of non-thermal treatment of liquid waste is declared to be a scheduled activity if it meets the criteria for that activity set out in Column 2 of the Table to this clause.

(3) Each other activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

- (a) it meets the criteria set out in Column 2 of that Table, and
- (b) more than 50% by weight of the total amount of waste received per year requires disposal after processing.

(4) For the purposes of this clause, 1 litre of waste is taken to weight 1 kilogram.



**Table**

<b>Column 1 Activity</b>	<b>Column 2 Criteria</b>
Non-thermal treatment of general waste	involves having on site at any time more than 2,500 tonnes, or 2,500 cubic metres, whichever is the lesser, of general waste involves processing more than 120 tonnes per day, or 30,000 tonnes per year, of general waste
non-thermal treatment of hazardous and other waste	involves having on site at any time more than 200 kilograms of waste (other than clinical and related waste) involves having on site at any time any quantity of clinical and related waste
non-thermal treatment of liquid waste	involves having on site at any time more than 200 kilograms of liquid waste (other than clinical and related waste) involves having on site at any time any quantity of liquid waste that is clinical and related waste
non-thermal treatment of waste oil	involves having on site at any time more than 2,000 litres of waste oil involves processing more than 20 tonnes of waste oil per year
on-thermal treatment of waste tyres	involves having on site at any time more than 50 tonnes of tyres (where 100 tyres are taken to weigh 1 tonne) involves processing more than 20 tonnes of tyres per day or 5,000 tonnes of tyres per year

**Clause 42 of Schedule 1 of the POEO Act 1997 defines “Waste storage”**

- (1) This clause applies to **waste storage**, meaning the receiving from off site and storing (including storage for transfer) of waste.
- (2) However, this clause does not apply to any of the following:
  - (a) the storage of stormwater,
  - (b) the storage of up to 60 tonnes at any time of grease trap waste, waste lead acid batteries or waste oil collected for recovery (but not when accompanied by any other kind of waste),
  - (c) the storage of sewage within a sewage treatment system,
  - (d) the storage and transfer of liquid waste that is generated and treated on site prior to sewer discharge, or lawful discharge to waters.





- (3) The activity to which this clause applies is declared to be a scheduled activity if:
- (a) more than 5 tonnes of hazardous waste, restricted solid waste, liquid waste, clinical or related waste or asbestos waste is stored on the premises at any time, or
  - (b) more than 50 tonnes of waste tyres or 5,000 waste tyres is stored on the premises at any time, or
  - (c) more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste (other than waste referred to in paragraph (a) or (b) is stored on the premises at any time, or
  - (d) more than 30,000 tonnes of waste (other than waste referred to in paragraph (a) or (b) is received per year from off site.
- (4) For the purposes of this clause, 1 litre of water is taken to weight 1 kilogram.

### 15.2.2 Department of Planning and Infrastructure

Clause 13 of Schedule 3 of the *Environmental Planning and Assessment Regulation, 2000* could have applied to these activities. However due to the small scale of the activities, intended use of the finish product, the location of the activities and the topography of the area where the activities are conducted, the Department of Planning and Infrastructure has determined that clause 13 does not apply provided that the scale remains below the threshold, the intended use remains the same (not for commercial purposes but rather for in-house use only as part of the rehabilitation program, vegetation and landscape plan). Hence, no modification of the Consent is required.

### 13 Composting facilities or works

*Composting facilities or works (being works involving the controlled aerobic or anaerobic biological conversion of organic material into stable cured humus-like products, including bioconversion, biodigestion and vermiculture):*

- (a) *that process more than 5,000 tonnes per year of organic materials, or*
- (b) *that are located:*
  - (i) *in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally sensitive area, or*
  - (ii) *in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or*
  - (iii) *within a drinking water catchment, or*
  - (iv) *within a catchment of an estuary where the entrance to the sea is intermittently open, or*
  - (v) *on a floodplain, or*
  - (vi) *within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.*



## **15.3 MATERIALS AND PROCESS**

### **15.3.1 Materials**

The materials used on site as part of this activity consist of exempt waste which falls within either a specific exemption or a general exemption. These exemptions are issued by the EPA under section 51A of the POEO (Waste) Regulation. Other materials are also included as outlined below:

- Raw Mulch which is the subject of a general exemption called: *"The raw mulch exemption 2008"* and issued by the EPA on 20 June 2008 under Part 6, Clause 51 and 51A of the Protection of the Environment Operations (Waste) Regulation 2005
- VENM
- Soil from the site
- Water

However, the main materials used in this activity are organic materials collected from kerbside drop-offs and are sourced separately from several resource recovery management centres in various locations around the Sydney Basin.

#### **15.3.1.1 Materials Quality**

Materials to be delivered are inspected prior to transport and delivery. Inspections are also undertaken once the material is stockpiled at the management centre. The materials are stockpiled at the management centres and processed into the material to be transported. Processing includes shredding, initial stabilisation and potentially screening depending on the grading required. As part of this phase of the process, the supplier will take all feasible and reasonable steps to ensure that the following materials are not supplied in the Materials:

- plastic items;
- putrescible household, domestic and commercial waste;
- ferrous metals;
- hazardous waste;
- painted timber;
- CCA treated timber;
- all asbestos;
- any foreign material greater than 100mm in diameter; and
- any other non-green waste material.

Contamination is to be less than 0.5% by weight for each delivery and will be generally in accordance with the contamination levels as specified in AS4454.



The supplier conducts inspections of the materials prior to transport and delivery to the applicant's site. Inspections are also conducted by the applicant and Soilco personnel immediately upon receipt on the applicant's site. Additional random inspections are conducted once the materials are stockpiled to ensure that no unwanted materials have gone through the first round of inspections.

The supplier is required to rectify any non- conformance within 28 days of notification either by providing resources to remove the contamination or remove the materials from the site.

It has been agreed with the supplier that the oldest pre-processed raw mulch materials will be delivered first to assist in avoiding delays in the processing of the materials.

#### **15.3.1.2 Deliveries**

Raw mulch materials must be unloaded on site by the supplier under the applicant's direction in an orderly manner. Materials are to be unloaded from the trucks in rows. The site will determine the best orientation for rows taking any contours into consideration. Unload trucks at the furthest end of row formation unloading two truckloads side by side then adding other loads end to end to form long rows.

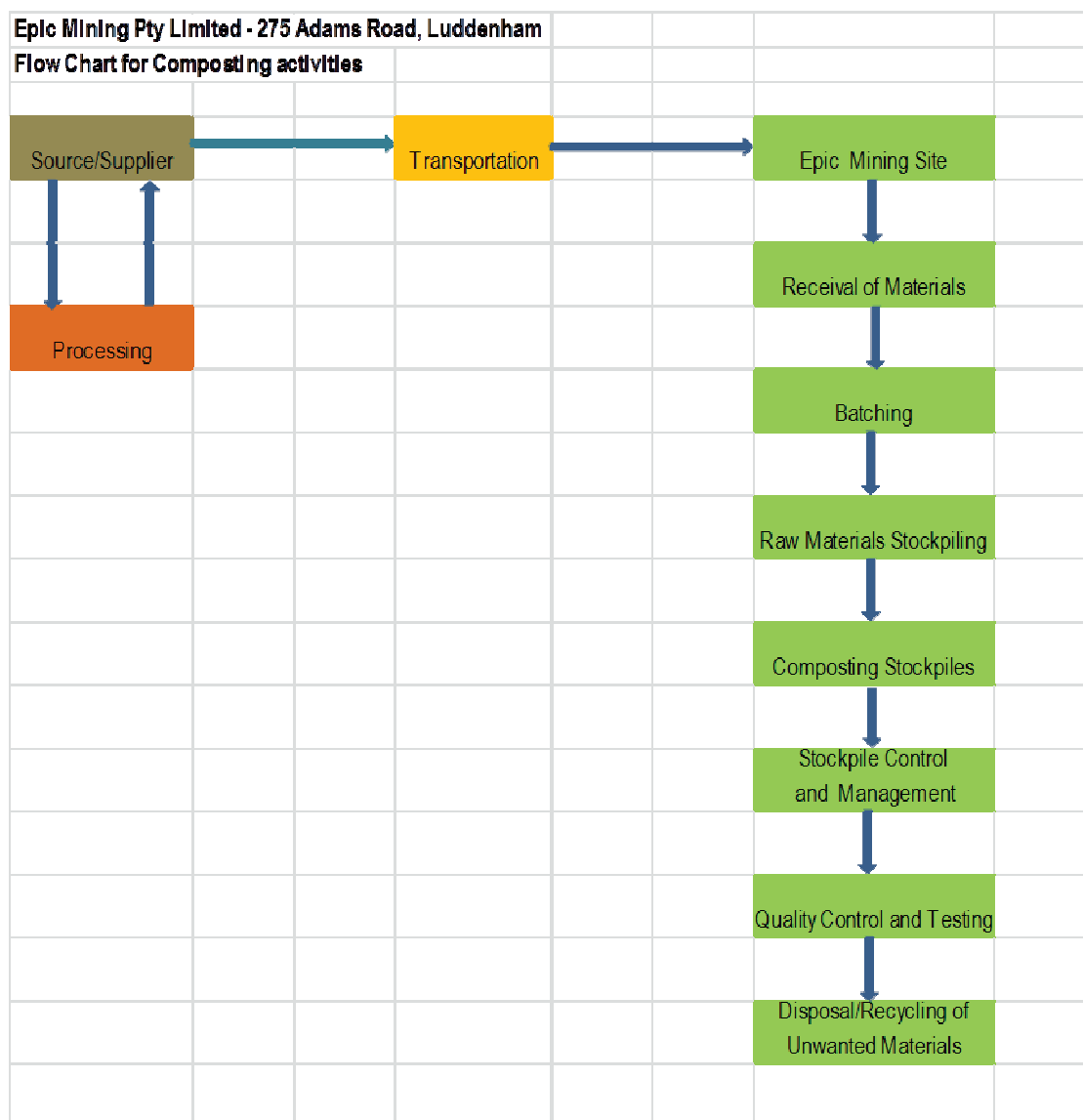
The materials supplied comply with the requirements of the raw mulch exemption 2008, Protection of the Environment Operations (Waste) Regulation, 2005 – General Exemption under Part 6, Clause 51 and 51A as well as AS4454.

#### **15.3.2 Process**

According to advice from experts in the composting industry and government officials who have been administering similar activities for many years, the processes outlined below are considered to be the most efficient and effective processes with the least potential impacts on human health and the environment provided that certain mitigation measures and amelioration strategies are implemented on site. A Process Flow Chart is included in Figure 15-1.

Composting of this nature is aerobic decomposition. The *EIS guideline – Composting and Related Facilities* (NSW EPA) provides a Table listing classes of materials that could be used in composting activities. According to the guidelines, "the higher the class of material used in the compost, the more likely it is that there will be environmental impacts if the operation is undertaken outdoors." The materials used in the composting process at the applicant's site falls under Class 1 and 2, the lowest classes of material.

Figure 15-1: Flow Chart of Epic Mining Non-Commercial Composting Activities



### 15.3.2.1 Materials Transportation and Control

The materials transportation from the source to the applicant's site includes a load quality control system to ensure that the materials processed at the sources with destination Epic Mining site are 100 % the same received at the quarry site. This system includes weighing all loads on an authorised weighbridge at the source.



The loads are also weighed at the weighbridge located at the entry point of the applicant's site. Epic Management keeps the following documentation and reconciles all loads at the end of each month:

- Date of the deliveries;
- Delivery vehicle identification including make, model, rego and company;
- Dockets from both weighbridges; and
- Source/s of materials.

This information is stored on a computer to ensure that it is available for all parties involved on request and, if required, Government authorities. This information will assist in planning ahead for requesting additional materials to ensure continuous supply of composted materials for the rehabilitation areas.

Due to the fact that the site is a quarry with all associated activities, Epic Management has determined that all drivers entering the site to deliver materials associated with the composting activities must follow the following procedures:

- They must be inducted onto to the Epic Mining site;
- They will be advised of the place to unload the materials on the Epic Mining site prior to leaving the loading depot;
- They must follow the truck route advised by Epic Mining as indicated on the route map provided;
- They must unload the product in the place designated by Epic Mining;
- In the event that these procedures cannot be complied with, they must contact the site manager Sam Tarabori on 02 4774 9334 or 0410 411998; and
- They must comply with all Epic Mining and Employer Company Occupational Health & Safety requirements.

#### **15.3.2.2 Receival of Materials**

The delivery driver of incoming materials and the quarry operations manager (Sam Tarabori or another person nominated by Epic Mining management) inspect the materials to ensure that it complies with the grade and quality as agreed and it is free of contamination. If the materials do not comply with the agreed quality, the inspectors will report it to the source company and will forward a Non Compliance Report (NCR) to the appropriate persons. Any non-conforming materials are either rejected immediately and sent back to the source or segregated from all other materials and marked as such until an agreed solution is reached between the involved parties.

#### **15.3.2.3 Batching**

The Epic Mining Quarry Operations Manager ensures that there is sufficient receiving space for the incoming mulch materials (based on agreed volumes) and the appropriate signage is provided for truck drivers.



#### **15.3.2.4 Raw Materials Stockpiling**

Upon receipt of raw materials, the drivers will be given direction to the unloading area where raw materials will be stockpiled separately so they are not blended or mixed incorrectly. This is storage only area not composting.

#### **15.3.2.5 Composting Stockpiles**

Only one stockpile is formed at a time to ensure continuity and correct aging. The top of the stockpile will aim for a uniform height of approximately 3-3.5 metres and of width up to 5 metres. There is no limit on the length. Each stockpile is identified by numbers or location maps. This should occur within one week of the product arriving on-site.

#### **15.3.2.6 Stockpile Control and Management**

The applicant's management will manage the composting stockpiles to prevent weed proliferation, minimise dust emissions, odour generation and to mitigate fire risk. The applicant's management will monitor the piles to ensure high quality outcomes and maintenance of the product quality in the stockpiles. The applicant is currently turning the stockpiles three times during an eight-week period. Turning is also conducted in the case that significant weed species emerge. Turning does not mean moving all of the material, merely pushing the one side onto the other so the outside of the pile becomes on the inside. Site operators should refrain from driving on stockpiles with heavy machinery. This causes compaction that prevents oxygen getting through the stockpile and may cause odour. For this site, this is unlikely to occur since the composting activities are segregated from the remainder of the other activities on site.

Stockpile temperatures are to be monitored periodically by either Soilco or the applicant to ensure they reach temperatures appropriate to prevent weeds emerging in the long-term during use but do not reach near combustible levels.

#### **15.3.2.7 Quality Control and Testing**

The process control system ensures that best environmental management practices are adopted and all measures are taken to minimise any potential risks. Depending on the desired use (as input to a soil or as a mulch or compost), the materials will be tested for compliance with relevant parameters. Australian Standard AS 4454 is the standard for composts, soil conditioners and mulches. Final soil mixes (if the product is blended with other soil materials) may be tested to AS-4419.



#### **15.3.2.8 Disposal of Unwanted Materials**

Throughout the process any non-organic unsuitable materials removed from the stockpiles are stockpiled in a separate and contained area, and is disposed by the appropriate means or recycling if considered suitable.

### **15.4 FINISH PRODUCTS AND THEIR USE ON SITE**

Only one finished product is obtained from the composting activities. This product is a soil conditioner that is designed and made specifically for the Epic Mining site. The product was designed following comprehensive testing of the soil within the Epic Mining site.

The use of these products is limited to the areas within the control and management of the applicant only and they are:

- The areas being rehabilitated as part of the rehabilitation plan
- The Riparian Zone
- The bund walls
- The earth berms
- Other areas that are part of the vegetation and landscaping plan

The areas where the finish products are used are shown in the photos included Figure 15-2.



Figure 15-2: Photos of Areas where the Composted Finished Product is used



Finished product used on the earth berms



The Riparian Zone



The Riparian Zone at a later stage



The Riparian Zone at a later stage



Finished product used on the bund wall around most of the quarry perimeter





## 15.5 ENVIRONMENTAL ASPECTS

### 15.5.1 Dust and Odours

Based on our experience, this is one of the critical potential issues as certain raw materials are clearly odorous. Although there is no history of odour complaints, there is strong potential for this to occur in some sites. However, due to the application of best management practices on this site, the likelihood of this occurring is minimal. This has so far proved to be effective since no odour-related complaints have been received by Epic Mining or the authorities.

Being able to confine odorous raw materials to an area free of weather effects is difficult on this site but with the help of earth berms, the topography of the area and the implementation of mitigation measures to the raw materials stockpiles will provide greater latitude for these materials to be used rather than being disposed of to landfill.

Organic mulch supplied for the Epic Mining program has a very high coarse material content. This provides significant aeration and consequently minimises the likelihood of creating the anaerobic conditions that cause odour. In the event that material does present a risk of causing odours operational procedures for the site include best practice odour control methods such as:

- Excessively wet material that is highly odorous will be noted and brought to an aerobic state as quickly as possible; a dry amendment may also be added.
- Stockpiles with high nitrogenous material content may be made smaller to avoid excessive heat build-up.
- Where possible any agitation of the stockpiles, such as turning for weed and fire management, will be scheduled when the wind is moderate, steady and away from sensitive receptors.

Reporting procedures shall ensure that adequate warning is given to site managers if the organic materials could present an odour risk. This allows best practice management of the material and ensures minimisation of potential odours. Agitation of the stockpiles during turning may result in peak odour emissions for the operation. Where possible, these activities will be scheduled when the wind is moderate, steady and away from sensitive receptors.

Dust emissions resulting from material storage, handling and transfer can be expected, if appropriate dust mitigation measures are not implemented. The majority of material stockpiles are of a damp nature and would not release high quantities of dust during heavy winds. Dust suppression on internal roadways would be addressed by wetting down the roads during hot or dry weather using the water cart on site in accordance with the site's dust management plan.

In addition, the organic mulch being brought to the site can assist to manage existing dust. However in supplying the material, several areas of the site are likely to be a source of dust generation and the following controls are proposed so that dust does not cause pollution of waters and become a nuisance.



Plant and equipment on site that generate dust includes excavators, front-end loaders and trucks. Dust generated by these sources is currently controlled by:

- A site speed limit of under 25 kph;
- Using the in-house water truck (cart) to suppress dust, as required; and
- Ensuring all trucks entering or leaving the premises have secure and covered loads.

Additional information on dust management is included in Section 4 of this document.

#### **15.5.2 Water and Leachate**

The location of the stockpiles and the open air blending, mixing and composting operations readily enables sediment controls to be designed into the site in convenient and effective locations. In this case, the area located downstream of the composting area is designed in a way that will contain any surface water run-off from the composting area. Any excess water is observed there are diversion drains in place to divert the contaminated water into the surface water system currently operating on site.

The raw materials brought to site do not have excess water and the run-off is due to contact with rain rather than leachate being emitted from stockpiles. Therefore, contaminated leachate is highly unlikely to be generated by the site operations and the risk of contamination of groundwater would be minimised.

Category 1 organics such as garden materials, wood and fibrous materials generally form leachates only when additional water (including rainfall) is introduced.

Stockpiles of raw organics and processed organics have the potential to pollute waters, because leachate may be generated when the stockpiled organics contain excessive moisture (for example, when too much rain falls on to the organics or if stockpiled organics are not sufficiently aerated or turned). Such stockpiles may also generate offensive odours because excessive moisture will tend to cause the stockpiled organics to become anaerobic if not managed competently.

Surface water run-off from composting and related organics-processing facilities can cause unacceptable loads of sediment and suspended solids in receiving waters (Department of Housing 1998), while surface water run-on can lead to excessive generation of leachate (Tchobanoglous *et al.* 1993). Non-vegetated exposed areas are a likely source of suspended sediment in surface water.

Under normal weather conditions the stockpiles of organic mulch generally absorb any rainwater. Under these conditions it is expected that no stormwater run-off will occur. However, if under severe adverse weather conditions stormwater run-off occurs, the area used for the storage of the organic mulch materials is within the contained and controlled water management system already in place at the Epic Mining site. Any run-off from the organic material will enter this system.



The following measures will also be adopted to ensure that water is effectively captured:

- Stockpile formation will be carried out in a manner that reduces run-off in the event of severe adverse weather conditions; and
- The moisture content of the stockpiled material will be kept at the lower end of the required scale so that in the event of heavy rainfall high level of absorption will take place.

### **15.5.3 Noise Amenity**

Due to the fact that no additional plant or equipment will be used in this process, it is anticipated that no additional noticeable or measurable noise will be generated as a result of this activity. Hence, Offensive noise is not considered to be a factor in these activities. Potential sources of noise are from delivery vehicles and stockpile turning equipment only.

The low number of truck movements for the delivery of the organic mulch materials is not considered to have any additional impact on the cumulative noise level emanating from the site.

The Epic Mining site already provides for truck movements.

In addition, the area used for composting is well shielded from other adjoining residential receptors and noise levels are and will continue to be well below the criteria specified in the Development Consent and the EPL.

Further details on the noise assessment are included in Section 5.

### **15.5.4 Fire**

There are no buildings near the composting area. Hence, fire protection requirements under the BCA are not required for this area.

Fire risk is very low in this case due to the fact that the area is segregated from public access and there are no potential heat generation or potential chemical reactions as part of the process.

Fire at composting and related organics processing facilities can attract public and industry concern about the perceived risks of composting activities, threaten damage and loss of equipment, and present potential dangers to workers and firefighters (Rynk, 2000).

Possible causes of fires at composting and related organics processing facilities include:

- spontaneous combustion (see below for further information);
- sparks from works activities such as welding;
- lightning strikes;
- cigarettes;
- build-up of particulate matter near engine manifolds and exhaust pipes of processing equipment; and
- bushfires and arson.



The conditions for spontaneous combustion (such as large piles, limited air flow and time for temperature to build up) are usually more prevalent within large, undisturbed piles containing raw feedstock, curing compost or finished compost rather than in active composting systems (Rynk 2000).

#### **15.5.5 Waste**

The facility uses waste as a raw material. This waste is organic in nature and would otherwise be sent to landfill. Waste generated from the processes on site would consist of minor quantities of inert waste from the packaging materials and some office waste.

All waste would be appropriately classified in accordance with the NSW EPA *Waste Classification Guidelines*. There is expected to be negligible risks associated with waste generation from the proposed development. Further details on waste generation and management are provided in Section 12.

#### **15.5.6 Visual Amenity**

The composting area is well segregated from all other activities conducted by the applicant. The siting of these activities was chosen to provide minimum visual impact, if any, on the surrounding environment.

The area is not visible from any adjoining residential receptor or public place due to the following reasons:

- The topography of the area;
- Trees and shrubs that surround the area;
- Earth berms;
- The minimum practically possible height of the stockpiles; and
- The excellent management of all aspects associated with these activities by both Epic Mining and Soilco managements.

This has so far provided an excellent and healthy relationship with the adjoining residential receptors.

#### **15.5.7 Traffic Impact**

This activity is unlikely to generate a significant number of additional truck movements. Truck movements would be under 5 per day. They follow current approved traffic route from and to the site in accordance with the approved traffic and transport management plan.

More details on traffic management are included in Section 10.

### **15.6 CONCLUSION AND RECOMMENDATIONS**

The non-commercial composting activities conducted by Epic Mining within the leased land are well below the threshold to require licensing under the POEO Act 1997. This was confirmed by the EPA in a letter dated 22 July 2011.





The letter states: *“If the waste received at the site does not exceed threshold limits outlined in the Protection of the Environment operations Act 1997 (“POEO Act”), an Environment Protection Licence (“EPL”) would not be required for waste related activities only. As you are aware, current activities (Extractive activities – other land-based extraction) at the site are the subject of EPL number 12863. Hence any additional activities that require licensing will be incorporated into this EPL.”*

In addition, the activities are below the threshold that requires any changes to the existing Development Consent. This determination was confirmed by the Department in an email dated 18 January 2012. The email states: *“Re the green waste I confirm my telephone response to you of 30 November that the importation of green waste used in rehabilitation is covered by the terms of your existing consent. That is, if green waste is imported for other purposes (such as landfill or making compost for sale), then it will require a modification to your existing consent. Providing all green waste imported is used in site rehabilitation, or other activities not requiring consent (such as may be the case for soil supplementation or landscaping), then I do not see a consent modification is required.”*

The non-commercial activities are conducted in accordance with the EPA's guidelines and advice from expert consultants in the area of composting. The activities are conducted in an area that is segregated from all other activities conducted on site including quarrying and transporting of materials as well as rehabilitation work. The area is surrounded by earth berms and the topography of the area makes it an ideal location for this type of activities with minimal potential for any adverse impact on human health or the environment.

In addition, the benefits to recycle these materials will save great space in our near-exhausted landfills.

The proponent has implemented several effective mitigation measures and amelioration strategies to ensure that any potential adverse environmental impact is minimised. Based on the inspections conducted by BE personnel, we confirm that applicant has applied all feasible and reasonable measures to minimise any potential adverse impact on human health and the environment.

Inspections by officers from Government and non-Government organisations confirmed that the non-commercial composting activities are conducted by the applicant in accordance with best management practices. The equipment used in these activities is operated in a proper and efficient manner, and it is maintained in a proper and efficient condition.

It should be noted that no complaints have been received by the applicant or any Government department regarding the composting activities conducted on site. I believe that this is very good indication that the composting activities have no adverse impact on human health or the environment.

**Based on the information included in the EAR and in particular this Section, we believe that no additional mitigation measures are required or recommended for these activities since the existing mitigation measures are sufficient to minimise and prevent any potential adverse impact on human health and the environment.**



## 16. OTHER STOCKPILING ASPECTS

As previously stated the temporary stockpiling activities within a parcel of Commonwealth land was endorsed by the relevant sections of both the Commonwealth Government and the NSW EPA.

All advices from Government and non-Government organisations indicated that since the activities involve only the stockpiling of Excavated Natural Material on land outside the approved areas and that land is Commonwealth land, no additional approvals, permits or licences are required from any State or Commonwealth Government Department. Some of the reasons that were provided included the following:

1. The stockpiling activities are conducted on Commonwealth land and the State planning and environmental legislation do not apply;
2. The stockpiling activities conducted by Epic Mining are not classified as scheduled activities under the Protection of the Environment Operations Act 1997 and subsequently no specific Environment Protection Licence is required; and
3. The stockpiling activities are not classified under the provisions of the Environmental Planning and Assessment act 179 as requiring any Consent.

More detailed information in relation to leasing arrangements between Epic Mining and the Commonwealth is included in Section 3.2.2 of this document. An illustration of the area leased by Epic Mining from the Commonwealth is shown in Figure 3-2 and the relationship between Epic Mining site and the Commonwealth land is shown in Figure 3-1.

Despite the above and following advice from the Department, the applicant has committed to conduct comprehensive relevant environmental assessments of the potential impacts of these activities. These assessments are included in this report.

The conclusions drawn from all assessments demonstrate that the stockpiling activities do not have any adverse impact on the environment or human health.



## 17. CHEMICALS

### 17.1 BACKGROUND

Based on the information supplied by the proponent there are only small quantities of chemicals that are kept on site. They are all kept in secure and safe place and stored in accordance with current NSW statutory requirements and codes of practice.

The following chemicals are stored on site:

- Small quantities of household cleaning chemicals;
- Small quantities of herbicides;
- Small quantities of insecticides;
- Small quantities of solvents for use in the workshop; and
- Small quantities of diesel to refuel quarry machinery.

### 17.2 POTENTIAL ENVIRONMENTAL IMPACTS

It can be confirmed with confidence that there is no adverse impact on human health or the environment as a result of storing and handling of chemicals on site mainly due to the fact that most of these chemicals are not considered hazardous or have the potential for any risk associated with their handling. In addition, only small quantities are kept on site.

This conclusion was confirmed during site inspections by government authorities, environmental consultants and most recently the independent environmental auditor.

The proposed modifications do not alter the status of the mitigation measures implemented on site to ensure that these chemicals have no potential harm to human health and the environment.

Therefore, no additional mitigation measures are required.



## 18. CONSULTATION

### 18.1 GENERAL

Consultation with government departments and the local community plays an important role in ensuring all potential environmental impacts are evaluated. The consultation process provides the opportunity to identify and prioritise issues. Key aspects identified through both the government and community consultation process are addressed in varying degrees throughout this report.

The three (3) items listed are considered to be extremely important in the consultation process for most proposals included this one:

- Liaison with all relevant state and federal government authorities regarding the proposed development and requirements of the report;
- Consultation with all stakeholders including community and industry in the vicinity of the subject site; and
- Compilation of issues of concern raised and outcomes of any meetings undertaken during the consultation process.

### 18.2 GOVERNMENT CONSULTATION

The applicant has undertaken consultation with key local and State Government agencies as specified in the development consent prior to commencing works on-site and after work has commenced on-site. The key agencies that the applicant has consulted include:

- The Department of Planning and Infrastructure (Department);
- The Office of Environment and Heritage (OEH) (currently Environment Protection Authority (EPA));
- The NSW Environment Protection Authority (EPA);
- The NSW Roads and Traffic Authority (RTA) (currently Roads and Maritime Services (RMS));
- NSW Police;
- NSW Ambulance Services;
- NSW Rural Fire Services
- Liverpool City Council (LCC); and
- Penrith City Council.

### 18.3 COMMUNITY CONSULTATION

Community consultation was conducted on a regular basis in a formal manner according to the requirements of clauses 8, 9 and 10 of schedule 5 of the Development Consent. During these formal regular meetings, no serious concerns were raised by any community member about the activities conducted on site. In addition, as part of the formal meetings and when meetings were held on site, a site inspection was conducted by all attendees including Government Authorities' representatives.



Minutes of these meetings were also circulated to all parties involved to confirm that all issues raised, if any, were addressed by the management of Epic Mining promptly and in a very professional manner.

In addition, the applicant regularly engages with adjoining landowners and has in the past received no substantiated complaints in relation to any activities conducted on site including excavation, transporting, rehabilitation and stockpiling.

As part of the EA process, a program of targeted land owner consultation involving face to face meetings and discussions with potentially impacted landholders who reside within close proximity of the subject site boundaries and other interested parties, has been undertaken. The consultation process included an information session, site inspections and question time. No objections have arisen from adjoining property owners or from interested parties.

It was suggested that informal consultations continue to be undertaken between the applicant and nearby landowners to provide the opportunity for landowners to raise any concerns.

## **18.4 CONCLUSION**

It is concluded that the proponent has conducted community meetings in accordance with the development consent conditions in the first 12 months. However, due to the lack of interest shown by the community representatives at that time, it was determined that the best approach to continue on with the community consultation is to visit and meet with all neighbouring properties owners and tenants. This approach continues to be implemented and was found to be effective in informing the community of any changes to the activities conducted on site and any potential impact on human health or the environment.

The applicant suggests that the Development Consent be modified to allow for community consultation to occur without the need for formal meetings since they proved to be unsuccessful.



## 19. HOURS OF OPERATIONS

Current hours of operations are included in both the Development Consent and the Environment Protection Licence. The hours are:

- Normal activities including haulage, vehicles entering and leaving the premises and extraction activities may be conducted Monday to Friday from 0700 to 1800 hours.
- Maintenance of plant and equipment may be conducted during normal hours of operation and on Saturday from 0700 to 1300 hours.
- Sunday and Public Holiday –no activities.

These approved and strictly enforced hours of operation will not change as a result of the proposed modification (introduction of the stockpiling activities).





## 20. JUSTIFICATION OF THE MODIFICATIONS

### 20.1 BACKGROUND

A description of the need for and objectives of the modifications and a justification of the carrying out of the modifications in the manner proposed is provided below. The discussion is provided having regard to the biophysical, economic and social considerations, the principles of ESD, the consistency of the modifications with the objectives of the EP&A Act and the consequences of not carrying out the modifications.

### 20.2 NEED FOR AND OBJECTIVES OF THE PROPOSED MODIFICATIONS

The modifications would facilitate the continuity of employment for the existing quarry workforce (i.e. the modification would also result in addition 2-3 employees), providing job security for existing employees and contractors, and to continue to stimulate demand in the local and regional economy.

Based on several assessments conducted for the extraction of clay and shale, it was found that there is a real shortage of light firing shale within the Sydney Basin. At this stage, there is no other producer of such materials in this area to supply the brick manufacturing companies.

The modifications would include the implementation of mitigation measures, and management (including performance monitoring), to minimise potential impacts on the environment and human health.

The Socio-Economic Assessment indicates that the modification would result in additional contributions to regional and NSW output and business turnover and household income.

It is expected that an incremental net benefit will eventuate as a result of the implementation of the modifications. This net benefit for all stakeholders is net from costs associated with potential environmental impacts and management measures for the modifications.

### 20.3 JUSTIFICATIONS FOR PROPOSED MODIFICATIONS

The reasons for the changes proposed to the operation are detailed in the *'Epic Mining Mine Operation Plan'*. A summary of the reasons for the proposed stockpiling is outlined below and the proposed works are necessary given the following:

- The original EIS described the operation of the quarry as a *'shovel and truck activity'*. This means that excavated materials will be transported via a conveyor to the truck loading area and taken off-site to cater for the 'then' perceived demand for the product within the brick manufacturing industry. This was based on the assumption that the brickworks had the capacity to store materials on their sites and that all the extracted materials were of a high grade with no overburden;



- Currently this practice is no longer acceptable to the buyers for many reasons including the fact that the building/construction industry's demand fluctuates greatly depending on many factors that are outside the scope of this report. One of the main reasons is that the brick companies purchasing the raw products extracted from the quarry no longer have the capacity to stockpile materials within their own sites. The brick companies' land is being consumed for redevelopment consistent with initiatives to develop sites along the M7 corridor;
- Stockpiling is a necessary process enabling the scouring and fretting of the raw extracted material. Stockpiling also enables greater flexibility to provide the correct clay-shale mixes and allows for the removal of unwanted shale-sandstone materials within a controlled environment. Each extracted individual kiln fired coloured raw material will be isolated as its own stockpile;
- The existing benching and extraction detail approved under the development consent in terms of the direction of benching/staging was also not consistent with natural contours, raw material geology, surface water collection measures and best standard industry practices. The existing redirection of benching responds to site circumstances and the proposed changes to the operation reflect current industry practice and operational requirements. The direction of benching and nature of stockpiling proposed are illustrated on the site plans included in **APPENDIX D**;
- The proposed modifications will help in ensuring the financial viability of the applicant by freeing funds to assist in implementing any additional environmental mitigation measures, if and when required. This also includes the continuation of employment of several employees on site;
- Since the commencement of normal operations at the site, there have not been any incidents, in particular incidents associated with environmental aspects such as water, air or waste;
- Some of the proposed modifications are of administrative nature only and will not require any physical work to be conducted on site;
- Some of the proposed modifications will not generate any additional activities on site;
- The proposed modifications will also assist in freeing funds to help ensuring that more environmental improvement plans and rehabilitation programs are implemented on site; and
- Communication with several employees of the EPA revealed that the proposed modifications are reasonable and justifiable under the current environmental legislation and EPA's policies.

In terms of undertaking a quantitative and qualitative assessment of the modifications BE make the following observations:

- The proposed quarry operation (being the principal component of the consent), remains unaltered and the proposed amendments do not introduce new environmental considerations – **qualitative consideration**. The modifications maintain the same excavation quantities, hours of operation, haulage etc.



- The proposal will maintain an appropriate level of 'green' space and landscaping to beautify the development and assist in achieving reasonable levels of privacy, screening and acoustic protection. The proposed western stockpiles will be contained within the approved quarry footprint only. The proposed eastern stockpiles within the Commonwealth land have been subjected to comprehensive environmental assessments as outlined in this report. The outcomes of these assessments are very encouraging and conclude that the potential impacts to the environment or human health are none to minimal. – **Quantitative consideration.**
- The proposed design amendments are fully contained within the site and do not affect neighbour amenity – **quantitative consideration.** The western properties include the gun club and a dwelling. The gun club is suitably protected in terms of acoustic measures with the construction of a 6m high bund wall along its eastern boundary running parallel with the subject bund wall. The adjoining dwelling on Lot 1 is sited well away from the common boundary and is located on a lower land level than the subject site. The amenity of adjoining properties will remain unaffected.
- Since the commencement of normal operations at the site, no complaints have been received by the applicant or any Government Authority (i.e. the Department, EPA, Council) in relation to any of its activities and particularly any aspects of environmental nature except one dust complaint that was received by the EPA about 2.5 years ago. However, when the applicant and the EPA investigated the complaint in consultation with the complainant, it was determined that the dust emission complaint could not be substantiated and may not have been associated with the applicant's activities on the site – **quantitative consideration.**
- The acoustic bund walls have been appropriately constructed from clay taken from the surface of the quarry area. The clay has assisted in the compaction of the bund walls and in the minimisation of dust generation. Also the surfacing of the bund walls with grass has assisted in the binding of the bund and in achieving a natural appearance of the bund walls. The constructed bund walls around the perimeter of the approved quarry area will effectively screen the stockpiles from view and shield adjoining properties from noise - **qualitative consideration.**

### 20.3.1 Ecologically Sustainable Development Considerations

As part of the reasons and justifications for the proposed modifications, it is considered appropriate to address the Ecologically Sustainable Development Principles. These considerations are outlined below.

The concept of sustainable development came to prominence at the World Commission on Environment and Development (1987), in the report entitled *Our Common Future*, which defined sustainable development as:

*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*



For the purposes of this EA, the relevant definition of ecologically sustainable development (ESD) is that in section 6(2) of the *Protection of the Environment Administration Act, 1991*, which is the definition adopted by the EP&A Act. This definition provides as follows:

*Ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*

*(a) the precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

*In the application of the precautionary principle, public and private decisions should be guided by:*

*(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*

*(ii) an assessment of the risk-weighted consequences of various options.*

*(b) inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

*(c) conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

*(d) improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:*

*(i) polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*

*(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*

*(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

Project design, planning and assessment have been carried out applying the principles of ESD, through:

- incorporation of environmental considerations and the results of the impact assessments in decision-making processes;
- adoption of high standards for environmental and occupational health and safety performance;
- assessment of potential greenhouse gas emissions, where relevant, associated with the modifications at the quarry;
- consultation with regulatory and community stakeholders; and
- optimisation of the economic benefits to the community arising from the modifications at the quarry.

Assessment of potential long-term impacts of the proposed modifications was carried out during the preparation of this EA on visual aspects, surface water, biodiversity, air quality, noise, Aboriginal cultural heritage, ecology (flora and fauna), socio-economics, visual amenity and many more.

The design of the proposed modifications, and proposed mitigation measures to minimise environmental impacts, takes into account biophysical considerations, including the principles of ESD as defined in section 6(2) of the *Protection of the Environment Administration Act, 1991*.



### 3.4.3 Consideration of the Project against the Objects of the EP&A Act

Section 5 of the EP&A Act describes the objects of the EP&A Act as follows:

*(a) to encourage:*

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- (iii) the protection, provision and co-ordination of communication and utility services,*
- (iv) the provision of land for public purposes,*
- (v) the provision and co-ordination of community services and facilities, and*
- (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) ecologically sustainable development, and*
- (viii) the provision and maintenance of affordable housing, and*

*(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*

*(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The proposed modifications are considered to be generally consistent with the objects of the EP&A Act, because they:

- incorporate measures for the management and conservation of natural resources including water and natural areas, development of the Sydney shale and clay resources, and control measures to minimise potential amenity impacts associated with surface activities in the vicinity of the quarry;
- include the economic use and development of land, while maintaining key existing land uses including agricultural uses on surrounding Commonwealth and privately-owned land;
- would support the ongoing provision of community services and facilities through royalties, tax revenues and contributions;
- incorporate a range of measures for the protection of the environment, including the protection of biodiversity values;
- incorporate relevant ESD considerations;
- are part of a State Significant Project that would be determined by the Minister for Planning, however feedback and consultation with Local Government agencies has been undertaken where relevant; and
- involve public consultation through the EA consultation programme, which would be ongoing following the DoP assessment of the proposed modifications in accordance with the requirements of the EP&A Act.

As such, it is considered that the modifications would result in not more than minimal, if any, environmental consequence in comparison to the currently approved activities on site.



## 21. CONCLUDING REMARKS

Based on the outcomes of the environmental assessments conducted during the preparation of this report, the results of environmental monitoring being conducted in the last three (3) years, the very encouraging feedback received from Government and non-Government Organisations and the excellent comments received from the community at large, the following concluding remarks are made:

1. The proposed modifications are minor in the context of the overall development consent and effectively assist in facilitating standard quarrying operation works on-site;
2. Overall the proposed modifications are practical, desirable and feasible without altering the nature of the development consent;
3. The intent of the development consent remains as originally approved – a quarry operation for the extraction of clay and shale;
4. The proposed modifications are permissible pursuant to the provisions of SREP No 9;
5. Given the minor nature of the proposed works, the application is consistent with the provisions of section 75W of the EP&A Act 1979;
6. The environmental, socio-economic, visual, cultural heritage assessments, where relevant, undertaken in relation to both the approved area and the parcel of land owned by the Commonwealth that is used for the temporary stockpiling of clay and shale demonstrate that the potential impacts are none to minimal;
7. It is anticipated that no significant adverse impacts arise as a result of the proposed modifications and the development as modified remains substantially the same;
8. The proposed modifications are consistent and in-line with an Ecologically Sustainable Development;
9. Based on environmental, social and economic considerations, the proposed modifications have been endorsed and approved, in principle, by the Environment Protection Authority;
10. From a streetscape perspective the stockpiling will not be obvious being effectively screened from view by the bund walls, and the trees already established on the site and around the approved quarry area. The proposal will be inconsequential when viewed from the streets. The actual quarry area is a considerable distance from Elizabeth Drive and Adams Road ensuring the use is not visible to passing traffic. Photos taken from various locations within and outside the boundaries of the site confirm the above and have been attached;
11. Noise, water and dust monitoring is in place and the proposed modifications will be subject to continuing monitoring in accordance with the Development consent and the EPL #12863;



12. The applicant has taken the opportunity to review the surface and ground water management plans in respect of changes to the proposed quarry operations. The proposed design changes within the quarry area and to water management are appropriate and rectify an anomaly with the approved design. This is considered to be an improvement on the previous plan. Similarly for the stockpiling within the Commonwealth Land; and
13. Once the available quarry footprint achieves its full excavated size, the stockpiling of raw materials will be conducted at some 30 meters below the existing landform and will be completely eliminated from visual and noise consideration.

The Department's assistance is therefore sought to modifying relevant conditions of the Development Consent to reflect the proposed modifications as outlined in this report.

Nicolas Israel  
Technical Director – Environmental Services

R T Benbow  
Principal Consultant





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7. NSW Environment Protection Authority, NSW Industrial Noise Policy, January 2000
8. NSW Environment Protection Authority, The Approved Methods for the Modelling and Assessment of Air Pollutant in New South Wales, NSW Environmental Protection Authority, August 2005
9. NSW Environment Protection Authority, Waste Classification Guidelines, Part 1 - Classifying Waste, April 2008
10. NSW State Government, Protection of the Environment Operations Act, 1997
11. NSW State Government, Protection of the Environment Operations (Clean Air) Regulation 2010
12. State Environmental Planning Policy no. 33 – Hazardous and Offensive Development, as at March 1995, under the Environmental Planning and Assessment Act, 1979
13. State Environmental Planning Policy no. 55 – Remediation of Land, 1998, under the Environmental Planning and Assessment Act, 1979
14. EIS – Environmental Impact Statement – Proposed Clay/Shale Extraction Operation – Lot 3 – 275 Adams Road, Luddenham NSW – 9 July 2003
15. Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales – DEC December 2006
16. NSW DEC (EPA) Guide to Licensing Part A – under the POEO Act – DECC June 2009
17. NSW DEC (EPA) Guide to Licensing Part B - under the POEO Act – DECC October 2007
18. Managing Urban Stormwater – Harvesting and Reuse – NSW DEC (EPA) April 2006
19. Part B – Toolkit for Applicant – The Development Proposal – Statement of Environmental Effects – Standard Development Application Form – NSW DoPI August 2009
20. Work Health and Safety Act 2011
21. National Parks and Wildlife Act 1974
22. Sydney Regional Environmental Plan No 9 – Extractive Industry (No2) Gazetted 17 October 1980
23. Engineers Australia (2002) – Australian Rainfall and Runoff – Volume 2
24. AS/NZS 3580.1.1 Australian / New Zealand Standard, Methods for Sampling and Analysis of Ambient Air. Part 1.1: Guide to siting air monitoring equipment, Standards Australia, 2007
25. AS/NZS 3580.10.1 Australian / New Zealand Standard, Methods for Sampling and Analysis of Ambient Air. Method 10.1: determination of particulate matter – Deposited matter – gravimetric Method, Standards Australia, 2003
26. NERDDC 1998 – Air pollution from surface coal mines – Measurement, Modelling and community Perception, Project No. 921, National Energy Research Development and Demonstration Council, 1998



APPENDIX A- Site Location, Adjoining Properties & NSW Titles Search  
Approved revised site layout and proposed site layout

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# **EPIC MINING PTY LTD – 275 ADAMS ROAD, LUDDENHAM**

Brown lines (—) indicate the boundaries of areas used by Epic Mining including its own Lot 3 DP 623799 and part of Lot 1 DP838361 which is Commonwealth land

## **Proposed Site Layout**

Areas hatched with purple inclined lines (—) are potential stockpiling areas within the approved Epic site

## **Ref: NICS142001\_FIG003**

Areas hatched with inclined blue lines (—) are potential stockpiling areas within the approved part of Lot 1 DP838361 Commonwealth land

## **Nicolas Israel – September 2014**

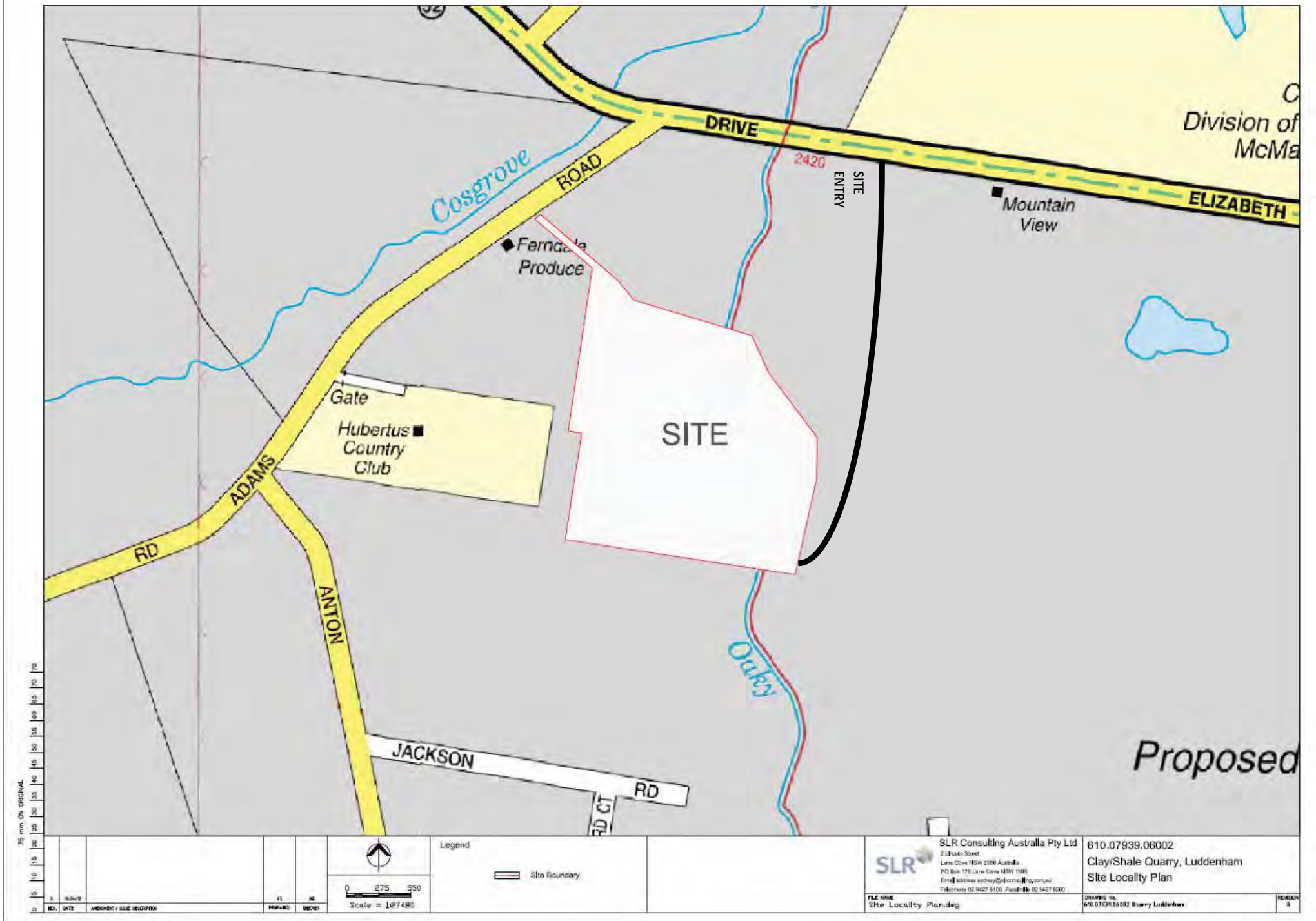
Areas hatched with black lines (—) are vacant land part of Lot 1 DP838361. Composting activities are conducted on part of these areas and they are shown on the drawing by hatched green inclined lines (—)





Approved Revised Site Layout







Elizabeth Drive

Adams Rd

275 ADAMS ROAD  
LUDDENHAM

Weighbridge &  
Site Office

Site

Entry - Exit

2420 ELIZABETH DRIVE  
BADGEYS CREEK

Workshop

BUNDWALL

STOCKPILE  
ZONE

QUARRY  
ZONE

Muster  
Point. 2

Muster  
Point 1



# Land and Property Information Division

ABN: 84 104 377 806

GPO BOX 15

Sydney NSW 2001

DX 17 SYDNEY

Telephone: 1300 052 637



Land & Property  
Information

A division of the Department of Finance & Services

## TITLE SEARCH

Title Reference: 1/838361

### LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/838361

SEARCH DATE	TIME	EDITION NO	DATE
24/4/2013	12:12 PM	7	7/8/2007

#### LAND

LOT 1 IN DEPOSITED PLAN 838361  
AT LUDDENHAM  
LOCAL GOVERNMENT AREA LIVERPOOL  
PARISH OF BRINGELLY COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP838361

#### FIRST SCHEDULE

THE COMMONWEALTH OF AUSTRALIA

#### SECOND SCHEDULE (6 NOTIFICATIONS)

- L744222 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM - (SEE BK 2896 NO 488, BK 2906 NO 900, GOV GAZ 22.11.1968 FOL 4664 & GOV GAZ 16.2.1968 FOL 656)  
3396234 EASEMENT VESTED IN NEW SOUTH WALES ELECTRICITY TRANSMISSION AUTHORITY
- DP639725 EASEMENT FOR WATER SUPPLY 1 WIDE AFFECTING THE PART OF THE LAND ABOVE DESCRIBED FORMERLY COMPRISED IN 1/780284 SHOWN SO BURDENED IN DP639725
- E314004 EASEMENT FOR HIGH INTENSITY APPROACH LIGHTING SYSTEM & MIDDLE MARKER NAVIGATIONAL AID SYSTEM APPURTENANT TO THE LAND ABOVE DESCRIBED
- DP558860 RESTRICTION(S) ON THE USE OF LAND FORMERLY COMPRISED IN LOTS 29 & 31 IN DP259698
- AA388437 LEASE TO HERON'S WING PTY LIMITED OF LOT 10 IN DP251656, 1935 THE NORTHERN ROAD LUDDENHAM. EXPIRES: 30/12/2005. OPTION OF RENEWAL: 3 YEARS.
- AD291676 LEASE TO BLUE SKY MINING COMPANY PTY LIMITED OF LOT 1 IN DP741238.. EXPIRES: 31/5/2010. OPTION OF RENEWAL: 3 YEARS.

#### NOTATIONS

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

PRINTED ON 24/4/2013

\* ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE.  
WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.



**Espreon Online Information System**  
**NSW LPI Title Search**

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
-----

FOLIO: 3/623799  
-----

SEARCH DATE	TIME	EDITION NO	DATE
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11/12/2009	8:35 AM	14	3/2/2009

LAND  
-----

LOT 3 IN DEPOSITED PLAN 623799  
AT LUDDENHAM  
LOCAL GOVERNMENT AREA LIVERPOOL  
PARISH OF BRINCHELLY COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP623799

FIRST SCHEDULE  
-----

FEARNDALE HOLDINGS PTY LIMITED (T AD266039)

SECOND SCHEDULE (3 NOTIFICATIONS)  
-----

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 DP623799 RESTRICTION(S) ON THE USE OF LAND
- 3 AE472749 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED

NOTATIONS  
-----

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

GR

PRINTED ON 11/12/2009

Espreon hereby certifies that the information contained in this document has been provided electronically by the Registrar-General in accordance with Section 96B(2) of the Real Property Act, 1900.

\*Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title.

Warning: The information appearing under notations has not been formally recorded in the register.

Search of Folio: DP 3/623799 Date: 11-12-09 Time: 08:35:44.575

PRP VALUERS & CONSULTANTS SYD

Account

3prps288

**APPENDIX B - Copy of Development Consent, DA Modifications & Other Planning Instruments**



qB136265

10/02144

Department Generated Correspondence (Y)



Planning

## ASSESSMENT REPORT

### Adams Road Quarry, Luddenham - Section 96(1A) Modification (MOD 2)

#### BACKGROUND

Blue Sky Mining Pty Limited (BSM) has consent for the development of the Adams Road Quarry, a clay/shale quarry, located approximately 3 kilometres northeast of Luddenham in the Liverpool local government area (see Figure 1).

Consent for the quarry was granted to Badger Mining on 23 May 2004, by the then Minister for Infrastructure, Planning and Natural Resources. This consent was later acquired by BSM.

On 4 January 2006, approval was granted to modify the consent to relocate the quarry access bridge across Oakey Creek towards the south eastern corner of the site.

In 2008 the Department became aware that development was being carried out on site. Following an investigation, it was found that the works were being carried out in breach of the conditions of consent. The Department required BSM to immediately cease all development on site, until such time as the appropriate conditions had been complied with.

In May 2009, following certification that the company had complied with all relevant conditions, the Department advised BSM that works could re-commence on site, provided that all other relevant approvals and licences were in place. This included a requirement that BSM obtain consent for an incorrectly constructed acoustic bund near the western boundary of the site.



Figure 1: Site Location



## PROPOSED MODIFICATIONS

On 31 August 2009, BSM lodged a modification application under section 96(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Primarily, the proposed modification seeks approval for the 'as built' western acoustic bund, including the relocation of the northern acoustic bund further westwards along the line of its approved location (see Figures 2 and 3).

The proposed changes to the approved development comprise:

- the relocation of the western acoustic bund 50m towards the western boundary of the site;
- the relocation of the northern acoustic bund towards the western boundary of the site;
- an amendment to condition 6 of schedule 5, requiring the first independent environmental audit to be conducted by 31 December 2010; and
- an amendment to condition 5 of schedule 3, to extend the development consent until 15 years after the date of the modification application.

The proposed modification does **not** include:

- increasing the approved depth or surface area of the open pit;
- increasing the approved methodology, rates or volumes of clay/shale extraction or processing;
- changes to the amount of clay/shale transported by road;
- changes to the hours of operations; or
- changes to the water supply.

## STATUTORY CONTEXT

### *Consent Authority*

The Minister for Planning was the consent authority for the original development application, and is consequently the consent authority for this modification application. However, the Director, Major Development Assessment may determine the application under the Minister's delegation of 4 March 2009.

### *Section 96*

Under section 96(1A) of the EP&A Act, a consent authority may modify a development consent if:

- a) *it is satisfied that the proposed modification is of minimal environmental impact, and*
- b) *it is satisfied that the development to which the consent as modified relates is substantially the same development for which consent was originally granted and before that consent as originally granted was modified (if at all); and*
- c) *it has notified the application in accordance with:*
  - (i) *the regulations, if the regulations so require, or*
  - (ii) *a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*
- d) *it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.*





Figure 2: Approved Noise Attenuation Bunds



Figure 3: Proposed Noise Attenuation Bund and Sensitive Receiver Locations



The Department has assessed the merits of the application and is satisfied that the proposed modifications would have minimal environmental impact (see "Consideration of Issues" below). The Department is also satisfied that the consent as modified would be "substantially the same" as the development approved in the original consent. The Department is therefore satisfied that the modification application can reasonably be considered and determined under section 96(1A).

## CONSULTATION

The Department is not required to publicly consult regarding this modification. However, the Department did consult with the Department of Environment, Climate Change and Water (DECCW). DECCW raised no objections to the proposal.

## CONSIDERATION OF ISSUES

The Department has assessed the application, the accompanying Statement of Environmental Effects (SEE) and DECCW's comments on the proposal in accordance with the relevant requirements of the EP&A Act. The key issues for each component of the proposed modification are discussed below.

<i>Issue</i>	<i>Consideration</i>
<i>Noise</i>	<p>The SEE included a specialist noise assessment undertaken by Golder Associates Ltd (Golder), which considered the potential noise impacts of the modification against the noise impact assessment criteria contained in the development consent.</p> <p>Golder's assessment considered the proposed changes to both the western and northern acoustic bund walls. The noise assessment found that there would be an increase in noise levels at surrounding receivers to the north and west of the quarry, over those previously predicted in the Environmental Impact Statement (EIS).</p> <p>However, although noise levels would increase, they would still remain below the approved criteria of 41dB <sub>Leq, 15min</sub> for all sensitive receivers, except for the North house. At this location, noise levels would exceed the criteria by 2dB(A) if all equipment was operating in Bench 1. Golder recommended that when extraction operations are taking place in Bench 1, operations are restricted to the use of 1 truck and 1 excavator, until the quarry floor is at least 1.5m below the existing ground level, to ensure that the existing noise criteria levels can be met. The Department supports this proposal, and has recommended conditions to that effect.</p> <p>The Department and DECCW are satisfied that the modification has been adequately assessed and that any potential noise impacts of the proposed modification could be sufficiently reduced to meet the existing noise criteria for the development.</p>
<i>Visual</i>	<p>The proposed modification has the potential to result in a visual impact to neighbouring properties, due to the relocation of the western bund wall closer to surrounding properties to the west.</p> <p>A small section of the western bund would run parallel to an existing 6-8m high noise bund constructed for the adjoining Gun Club. However, part of the western bund would be visible from the actual club itself and the car park area. Although this would amount to an increased visual impact over that previously approved, once the bund is vegetated, its visibility is not considered to result in significant impact to the club.</p> <p>The 'as built' location of the western bund wall would not be visible from the street and would also be substantially obscured from view from the West House by a scattering of trees, therefore limiting any visual impacts likely to occur as a result of the amended location.</p> <p>Further, it is considered that any visual impacts likely to occur as a result of the relocation of the northern bund would be negligible due to the distance from the most affected receiver to the north.</p> <p>The Department is satisfied that the visual impacts of the proposed modification would be low.</p>
<i>Flora and Fauna</i>	<p>Although a small number of bushes were removed, no trees were cleared for the construction of the as-built western acoustic bund.</p> <p>The northern bund wall is proposed to be relocated towards the west on land which has been extensively cleared. The proposed relocation would not require the removal of any vegetation.</p> <p>The Department is satisfied that the proposed modification would not increase flora and fauna impacts over those previously approved.</p>



<b>Issue</b>	<b>Consideration</b>
<i>Erosion and Sediment Control</i>	<p>The relocation of the western and northern bund walls are not considered to have a significant impact on surface water flows around the site, due to the contour of the existing surface water diversion structures and catchment area.</p> <p>The Department is satisfied that there would be no significant impacts to the existing erosion and sediment control structures on site as a result of the proposal.</p>
<i>Quarry Life and Socio-Economic Issues</i>	<p>The original consent allowed for the quarry to operate for 15 years from the date of approval, meaning the consent would have expired in 2019. However since the consent was granted, the owner of the site has changed, access arrangements were modified and works on site were ordered to be ceased by the Department for some 12-18 months until compliance with the consent was achieved. As such, no actual quarrying of material has commenced to date.</p> <p>Despite this, the Department acknowledges that physical works have commenced on site with the construction of the haul road, western noise bund and removal of top soil satisfying that the consent has been physically commenced under Section 95 of the EP&amp;A Act.</p> <p>Since actual quarrying operations have not yet commenced, the Department considers it reasonable to extend the expiry date of the development consent for a further 5 years, until December 2024 (ie from the original expiry date of 2019). Further, due to quarry operations not yet having commenced, the Department considers it appropriate to require the first independent environmental audit to be conducted by 31 December 2010, and thereafter every 3 years. This is more frequent than under the original consent and reflects contemporary standards applied by the Department.</p> <p>The proposed extension to the life of the quarry would have substantially the same effect on the community and the economy as the previously approved development and would allow the quarry adequate time to extract and deliver high quality clay/shale materials to Sydney and regional markets as well as provide direct employment for up to 14 people. The proposed modification would not result in any changes to the socio-economic benefits outlined in the EIS. The Department is also satisfied that the existing consent conditions would manage any potential impacts from the operation of the quarry.</p> <p>In addition, the Department is satisfied that maintaining the workforce on site and the supply of construction materials to Sydney and regional markets would be positive outcomes for the local economy and NSW as a whole.</p>
<i>Amendment to Plans</i>	<p>The Proponent requested an amendment to condition 3 of schedule 3 to include a reference to plan No. 124558-NB-WAE, prepared by JBW Surveyors and dated 6/4/2009, illustrating the location of the western bund wall as-built and the acoustic modelling plan showing the required extension of the northern bund wall. The Department has considered the request and determined that the inclusion of the reference to the current modification application and SEE in condition 2 of schedule 3, as well as the addition of the plan as an Appendix to the consent, is sufficient to indicate approval of the amended location of the bund walls, without the requirement to also amend condition 3 of schedule 3.</p>

## SECTION 79C CONSIDERATION

Section 96 of the EP&A Act requires a consent authority to give consideration to the matters listed under Section 79C when it determines a modification application.

The Department has assessed the proposal against these matters, and is satisfied that:

- the proposal is consistent with the provisions of the relevant planning instruments;
- the potential impacts of the proposal can be minimised, mitigated and/or managed;
- the site is suitable for the development as previously approved; and
- the proposal is in the public interest.

## RECOMMENDED CONDITIONS

The Department is satisfied that the existing conditions of consent for the Adams Road Quarry are generally adequate to manage the development as modified by the application. The Department has recommended additional conditions, including a requirement to update any strategies, plans or programs necessary to encompass the proposed modification, as well as administrative updates of certain other conditions. The Applicant does not object to the proposed conditions.



## CONCLUSION


The Department has assessed the application, the SEE and correspondence regarding the proposed modification and is satisfied that the proposed modification would have a minimal impact on the environment and the amenity of nearby residences.

The Department is further satisfied that the development as modified would be substantially the same as that originally approved, and that the proposal is in the public interest. Consequently, the Department believes the proposed modification should be approved, subject to it being carried out in accordance with the SEE and other minor administrative modifications to the consent.

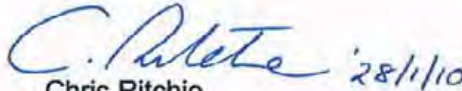
## RECOMMENDATION

It is recommended that the Director, Major Development Assessment, as delegate of the Minister:

- consider the findings and recommendations of this report;
- determine that the proposed modification is of minimal environmental impact;
- determine that the development to which the consent, as modified, relates is substantially the same development for which consent was originally granted;
- approve the proposed modification under Section 96(1A) of the EP&A Act; and
- sign the attached notice of modification (Tab A).



Howard Reed 28.1.10  
Manager Mining



Chris Ritchie 28/1/10  
A/Director  
Major Development Assessment

## DEPARTMENT OF PLANNING

*Office of Sustainable Development Assessment and Approvals*

### ***For Decision***

## **PURPOSE**

To determine an application from Badger Mining Company Pty Ltd (Badger Mining) to modify the Minister's development consent for the Luddenham clay/shale quarry.

## **BACKGROUND**

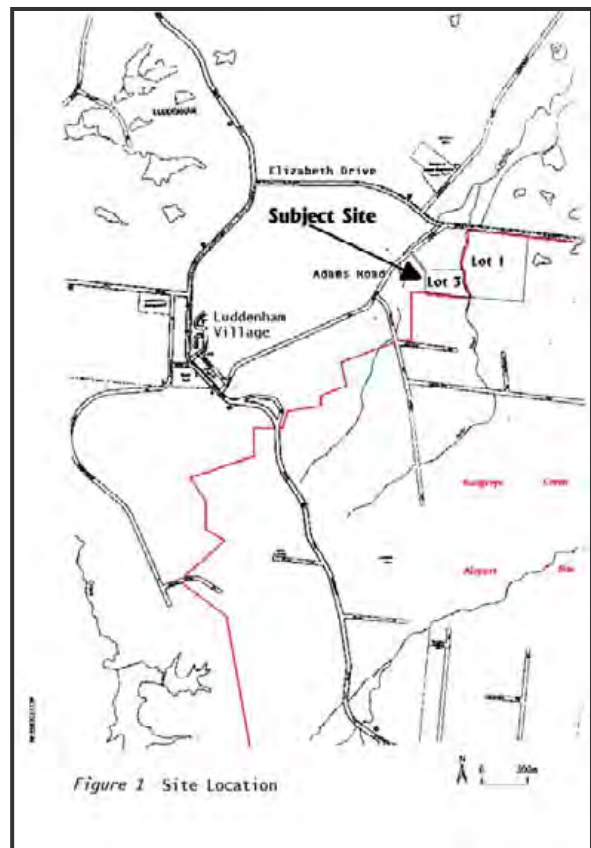
On 23 May 2004, the then Minister for Infrastructure, Planning and Natural Resources approved a development application (DA) from Badger Mining for the Luddenham clay/shale quarry and associated infrastructure.

The proposed quarry is located about 3 kilometres northeast of Luddenham in the Liverpool local government area (see Figure 1).

Under the Minister's approval, Badger Mining may extract up to 300,000 cubic metres of clay/shale a year for about 10 years, and transport this material to regional brickworks by truck.

The proposed quarry has a capital value of \$4 million, and will employ 13 full-time workers.

Construction of the quarry is planned to commence in early 2006.



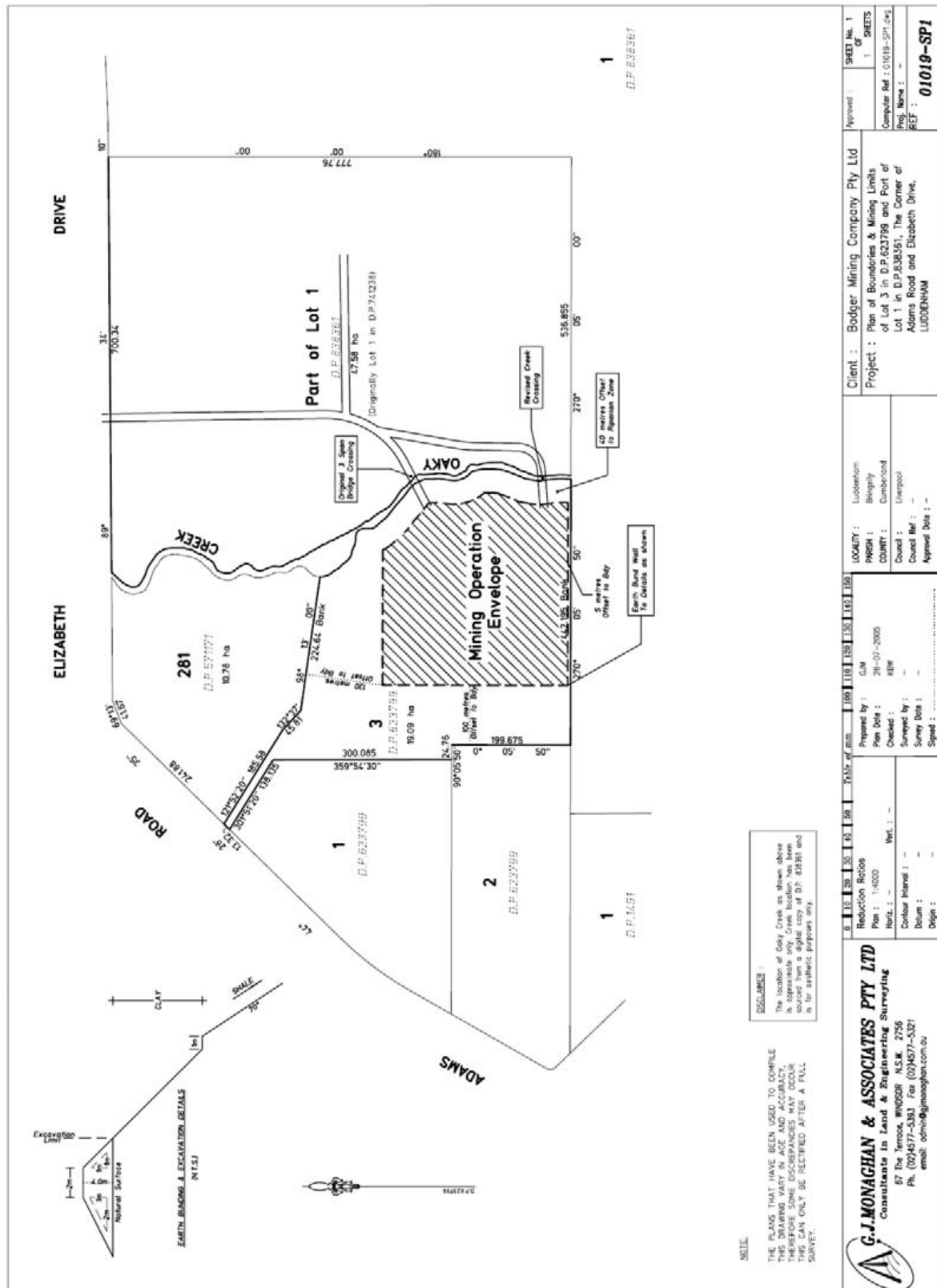
*Figure 1: Location of Luddenham Clay/shale*

*Quarry*

## **PROPOSED MODIFICATION**

Badger Mining proposes to relocate the internal access road of the quarry 200 metres to the south (see Figure 2).

On 16 November 2005, Badger Mining submitted an application (DA 315-7-2003-MOD-1) to the Department, seeking approval for the proposed changes to the internal access road under Section 96(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).





## STATUTORY CONTEXT

### **Consent Authority**

The Minister was the consent authority for the original DA and is consequently the consent authority for this application.

On 12 September 2005, the Minister delegated his powers and functions as a consent authority to modify development consents under Section 96(1A) of the EP&A Act to the Deputy Director-General, Office of Sustainable Assessments & Approvals, Department of Planning.

Consequently the Deputy Director-General may determine this application under delegated authority.

### **Section 96(1A)**

Under Section 96(1A) of the EP&A Act a consent authority can modify a development consent if it is satisfied that the:

- (a) *...proposed modification is of minimal environmental impact, and*
- (b) *...development to which the consent as modified relates is substantially the same development for which consent was originally granted and before that consent as originally granted was modified (if at all).*

The Department is satisfied that the proposed modification meets these criteria.

## CONSULTATION

Under the EP&A Act, the Department is not required to consult over the proposal, however, it has consulted the Department of Environment and Conservation (DEC), the Department of Natural Resources (DNR) and Liverpool City Council (LCC).

The DEC did not object to the proposed modification as Badger Mining has not sought to change the noise limits applicable to the proposed development.

The DNR did not object to the proposed modification, and reissued its General Terms of Approval GTAs) under Part 3A of the *Rivers and Foreshores Improvement Act 1948* for the proposed relocated road crossing of Oakey Creek. They are unchanged from its previous GTAs, which were incorporated into the conditions of the Minister's consent.

The LCC did not object to the proposed modification.

## CONSIDERATION OF ISSUES

### Impacts on Oakey Creek

At the site of the proposed relocated road crossing, Oakey Creek consists of an often dry channel 2 to 3 metres wide (see Figure 3). Badger Mining proposes to move the Oakey Creek road crossing 200 metres to the south, and importantly, upstream of its approved location. This means that, compared to its approved location, the proposed creek crossing would benefit from a reduced upstream catchment, and in times of flooding, reduced volumes of water passing under the crossing. Accordingly, the relocated crossing would have reduced impacts on upstream flood depths and a reduced potential to restrict flood flows and increase downstream water velocities.



*Figure 3: Proposed Site of Relocated Creek Crossing*

Mathematical modelling, undertaken by Larry Cook and Associates, confirms this analysis and concludes that the flood event resulting from a 1% Annual Exceedance Probability (AEP) storm *“will not impact the proposed development”*, and *“the new bridge will not significantly impede the Probable Maximum Flood (PMF) flow”*.

The Department believes the conditions of the Minister’s consent are appropriate, without change, to manage and mitigate the impacts of the creek crossing’s construction and operation. These conditions also require Badger Mining to produce a range of management plans before operations can commence on the site. Any minor alterations to impacts of the creek crossing would be considered in the production of these plans.

#### Noise

The relocated creek crossing would move clay/shale product trucking operations 200 metres closer to several residences located to the south of the proposed quarry. However, these trucks would be no closer to these residences than noise emissions from the proposed quarry (see Figure 2).

Without any noise attenuation, noise impacts at the southern residences would increase by 1.5 dB(A). Badger Mining’s assessment of noise impacts demonstrates that rising topography to the south of the site would provide an acoustic shielding effect to attenuate noise impacts so that there would be no net increase in received noise levels. For residences to the north and west, noise levels are predicted to decrease, and for residences to the east noise levels are predicted to be unchanged.

Badger Mining has not sought to increase the noise limits of the Minister’s consent. It intends to operate the quarry and relocated access road to comply with these noise limits (including noise limits applicable to residences to the south of the proposed quarry).

As Badger Mining will be required to restrict noise emissions to below limits contained in the Minister’s consent, the proposed modification would result in no additional noise impacts on the amenity of nearby residents. The Department believes the noise limits in the Minister’s consent should not be altered.

#### Other Issues

The Department has also considered potential impacts on riparian vegetation, Aboriginal sites, air quality and traffic movements. The Department is satisfied that there would be no change to these impacts as a result of the proposed modification when compared to the impacts of the approved development.

Consequently, the Department believes the proposed modification would not change the environmental impacts of the quarry and would not materially change the development for which consent was granted.

### **RECOMMENDED CONDITIONS**

The Department has drafted a notice of modification for the proposal (tagged A). Badger Mining does not object to this draft notice.

### **RECOMMENDATION**

It is RECOMMENDED that the Acting Deputy Director-General:

- consider this submission;
- approve the application under Section 96(1A) of the EP&A Act; and
- sign the attached notice of modification (tagged A).

David Kitto  
**Acting Director**  
**Major Development Assessment**

Yolande Stone  
**Acting Deputy Director-General**

# Notice of Modification

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

Under Section 96(1A) of the *Environmental Planning and Assessment Act 1979*, I, the Acting Deputy Director-General, Office of Sustainable Assessments and Approvals, modify the development consent referred to in Schedule 1, as set out in Schedule 2.

Yolande Stone  
**Acting Deputy Director-General**  
**Office of Sustainable Assessment and Approvals**  
**(as Delegate for the Minister for Planning)**

Sydney

2006

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### SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

---

### SCHEDULE 2

1. Delete the word “and” at the end of condition 2(c) of schedule 3.
2. Add the following after condition 2(c) of schedule 3:
  - (d) information accompanying modification application DA 315-7-2003-MOD-1 for the relocation of the access bridge across Oakey Creek, lodged 16 November 2005, and prepared by Stuart J Castle Pty Ltd; and
3. Replace the numbering of condition 2(d) of schedule 3 with 2(e).
4. Replace the words “the Department” at the end of the first sentence of condition 29 of schedule 4 with “the Department of Natural Resources”.
5. Modify the text of the following definitions in schedule 2 to read:

Department  
Director-General  
Minister

Department of Planning  
Director-General of the Department of Planning, or delegate  
Minister for Planning, or delegate

# Notice of Modification

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, I modify the development consent referred to in Schedule 1, as set out in Schedule 2.



Chris Ritchie  
A/Director  
Major Development Assessment

Sydney, 28<sup>th</sup> January

2010

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### SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

---

### SCHEDULE 2

1. Delete the definition for "DEC" in the list of Definitions in Schedule 2, and insert in alphabetical order the following:

DECCW	Department of Environment, Climate Change and Water
SEE	Statement of Environmental Effects
2. Delete all references to "DECC" and replace with "DECCW".
3. In condition 2 of schedule 3, delete all words after "Castle Pty Ltd" and replace with:
  - e) Modification Application DA 315-7-2003 MOD 2 and the accompanying SEE titled "*Section 96(1A) Modification Application, 275 Adams Road Luddenham*" produced by Planning Direction Pty Ltd and dated 3 November 2009 and "*Acoustic Report – Clay/Shale Quarry at 275 Adams Road Luddenham*" produced by Golders Associates Ltd and dated 15 December 2009; and
  - f) conditions of this consent.
4. Delete condition 3 of schedule 3 and replace with:
  3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
6. After condition 4 of schedule 3 insert the following:
  - 4A. The Applicant shall prepare revisions of any strategies, plans or programs required under this consent 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.



7. Delete condition 5 of schedule 3 and replace with:

5. The Applicant may undertake quarrying operations on the site until 31 December 2024.

*Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General. Consequently, this consent will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been properly rehabilitated.*

8. After condition 12 of schedule 4 insert the following:

- 12A. When extraction operations are taking place in Bench 1, as indicated on Figure 1 in Appendix 1, operations are restricted to the use of 1 truck and 1 excavator, until the quarry floor is at least 1.5m below the existing ground level.

8. In condition 6 of schedule 5, delete the first sentence and replace with:

Before 31 December 2010, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development.

9. After condition 10 of schedule 5 insert:

#### APPENDIX 1 GENERAL SITE LAYOUT



Figure 1: General Layout of the Site





I, the Minister for Infrastructure, Planning and Natural Resources, approve the Development Application referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

These conditions are required to:

- (i) prevent, minimise, and/or offset adverse environmental impacts;
- (ii) set standards and performance measures for acceptable environmental performance;
- (iii) require regular monitoring and reporting; and
- (iv) provide for the on-going environmental management of the development.

Craig Knowles, MP  
Minister for Infrastructure, Planning and Natural Resources

Sydney,

2004

File No. P91/02045

#### SCHEDULE 1

<b>Development Application:</b>	DA No. 315-7-2003.
<b>Applicant:</b>	Badger Mining Company Pty Limited.
<b>Consent Authority:</b>	The Minister for Infrastructure, Planning and Natural Resources.
<b>Land:</b>	Lot 3, DP 623799 and Lot 1, DP 838361.
<b>Proposed Development:</b>	The development and operation of a clay/shale quarry on Lot 3, DP 623799 and the construction and use of an access road and service facilities on Lot 1, DP 838361.
<b>State Significant Development</b>	The proposal is classified as State significant development under section 76A(7) of the <i>Environmental Planning and Assessment Act 1979</i> because it is a class of development listed in the schedule of the Minister's declaration of 3 August 1999.
<b>Integrated Development</b>	The proposal is classified as integrated development under section 91 of the <i>Environmental Planning and Assessment Act 1979</i> , because it requires approvals under the: <ul style="list-style-type: none"><li>• <i>Protection of the Environment Operations Act 1997</i>;</li><li>• <i>Rivers and Foreshores Improvement Act 1948</i>;</li><li>• <i>Water Act 1912</i>; and</li><li>• <i>Roads Act 1993</i>.</li></ul>
<b>Designated Development</b>	The proposal is classified as designated development under section 77A of the <i>Environmental Planning and Assessment Act 1979</i> , because it would disturb a total surface area of more than 2 hectares of land by clearing or excavating, and consequently meets the criteria in Schedule 3 of the <i>Environmental Planning and Assessment Regulation 2000</i> .

**BCA Classification:**

Class 10b

Bunded fuel storage  
Plant nursery  
Weighbridge  
Bridge  
Conveyor and hoppers

*Note:*

- 1) *To find out when this consent becomes effective, see Section 83 of the Environmental Planning and Assessment Act 1979 (EP&A Act);*
  - 2) *To find out when this consent is liable to lapse, see Section 95 of the EP&A Act; and*
  - 3) *To find out about appeal rights, see Section 97 of the EP&A Act.*
-

## SCHEDULE 2

### DEFINITIONS

AEMR	Annual Environmental Management Report
Applicant	Badger Mining Company Pty Limited
BCA	Building Code of Australia
DA	Development Application
DEC	Department of Environment and Conservation (also includes the former Environment Protection Authority and the National Parks and Wildlife Service)
Department	Department of Infrastructure, Planning and Natural Resources
Director-General	Director-General of the Department of Infrastructure, Planning and Natural Resources, or her delegate
DNA	Douglas Nicolaisen & Associates Pty Ltd
Dust	Any solid material that may become suspended in air or deposited
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act, 1997</i>
GTA	General Terms of Approval
Land	The whole of a lot in a current plan registered at the Land Titles Office at the date of this consent
LCC	Liverpool City Council
Minister	Minister for Infrastructure and Planning, or delegate
PCC	Penrith City Council
Privately-owned land	Land where: <ul style="list-style-type: none"> <li>• a private agreement does not exist between the Applicant and the land owner; and</li> <li>• there are no land acquisition provisions requiring the Applicant to purchase the land upon request from the land owner</li> </ul>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Riparian zone	A 40 metre-wide strip of land adjacent to a local watercourse, measured horizontally from the top of the bank of the watercourse
RTA	NSW Roads and Traffic Authority
SEMP	Site Environmental Management Plan
Site	Land to which the DA applies
Vacant land	The whole of a lot in a current plan registered at the Land Titles office that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot at the date of this consent



**SCHEDULE 3  
ADMINISTRATIVE CONDITIONS**

**Obligation to Minimise Harm to the Environment**

1. The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

**Scope of Development**

2. The Applicant shall carry out the development generally in accordance with:
  - (a) DA No. 315-7-03
  - (b) EIS titled *Proposed Clay/Shale Extraction Operation – Lot 3 – 275 Adams Road Luddenham*, dated May 2003, and prepared by Douglas Nicolaisen & Associates Pty Ltd (DNA);
  - (c) correspondence from DNA to the Department dated 16 March 2004 relating to operating hours, location of environmental bunds and reduction in the proposed extraction area; and
  - (d) conditions of this consent.
3. If there is any inconsistency between the above, either the conditions of this consent or the most recent document shall prevail to the extent of the inconsistency.
4. The Applicant shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
  - (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained in these reports, plans or correspondence.

**Limits on Approval**

5. This consent lapses 15 years from the date on which it is granted.

*Notes:*

- (a) The conditions of approval may require rehabilitation activities to be undertaken more than 15 years after the date on which the consent is granted; and
- (b) This condition does not affect the operation of section 95 of the EP&A Act.

**Limits on Production**

6. The hours of operation for the development are limited to between 7 am and 6 pm Monday to Friday. The Applicant shall ensure that no haulage vehicles enter or leave the site between 6 pm and 7 am Monday to Friday, and on public holidays. Maintenance activities may be conducted between 7 am and 1 pm on Saturday. No other work is to be undertaken on Saturday, Sunday and public holidays.
7. The production of quarry products from the quarry shall not exceed 300,000 tonnes per annum.
8. The Applicant shall provide annual production data to the Department of Mineral Resources, in the manner required, on the standard form supplied for that purpose. These data are also to be included in the Annual Environmental Management Report (AEMR).

**Protection of Public Infrastructure**

9. The Applicant shall:
  - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
  - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

**Structural Adequacy**

10. The Applicant 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:*

- (a) Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.
- (b) Part 8 of the EP&A Regulation sets out the requirements for the certification of development.

#### **Demolition**

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

#### **Operation of Plant and Equipment**

12. The Applicant shall ensure that all plant and equipment at the site, or used in connection with the development, are:
  - (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

#### **Compliance**

13. Prior to commencement of development on Lot 3 DP 629799 and Lot 1 DP 838361, the Applicant shall commission an independent person(s) or organisation(s), approved by the Director-General, to certify in writing to the satisfaction of the Director-General, that the Applicant has complied with all relevant conditions of this consent applicable prior to that event.



## SCHEDULE 4 ENVIRONMENTAL PERFORMANCE

### AIR QUALITY

#### Impact Assessment Criteria

- The Applicant shall ensure that the air pollution generated by the development does not exceed the criteria listed in Tables 1, 2, and 3 at any privately-owned land.

Pollutant	Averaging period	Criterion
Particulate matter - suspended particulate (TSP)	1 year	50 µg/m <sup>3</sup>
Particulate matter - coarse particulate (PM <sub>10</sub> )	1 year	50 µg/m <sup>3</sup>

Table 1: Long-term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter - suspended particulate (TSP)	24 hours	50 µg/m <sup>3</sup>

Table 2: Short-term impact assessment criterion for particulate matter

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	1 year	2 g/m <sup>2</sup> /day	5 g/m <sup>2</sup> /day

Table 3: Long-term impact assessment criteria for deposited dust

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

#### Environmental Management

- <sup>1</sup>The site must be maintained in a condition that minimises or prevents the emission of dust from the site, including the prompt and effective rehabilitation of all disturbed areas.
- <sup>2</sup>The Applicant shall ensure that all vehicles entering or leaving the site, carrying a load that may generate dust, are covered to prevent dust emissions at all times, except during loading and unloading.
- <sup>3</sup>The Applicant shall ensure that all vehicles leaving the site are subject to equipment or facilities to remove adhering materials from wheels and underneath the bodies, unless otherwise approved by the DEC. The aims of the installed facilities are:
  - preventing materials from being carried away from the site to adjoining road surfaces; and
  - collecting, treating and disposing of any washdown.
- The Applicant shall ensure that all internal unsealed roadways, quarry floor and stockpiles are to be watered as required to minimise dust generation.

<sup>1</sup> Incorporates DEC's GTA

<sup>2</sup> Incorporates DEC's GTA

<sup>3</sup> Incorporates DEC's GTA



6. <sup>4</sup>The Applicant shall not allow offensive odour to be emitted from the site.

*Notes:*

- (a) Section 129 of the POEO Act provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant Environment Protection Licence (EPL) as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.
- (b) No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the POEO Act.

#### Monitoring

7. The Applicant shall establish air quality monitoring stations at a minimum of 5 locations around the site, (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:

Location	Parameter	Frequency	Method
Hubertus Country Club	Dust	Weekly	Gravimetric
"Northern" residence	Dust	Weekly	Gravimetric
Jackson Road	Dust	Weekly	Gravimetric
Ferndale Road	Dust	Weekly	Gravimetric
Adjoining landowners	Dust	Weekly	Gravimetric

Table 4: Air quality monitoring

<sup>1</sup> NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

<sup>2</sup> Standards Australia, 1991, AS 3580.10.1-1991, *Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method*.

8. Before carrying out any development, the Applicant shall prepare an Air Quality Monitoring Program, in consultation with DEC, and to the satisfaction of the Director-General.

#### Soil and Land Management

9. The Applicant shall immediately utilise or stockpile, for use in the rehabilitation of the site, any topsoil removed during the development. Topsoil shall not be mixed with other overburden products. The topsoil stockpile(s) shall be protected from erosion. The topsoil stockpile(s) shall be sown with appropriate vegetation to stabilise the soil if they are to be stored for longer than 6 weeks. The topsoil stockpile(s) shall have a maximum height of 1.5 metres.
10. The Applicant shall minimise the removal of trees and other vegetation from the project site, and restrict any clearance to the areas occupied by quarrying activities, noise attenuation bund, access roads and ancillary facilities.
11. The Applicant shall regularly consult with adjoining property owners to ensure property management issues including maintenance of common fences, weed control measures, and bushfire management are coordinated. Details of this consultation are to be reported in the AEMR.

#### NOISE

##### Noise Impact Assessment Criterion

12. <sup>5</sup>The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criterion presented in Table 5.

<sup>4</sup> Incorporates DEC's GTA

<sup>5</sup> Incorporates DEC's GTAs



**Table 5: Noise impact assessment criterion dB(A)**

**Notes:**

- (a) The noise limits in Table 5 are for the noise contribution of the establishment and operation of the clay/shale quarry on Lot 3, DP 623799 and Lot 1 DP838361, Adams Road, Luddenham.
- (b) The criterion in Table 5 does not apply to a six-week period for the construction of a noise attenuation bund adjacent to the quarry excavation area.
- (c) Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary.
- (d) To determine compliance with the  $L_{Aeq}(15 \text{ minute})$  noise limits in the above table where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

**Operating Conditions**

- 13. The Applicant shall ensure that all vehicles travelling on internal roads do not exceed 20 kilometres per hour.
- 14. The Applicant shall design operations to minimise the need for reversing of trucks and machinery where reversing beepers may contribute to noise impacts exceeding the criterion in condition 12.

**Monitoring**

- 15. The Applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

**Construction of the Noise Attenuation Bund**

*Note: The noise attenuation bund also functions as visual screen of the operations associated with the extraction of the clay/shale resource.*

- 16. The Applicant shall minimise noise levels during the construction of the noise attenuation bund by the implementation of best available techniques economically achievable.
- 17. The Applicant shall complete the construction of the noise attenuation bund in the minimum time, not to exceed 6 weeks from the commencement of its construction, unless otherwise approved by the Director-General.
- 18. The Applicant shall prepare a noise assessment of the construction of the noise attenuation bund within 3 weeks of the commencement of construction of the bund. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

**Environmental Management**

- 19. Prior to carrying out any development on the site, the Applicant shall prepare a Noise Management Plan for the development, in consultation with the DEC and to the satisfaction of the Director-General, which addresses:
  - actions to be undertaken to achieve compliance with condition 12;
  - actions to be undertaken during the construction of the noise attenuation bund;







### Site Water Management Plan

24. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Water Management Plan for the site, to the satisfaction of the Director-General. This plan must include:
- (a) a Surface Water Monitoring Program;
  - (b) a Groundwater Monitoring Program;
  - (c) an Erosion and Sediment Control Plan; and
  - (d) an Irrigation Management Plan.
25. The Surface Water Monitoring Program shall include:
- (a) detailed baseline data on surface water flows and quality in Oakey Creek upstream and downstream of the development;
  - (b) surface water impact assessment criteria;
  - (c) a program to monitor surface water flows and quality in Oakey Creek; and
  - (d) a program to monitor the effectiveness of the Erosion and Sediment Control Plan.
26. The Groundwater Monitoring Program shall include:
- (a) baseline data on groundwater levels and quality, based on statistical analysis, to benchmark the pre-quarrying natural variation in groundwater levels and quality;
  - (b) groundwater impact assessment criteria;
  - (c) a program to monitor groundwater impacts during quarry operations.

*Note: Licences are required under the Water Act 1912 for groundwater monitoring bores.*

27. The Erosion and Sediment Control Plan shall:
- (a) comply with the requirements of the with the publication titled *"Managing Urban Stormwater: Soils and Construction, Department of Housing 1998"*;
  - (b) identify activities that could cause soil erosion or discharge sediment or water pollutants from the site;
  - (c) describe the location, function and capacity of all erosion and sediment control structures;
  - (d) describe the measures to minimise soil erosion and the potential migration of sediments to downstream waters.
28. The Irrigation Management Plan shall:
- (a) comply with the requirements of the Surface Water Licence issued under the *Water Act 1912* for the use of water obtained from the quarry;
  - (b) identify the specific areas of land to be irrigated, determine sustainable water application rates and monitoring requirements;
  - (c) describe measures to prevent any tailwater drainage from entering Oakey Creek; and
  - (d) ensure that the soils subject to irrigation are not adversely affected by the concentration of salts.

### Internal Road Crossing of Oakey Creek

29. Prior to the commencement of any work within 40 metres of Oakey Creek, a permit under Part 3A of the *Rivers and Foreshores Improvement Act 1948* shall be obtained from the Department. All works shall be:
- (a) undertaken in accordance with the permit application, except as otherwise provided by conditions of the permit;
  - (b) constructed generally in accordance with the information contained in the documents (including the EIS) listed in condition 2 of schedule 3; and
  - (c) designed and constructed such that the works do not cause sedimentation, erosion or permanent diversion of the Protected Waters;

*Note: Should Crown land, as defined under the Crown Lands Act 1989, be included in the crossing, there is a requirement to seek approval from the Department of Lands under the Crown Lands Act 1989.*



## WASTE MANAGEMENT

30. <sup>7</sup>The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.

*Note: This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the site if it requires an Environment Protection Licence under the Protection of the Environment Operations Act 1997.*

31. The Applicant shall ensure that the site has a suitable sewage disposal system, to the satisfaction of the LCC.

## ABORIGINAL HERITAGE

32. The Applicant shall:
- (a) protect from disturbance, by fencing, the Aboriginal site and relics (the site) located close to Oakey Creek shown in Figure 2 of Technical Document 8 of the EIS (*Assessment and Management Recommendations for the Aboriginal Archaeological Site at 275 Adams Road Luddenham*) prepared by Umwelt (Australia) Pty Limited and dated September 2001;
  - (b) not allow stormwater or other discharges to be directed across the site;
  - (c) not allow sedimentation to occur on the site;
  - (d) provide training in the cultural values of Aboriginal sites to all permanent staff;
  - (e) protect the site from damage; and
  - (f) allow access to the site by representatives of the Gandangara Local Aboriginal Land Council to allow educational and cultural activities and monitoring of the condition of the site.

## REHABILITATION & VEGETATION

33. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Rehabilitation Plan in accordance with the rehabilitation guidelines in the document titled *Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2) – Planning Report*, to the satisfaction of the Director-General. The Site Rehabilitation Plan shall include a Vegetation Management Plan.
34. The Vegetation Management Plan shall include:
- (a) revegetation of the riparian zone of Oakey Creek;
  - (b) protection, establishment and maintenance of the riparian zone;
  - (c) protection of remnant native vegetation;
  - (d) restoration of any areas within the riparian zone disturbed by the development; and
  - (e) a program to vegetate the noise attenuation bund.
35. The Applicant shall provide annual audits of the performance of the rehabilitation undertaken on the site to be included in the AEMR. The audit shall be conducted by a qualified rehabilitation consultant, approved by the Director-General.
36. Prior to 5 years of the estimated completion of extractive activities at the site, the Applicant shall submit a report to the Department identifying the final land use of the site and method of treatment for the final void.

## Rehabilitation Bond

37. Prior to commencement of operations on Lot 3, DP 623799, the Applicant shall provide a Rehabilitation Bond in the sum of \$166,750 in the form of an insurance bond or bank guarantee acceptable to the Director-General from any bank licensed pursuant to the *Banking Act 1959 (Cth)*. The Rehabilitation Bond shall be made in favour of the Minister administering the *Environmental Planning & Assessment Act 1979* to ensure completion of the rehabilitation and landscaping works at the site. The sum of the Rehabilitation Bond is calculated based on \$2.50 per square metre for a maximum exposed area of 6.67 hectares (ha).

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<sup>7</sup> DEC GTA



The Department shall review the adequacy of Rehabilitation Bond to provide for the completion of rehabilitation and landscaping works on the site at intervals of not less than three years. The Applicant shall ensure that the Rehabilitation Bond is in accordance with the sum determined by the review.

**Notes:**

- (a) *The Director-General may at any time, and without notice to the Applicant, demand all or part of the monies available under the Rehabilitation Bond if, in the Director-General's opinion, the Applicant has failed to make satisfactory progress on the rehabilitation and landscaping of the site.*
- (b) *The Director-General shall apply the monies to ensure that the actions specified in the documents listed in condition 2 of schedule 3 and/or any approved Site Rehabilitation Plan are achieved.*
- (c) *The Rehabilitation Bond will be released when the Applicant submits documentation prepared by a qualified rehabilitation consultant certifying that the final rehabilitation has been completed in accordance with the conditions of this consent and/or any approved Site Rehabilitation Plan, to the satisfaction of the Director-General.*

**VISUAL AMENITY**

- 38. The Applicant shall carry out the development in a way that prevents and/or minimises the visual impacts of the development.
- 39. Buildings, structures and roadworks shall be designed and constructed to present a neat and orderly appearance, to blend as far as practicable with the surrounding landscape and to minimise visual impact.

**TRAFFIC & TRANSPORT**

**Site Access Road/Elizabeth Drive Intersection**

- 40. <sup>8a9</sup>Prior to the transport of clay/shale materials from the site, the Applicant shall construct an intersection of the site access road and Elizabeth Drive in accordance with the information contained in the EIS, to the satisfaction of the RTA. This treatment shall be in accordance with RTA standards for a Rural Type AUR Right Turn Treatment and shall:
  - (a) incorporate an auxiliary left turn deceleration lane;
  - (b) safely integrate existing access to the neighbouring property immediately to the east of the intersection;
  - (c) incorporate signs and linemarking in accordance with the relevant RTA standards;
  - (d) provide intersection lighting to the relevant standards, should the intersection be used outside of daylight hours; and
  - (e) be in accordance with detailed design plans submitted to the RTA for approval prior to the commencement of any roadworks.

*Note: All works must be carried out at the Applicant's expense. A plan checking fee and lodgement of performance bond may be required prior to the release of approved road design plans by the RTA.*

- 41. <sup>10</sup>Prior to 8 years from the commencement of this consent, the Applicant shall review the access arrangements to Elizabeth Drive, in consultation with PCC and LSC, and to the satisfaction of the RTA.

*Note: Part of the RTA's proposal for the road widening of Elizabeth Drive would result in its conversion to a four lane divided carriageway that would restrict access to the quarry site to left-in/left-out movements only.*

<sup>8</sup> Incorporates RTA's GTAs

<sup>9</sup> Incorporates PCC's GTA

<sup>10</sup> Incorporates RTA's GTA

## Road Transport Protocol

42. <sup>11</sup>Prior to the commencement of road haulage from the site, the Applicant shall develop a Road Transport Protocol, in consultation with the RTA, PCC and LCC. This protocol shall:
- (a) specify the haulage route(s) to be used, the maximum number of road movements and the haulage hours;
  - (b) include a Traffic Management Plan which addresses:
    - procedures to ensure that drivers adhere to the designated haulage route(s) as required under this Protocol;
    - measures to achieve a low-frequency, regular trucking schedule rather than a high-frequency, campaign trucking schedule;
    - contingency plans where, for example, any designated transport route is disrupted. This shall also address procedures for notifying relevant agencies and affected communities by the implementation of any such contingency plan;
    - procedures to ensure that all haulage vehicles associated with the quarry are clearly distinguishable as Badger Mining Company product haulers;
    - details for procedures for receiving and addressing complaints from the community concerning traffic issues associated with haulage from the quarry or return of unladen trucks to the quarry; and
    - measures to ensure the provisions of the traffic management plan are implemented, for example, education of drivers and any contractual agreements with operators of heavy vehicles which serve the quarry.
  - (c) include a Code of Conduct for drivers which addresses:
    - travelling speeds;
    - staggering of truck departures to ensure a regular trucking schedule throughout the day;
    - instructions to drivers not to overtake each other on the haulage route(s), as far as practicable, and to maintain appropriate distances between vehicles;
    - instructions to drivers to adhere to the designated haulage route(s);
    - instructions to drivers to be especially safety conscious and to ensure that traffic regulations are obeyed strictly;
    - driver training in the Code to ensure that all drivers are made aware and adhere to the Code; and
    - procedures for ensuring compliance with and enforcement of the Code.

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<sup>11</sup> Incorporates RTA's GTAs



## SCHEDULE 6

### ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

#### ENVIRONMENTAL MANAGEMENT STRATEGY

1. Before carrying out any development, the Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:
  - (a) provide the strategic context for environmental management of the development;
  - (b) identify the statutory requirements that apply to the development;
  - (c) describe in general how the environmental performance of the development would be monitored and managed during the development;
  - (d) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - receive, handle, respond to, and record complaints;
    - resolve any disputes that may arise during the course of the development;
    - respond to any non-compliance;
    - manage cumulative impacts; and
    - respond to emergencies; and
  - (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.
2. Within 14 days of the Director-General's approval, the Applicant shall:
  - (a) send copies of the approved strategy to the relevant agencies, PCC, LCC and the Community Consultative Committee (CCC) (see condition 8); and
  - (b) ensure the approved strategy is publicly available during the development.

#### ENVIRONMENTAL MONITORING PROGRAM

3. Before carrying out any development, the Applicant shall prepare an Environmental Monitoring Program for the development in consultation with the relevant agencies, and to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 4 of this consent into a single document.
4. The Applicant shall regularly review, and if necessary update, this program in consultation with the Director-General.

#### ANNUAL REPORTING

5. The Applicant shall submit, annually, an AEMR to the Director-General and the relevant agencies. This report must:
  - (a) provide a summary of the operations conducted at the site in the reporting period;
  - (b) provide details of quantities of light-firing claystone/shale, dark-firing claystone/shale, plastic clay, sandstone and waste materials extracted;
  - (c) provide monthly summaries of the quantities of extracted materials transported, and number of truck movements, to each market destination;
  - (d) identify the standards and performance measures that apply to the development;
  - (e) include a summary of the complaints received during the past year, and compare this to the complaints received in the previous years;
  - (f) include a summary of the monitoring results on the development during the past year;
  - (g) include an analysis of these monitoring results against the relevant:
    - impact assessment criteria;
    - monitoring results from previous years; and
    - predictions in the EIS;
  - (h) identify any trends in the monitoring over the life of the development;
  - (i) identify any non-compliance during the previous year; and
  - (j) describe what actions were, or are being, taken to ensure compliance.

#### INDEPENDENT ENVIRONMENTAL AUDIT

6. Within 2 years of the date of this consent, and every 5 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
  - (a) be conducted by a suitably qualified, experienced, and Independent person whose appointment has been endorsed by the Director-General;



- (b) be consistent with *ISO 19011:2002 – Guidelines for Quality and/or Environmental Systems Auditing*, or equivalent updated versions of this guideline;
  - (c) assess the environmental performance of the development, and its effects on the surrounding environment;
  - (d) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
  - (e) review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and, if necessary,
  - (f) recommend measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems.
7. Within 3 months of commissioning this audit, the Applicant shall submit a copy of the audit report to the Director-General, with a response to any of the recommendations contained in the audit report.

#### COMMUNITY CONSULTATIVE COMMITTEE

8. The Applicant shall ensure that there is a Community Consultative Committee to oversee the environmental performance of the development. This committee shall, unless otherwise agreed by the Director-General:
- (a) be comprised of:
    - 2 representatives from the Applicant, including the person responsible for environmental management at the quarry;
    - 1 representative from LCC;
    - invited representatives from DEC and the Department; and
    - 3 representatives from the local community
 whose appointment has been approved by the Director-General, in consultation with LCC;
  - (b) be chaired by an independent Chair, whose appointment is approved by the Director-General;
  - (c) meet at least four times in the first year of its operation and at least twice a year thereafter; and
  - (d) review and provide advice on the environmental performance of the development, including any construction or environmental management plans, monitoring results, audit reports, or complaints.
9. The Applicant shall, at its own expense:
- (a) ensure that 2 of its representatives attend the Committee's meetings;
  - (b) provide the Committee with regular information on the environmental performance and management of the development;
  - (c) provide meeting facilities for the Committee;
  - (d) arrange site inspections for the Committee, if necessary;
  - (e) take minutes of the Committee's meetings;
  - (f) make these minutes available to the public for inspection within 14 days of the Committee meeting, or as agreed to by the Committee;
  - (g) respond to any advice or recommendations the Committee may have in relation to the environmental management or performance of the development;
  - (h) forward a copy of the minutes of each Committee meeting, and any responses to the Committee's recommendations to the PCC, LCC and Director-General within a month of the Committee meeting.
10. The Applicant shall ensure that the Committee has its first meeting before the Environmental Management Strategy (see condition 1) is submitted to the Director-General for approval.





APPENDIX C - Copy of Current Environment Protection Licence No 12863 and other Statutory  
Instruments Issued by the NSW EPA

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# Environment Protection Licence

Licence - 12863



Licence Details	
Number:	12863
Anniversary Date:	05-June

Licensee
EPIC MINING PTY LIMITED
PO BOX 177
KEMPS CREEK NSW 2171

Premises
FERNDALE
275 ADAMS ROAD
LUDDENHAM NSW 2525

Scheduled Activity
Extractive Activities

Fee Based Activity	Scale
Other Land-Based Extraction	> 100000-500000 T obtained

Region
Metropolitan - Sydney Industry
Level 3, NSW Govt Offices, 84 Crown Street
WOLLONGONG NSW 2500
Phone: (02) 9995 5000
Fax: (02) 9995 6900
PO Box 513 WOLLONGONG EAST
NSW 2520

# Environment Protection Licence

Licence - 12863



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# Environment Protection Licence

Licence - 12863



## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

# Environment Protection Licence

Licence - 12863



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

### Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

### Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

### This licence is issued to:

EPIC MINING PTY LIMITED
PO BOX 177
KEMPS CREEK NSW 2171

subject to the conditions which follow.

# Environment Protection Licence

Licence - 12863



## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Extractive Activities	Other Land-Based Extraction	> 100000 - 500000 T obtained

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
FERNDALE
275 ADAMS ROAD
LUDDENHAM
NSW 2525
LOT 3 DP 623799, LOT 1 DP 838361

### A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

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## Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Dust deposition monitoring		Dust deposition gauge located 5 m from the northern boundary near Elizabeth Drive shown as point D1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
2	Dust deposition monitoring		Dust deposition gauge located 30 m from the boundary of the Hubertus Country Club shown as point D2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
3	Dust deposition monitoring		Dust deposition gauge located 150 m from the south western boundary of the site shown as point D3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
4	Dust deposition monitoring		Dust deposition gauge located in the middle of the southern boundary of the site shown as point D4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
5	Dust deposition monitoring		Dust deposition gauge located at the eastern boundary of the site shown as point D5 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
11	Weather monitoring station		Weather monitoring station located near the site offices near the middle of the site labelled as WSM1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

## Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
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# Environment Protection Licence

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6	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	Outlet from the site to Oaky Creek labelled as point WS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
7	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	At Oaky Creek located 20 m from the southern boundary of the site labelled as point WS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
8	Groundwater monitoring		Groundwater monitoring bore located at the southern boundary of the site labelled as BMS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
9	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and the southern boundary of the site labelled as BMS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
10	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and -- southern boundary of the site labelled as BMS3 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

## 3 Limit Conditions

### L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

### L2 Concentration limits

- L2.1 For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.
- L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.
- L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table.



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## L2.4 Water and/or Land Concentration Limits

### POINT 6

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

### POINT 7

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

## L3 Volume and mass limits

- L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
- a) liquids discharged to water; or;
  - b) solids or liquids applied to the area;
- must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
6	kilolitres per day	1000

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7	kilolitres per day	1000
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## L4 Waste

- L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

## L5 Noise limits

- L5.1 Noise from the premises must not exceed an LAeq(15 minute) noise emission criterion of 41 dB(A) at any residential or other sensitive receptors not associated with the activities except as expressly provided by this licence.

Where LAeq means the equivalent continuous noise level - the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

- L5.2 To determine compliance with condition(s) L6.1 noise must be measured at, or computed for, the locations specified in the table titled "noise monitoring locations". A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "Environmental Noise Management - NSW Industrial Noise Policy (January 2000)".
- L5.3 The noise emission limits identified in this licence apply under all meteorological conditions except:
- during rain and wind speeds (at 10m height) greater than 3m/s; and
  - under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

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## **L6 Hours of operation**

- L6.1** Activities covered by this licence, including haulage vehicles entering and leaving the premises, must only be carried out between the hours of 0700 and 1800 Monday to Friday and at no time on Saturdays, Sundays and Public Holidays.

This condition does not apply to the delivery of material outside the hours of operation, 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, prior notification is provided to the EPA and affected residents as soon as possible, or within a reasonable period in the case of emergency.

## **L6.2 Hours of operations for maintenance purposes**

Maintenance of equipment used on site may be conducted during normal operating hours and on Saturdays between 0700 and 1300 hrs provided that the noise emission criterion of 41 dB(A) LAeq(15 minute) is not exceeded at the locations specified in table titled "Noise monitoring locations".

## **4 Operating Conditions**

### **O1 Activities must be carried out in a competent manner**

- O1.1** Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

### **O2 Maintenance of plant and equipment**

- O2.1** All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

### **O3 Dust**

- O3.1** The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

- O3.2** The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.

### **O4 Other operating conditions**

- O4.1** A Stormwater Management Plan must be prepared for the development and must be implemented as soon

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as normal operations commence. Implementation of the Plan must mitigate the impacts of stormwater runoff from and within the premises following the completion of construction activities. The Stormwater Management Plan should be consistent with the guidance contained in *Managing Urban Stormwater: Council Handbook* (available from the EPA).

O4.2 Blasting is not permitted on or within any part of the premises.

## 5 Monitoring and Recording Conditions

### M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:

- a) in a legible form, or in a form that can readily be reduced to a legible form;
- b) kept for at least 4 years after the monitoring or event to which they relate took place; and
- c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

### M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

#### POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

#### POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

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## POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

## POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

## POINT 5

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

## M2.3 Water and/ or Land Monitoring Requirements

## POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Quarterly during discharge	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

## POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Special Frequency 1	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

M2.4 Special frequency 1 referred to under Point 6 and Point 7 means: monitoring for the specified pollutants shortly after commencement of normal operation on site and on a quarterly basis thereafter provided that water is being discharged from the site. If water is not being discharged from the site, the monitoring must be conducted at least twice in the first 12 months period of normal operation. In this case the monitoring must be conducted at least 150 days apart.

## M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

- any methodology which is required by or under the Act to be used for the testing of the



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concentration of the pollutant; or

b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

**Note:** The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

**M3.2** Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

## M4 Weather monitoring

**M4.1** For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	oC	Continuous	1 hour	AM-4
Wind direction	o	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta	o	Continuous	15 minute	AM-2 & AM-4
Rainfall	mm	Continuous	24 hour	AM-4

## M5 Recording of pollution complaints

**M5.1** The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

**M5.2** The record must include details of the following:

- the date and time of the complaint;
- the method by which the complaint was made;
- any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

# Environment Protection Licence

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- M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

## M6 Telephone complaints line

- M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M6.3 The preceding two conditions do not apply until 3 months after:
  - a) the date of the issue of this licence or
  - b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

## M7 Requirement to monitor volume or mass

- M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:
  - a) the volume of liquids discharged to water or applied to the area;
  - b) the mass of solids applied to the area;
  - c) the mass of pollutants emitted to the air;at the frequency and using the method and units of measure, specified below.

### POINT 6

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

### POINT 7

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

Note: In line instrumentation means using manufacturer's specifications for the existing pump multiplied by the time it is used.

## M8 Other monitoring and recording conditions

- M8.1 The licensee must monitor the noise emanating from the activities at all five (5) locations specified in the table titled "Noise monitoring locations". This monitoring must be conducted shortly after commencement of normal operation on site and on a quarterly basis thereafter.

# Environment Protection Licence

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## Noise monitoring locations

Location number	Location description	Easting	Northing
N1	Noise monitoring station located 5 m from the northern boundary near Elizabeth Drive shown as point N1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289130	6249975
N2	Noise monitoring station located 30 m from the boundary of the Hubertus Country Club shown as point N2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288680	6279460
N3	Noise monitoring station located 150 m from the south western boundary of the site shown as point N3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288950	6248930
N4	Noise monitoring station located in the middle of the southern boundary of the site shown as point N4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289480	6248890

M8.2 The monitoring specified in conditions M2, M4, M7 and M8 must be conducted for a minimum period of 12 months.

Following assessment of the monitoring results for this 12 months period, the EPA will adjust the monitoring requirements in consultation with the licensee.

## 6 Reporting Conditions

### R1 Annual return documents

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R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

- a) a Statement of Compliance; and
- b) a Monitoring and Complaints Summary.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.8 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

## R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

# Environment Protection Licence

Licence - 12863



- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

## R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
  - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
  - b) the type, volume and concentration of every pollutant discharged as a result of the event;
  - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
  - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
  - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
  - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
  - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

## R4 Other reporting conditions

- R4.1 The licensee must provide a written report to the Manager Sydney Industry, PO Box 668, DECC Parramatta 2124 within 28 days of the completion of the monitoring required in conditions M2, M6, M7 and M8.
- R4.2 At the end of the first 12 months period, the licensee must submit to the EPA's Manager Sydney Industry, PO Box 668 Parramatta NSW 2124, a report outlining the results of the monitoring. The report must be submitted within 28 days from the completion of the monitoring.



# Environment Protection Licence

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Licence - 12863



## 7 General Conditions

### **G1 Copy of licence kept at the premises or plant**

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

# Environment Protection Licence

Licence - 12863



## Dictionary

### General Dictionary

<b>3DGM [in relation to a concentration limit]</b>	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
<b>Act</b>	Means the Protection of the Environment Operations Act 1997
<b>activity</b>	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
<b>actual load</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>AM</b>	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>AMG</b>	Australian Map Grid
<b>anniversary date</b>	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>annual return</b>	Is defined in R1.1
<b>Approved Methods Publication</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>assessable pollutants</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>BOD</b>	Means biochemical oxygen demand
<b>CEM</b>	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>COD</b>	Means chemical oxygen demand
<b>composite sample</b>	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
<b>cond.</b>	Means conductivity
<b>environment</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>environment protection legislation</b>	Has the same meaning as in the Protection of the Environment Administration Act 1991
<b>EPA</b>	Means Environment Protection Authority of New South Wales.
<b>fee-based activity classification</b>	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
<b>general solid waste (non-putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

# Environment Protection Licence

Licence - 12863



<b>flow weighted composite sample</b>	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
<b>general solid waste (putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>grab sample</b>	Means a single sample taken at a point at a single time
<b>hazardous waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>licensee</b>	Means the licence holder described at the front of this licence
<b>load calculation protocol</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>local authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>material harm</b>	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
<b>MBAS</b>	Means methylene blue active substances
<b>Minister</b>	Means the Minister administering the Protection of the Environment Operations Act 1997
<b>mobile plant</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>motor vehicle</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>O&amp;G</b>	Means oil and grease
<b>percentile [in relation to a concentration limit of a sample]</b>	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
<b>plant</b>	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
<b>pollution of waters [or water pollution]</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>premises</b>	Means the premises described in condition A2.1
<b>public authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>regional office</b>	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
<b>reporting period</b>	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>restricted solid waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>scheduled activity</b>	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
<b>special waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>TM</b>	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

# Environment Protection Licence

Licence - 12863



<b>TSP</b>	Means total suspended particles
<b>TSS</b>	Means total suspended solids
<b>Type 1 substance</b>	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
<b>Type 2 substance</b>	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
<b>utilisation area</b>	Means any area shown as a utilisation area on a map submitted with the application for this licence
<b>waste</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>waste type</b>	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr David Gathercole

Environment Protection Authority

(By Delegation)

Date of this edition: 05-June-2009

## End Notes

1	Licence transferred through application 146040, approved on 22-Dec-2009, which came into effect on 14-Dec-2009.
2	Licence varied by notice 1112136, issued on 15-Mar-2010, which came into effect on 15-Mar-2010.
3	Licence transferred through application 146392, approved on 18-Jan-2011, which came into effect on 18-Jan-2011.
4	Licence varied by notice 1502055 issued on 28-Nov-2011



Our reference: FIL12/ 9291

Mr Samuel Tarabori  
EPIC MINING PTY LIMITED  
PO BOX 177  
KEMPS CREEK NSW 2171

1 November 2012

Dear Mr Tarabori,

**Desktop Audit of Requirements to Publish Pollution Monitoring Data  
FINAL Audit Findings – FERNDALE  
(Licence No. 12863)**

The Environment Protection Authority (EPA) has completed a desk top Epic Mining Pty Ltd's compliance with the recent amendments to the Protection of the Environment Operations Act 1997 (POEO Act) that require holders of environment protection licences who undertake monitoring as a result of a licence condition to publish the data on the licensee's website. If the licensee does not have a website, data is to be made publicly available on request.

The intention of these requirements is to improve the community's access to information about the environmental performance of licensed facilities.

The objective of the desk top audits was to assess the level of licensees' compliance with the requirements of section 66(6) of the POEO Act 1997 relating to the publishing of monitoring data.

Findings from the audits will also provide information to inform the review of the EPA's *Requirements for publishing pollution monitoring data*. The EPA will consider any issues identified to ensure that the Requirements enable licensees to publish pollution monitoring data in an effective and meaningful manner.

The desk top audit was undertaken on 18 September 2012 and a draft summary of audit findings was sent to the licensee on 19 September 2012.

The findings of the desk top audit indicated that Epic Mining Pty Ltd does not have a local or corporate website and as such is not required to publish pollution monitoring data.

However, the licensee is reminded that in accordance with the POEO Act requirements the licensee is required to provide a copy of the pollution monitoring data at no charge to any person who requests a copy of the data in writing.

PO Box A290 Sydney South NSW 1232  
59-61 Goulburn St Sydney NSW 2000  
Tel: (02) 9995 5000 Fax: (02) 9995 5999  
TTY (02) 9211 4723  
ABN 30 841 387 271  
[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)



No comments were received from the licensee on the draft audit findings.

The desk top audit has now been finalised and this letter outlining the Final Audit Findings will be placed on the POEO Public Register <http://www.environment.nsw.gov.au/prpoeoapp/> .

If you require further information or clarification on any matters regarding this audit, please do not hesitate to contact Marina.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Winston Wickremeratne', with a stylized flourish at the end.

**Dr Winston Wickremeratne**  
**A/Manager Compliance and Assurance**  
**Environment Protection and Regulation**

# Licence Variation

Licence - 12863



BLUE SKY MINING (AUSTRALIA) PTY LTD,  
ABN 12 140 940 192,  
LEVEL 2 10 PHILLIP STREET,  
PARRAMATTA NSW 2150

Attention: Mr. SAMUEL TARABORI

Notice Number 1112136  
File Number LIC08/497  
Date 15-Mar-2010

## NOTICE OF VARIATION OF LICENCE NO. 12863

### BACKGROUND

- A. BLUE SKY MINING (AUSTRALIA) PTY LTD ("the licensee") is the holder of Environment Protection Licence No. 12863 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the Act"). The licence authorises the carrying out of Scheduled Activity - Premises Based at 275 Adams Road, LUDDENHAM, NSW.
- B. On 25 February 2010 the EPA received a request for the variation of the licence. The licensee requested that some changes be made to the licence to reflect monitoring and reporting requirements as agreed previously with the licensee. The request included also a change to reflect the current Australian Standard used for the monitoring of PM10.
- C. The EPA has considered the licensee's request and decided to approve it subject to the conditions included in this notice.
- D. This notice varies the licence in accordance with the attached document.

### VARIATION OF LICENCE NO. 12863

1. By this notice the EPA varies licence No. 12863 as set out in the attached document. This document contains a copy of the provisions of the licence marked with the variations that are made to it by this notice.
2. The variations to the licence are indicated in the following way:
  - if a strike through mark appears through any word or other text (eg. ~~seems to~~) this indicates that the word or other text is deleted from the licence by this notice; and
  - if a underline appears under any word or other text (eg. to be treated) this indicates that the word or other text is added to the licence by this notice.

# Licence Variation

Licence - 12863



.....  
**Mr Robert Marr**

**Acting Head Regional Operations Unit**

**Sydney Industry Section**

(by Delegation)

## INFORMATION ABOUT THIS NOTICE

- ▣ This notice is issued under section 58(5) of the Act.
- ▣ Details provided in this notice, along with an updated version of the licence, will be available on the EPA's Public Register (<http://www.environment.nsw.gov.au/prpoeo/index.htm>) in accordance with section 308 of the Act.

## Appeals against this decision

- ▣ You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

## When this notice begins to operate

- ▣ The variations to the licence specified in this notice begin to operate immediately from the date of this notice, unless another date is specified in this notice.
- ▣ If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).

# Licence Variation

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Licence - 12863



Office of  
Environment  
& Heritage

EPIC MINING PTY LIMITED

ABN 86 144 713 931

PO BOX 177

KEMPS CREEK NSW 2171

Attention:

Notice Number     1502055  
File Number        LIC08/497  
Date                 28-Nov-2011

## NOTICE OF VARIATION OF LICENCE NO. 12863

### BACKGROUND

- A. EPIC MINING PTY LIMITED ("the licensee") is the holder of Environment Protection Licence No. 12863 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the Act"). The licence authorises the carrying out of activities at 275 Adams Road, LUDDENHAM, NSW, 2525 ("the premises").
- B. The Environment Protection Authority (EPA) recently replaced its regulatory and statutory management system with a modernised window based system. As a result of this change, some licences were slightly modified.
- C. This variation notice is issued to correct these modifications to ensure that the current licence is consistent with the licence issued under the previous system.

### VARIATION OF LICENCE NO. 12863

1. By this notice the EPA varies licence No. 12863. The attached licence document contains all variations that are made to the licence by this notice.
2. The following variation have been made to the licence:
  - Attach all conditions that were not migrated during the changes in statutory systems,
  - Perform minor editorial and formatting to sections of the licence to ensure consistency with previously archived licence, and
  - Amend condition M7.1 to clarify the sampling method.



# Licence Variation

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Office of  
Environment  
& Heritage

.....  
**Kieran Horkan**  
**Unit Head**  
**Metropolitan - Sydney Industry**  
(by Delegation)

## INFORMATION ABOUT THIS NOTICE

- This notice is issued under section 58(5) of the Act.
- Details provided in this notice, along with an updated version of the licence, will be available on the EPA's Public Register (<http://www.environment.nsw.gov.au/prpoeo/index.htm>) in accordance with section 308 of the Act.

## Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

## When this notice begins to operate

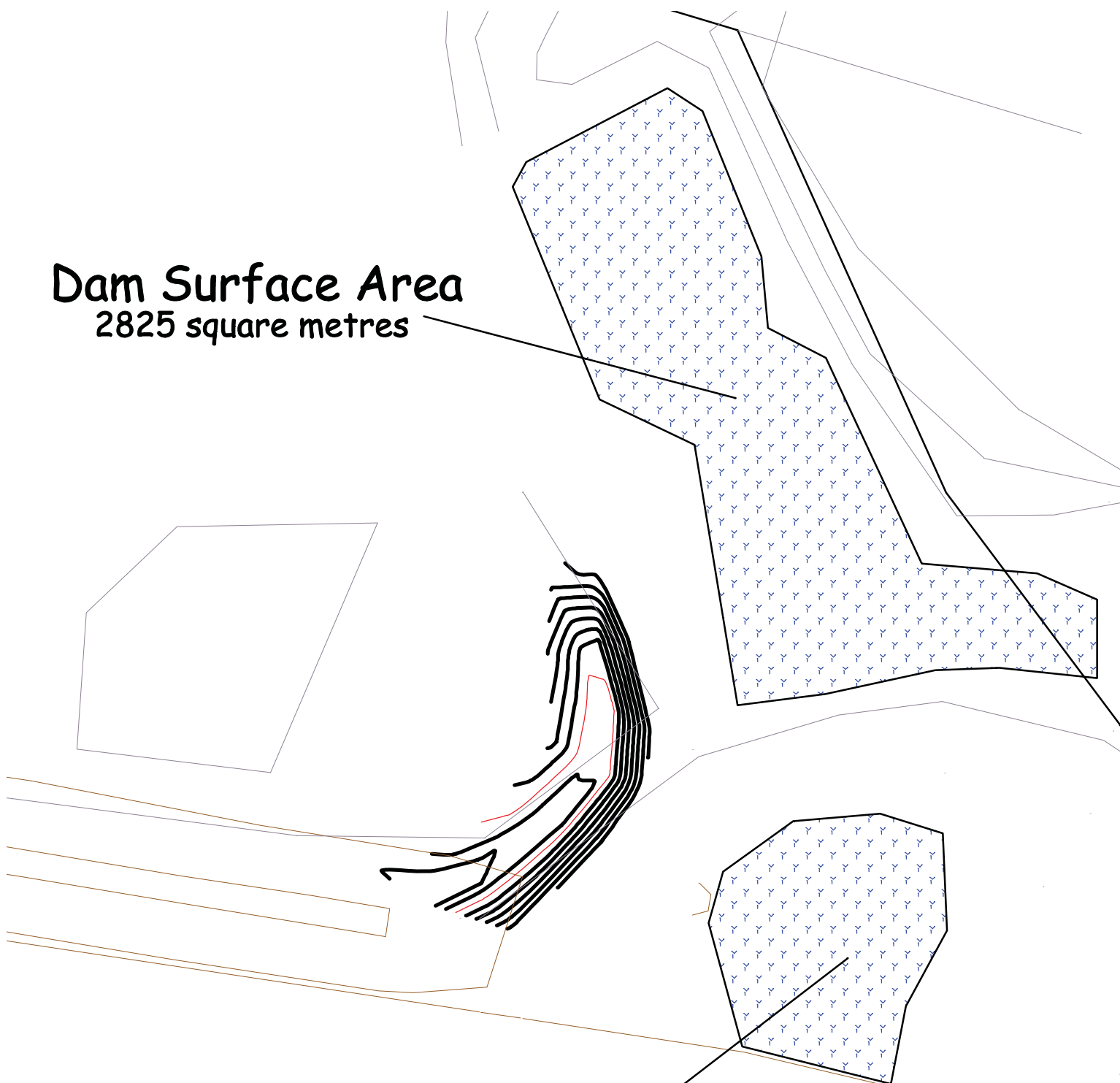
- The variations to the licence specified in this notice begin to operate immediately from the date of this notice, unless another date is specified in this notice.
- If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).



APPENDIX D - New Site Plan Ref No 01019-T5 & T6 and 01019-T1 & T2 Sedimentation Dams  
Surface Area Ref 01019

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**Dam Surface Area**  
2825 square metres

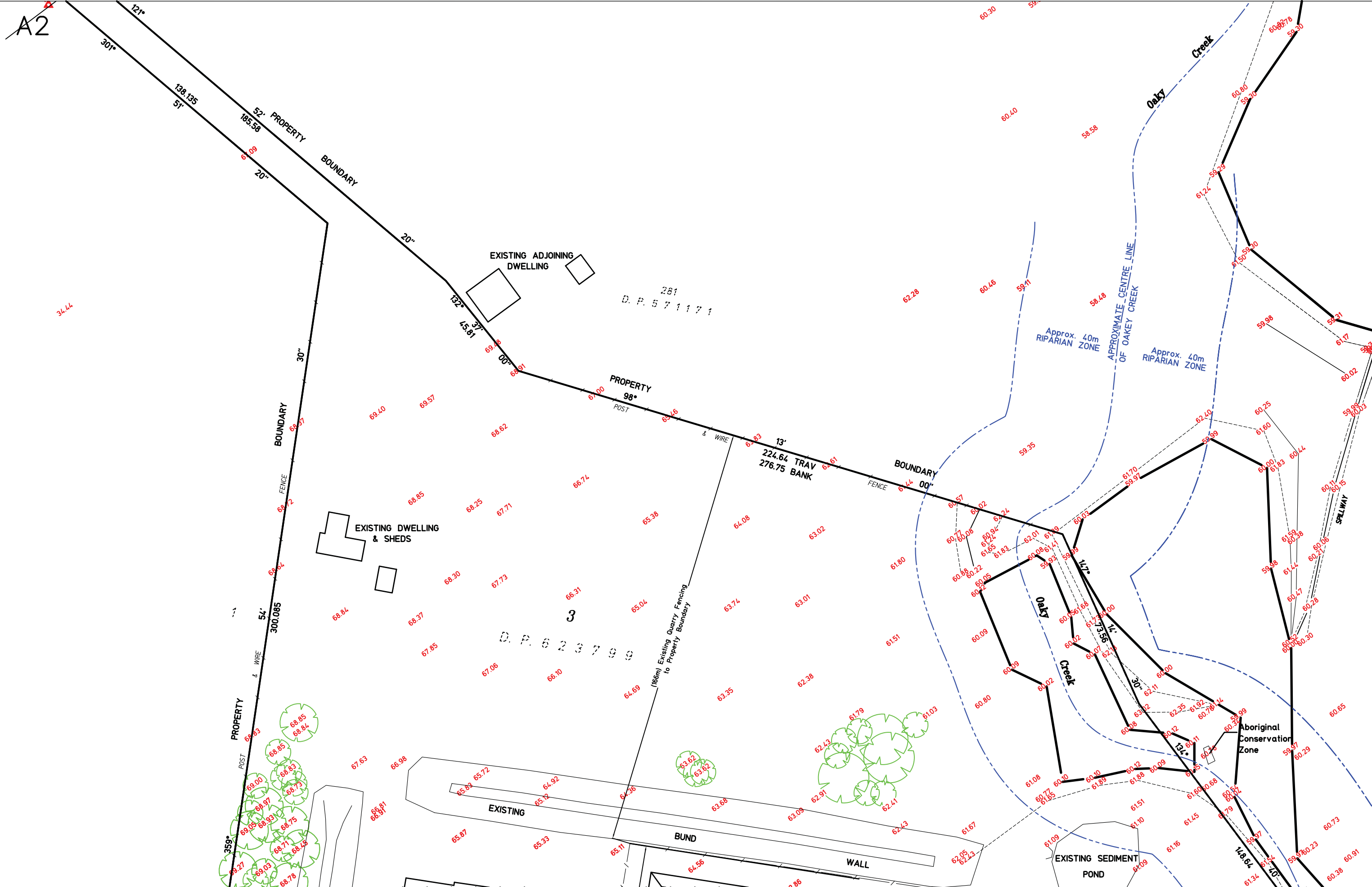


**Dam Surface Area**  
1015 square metres

Ref : 01019  
21st May 2012

A2





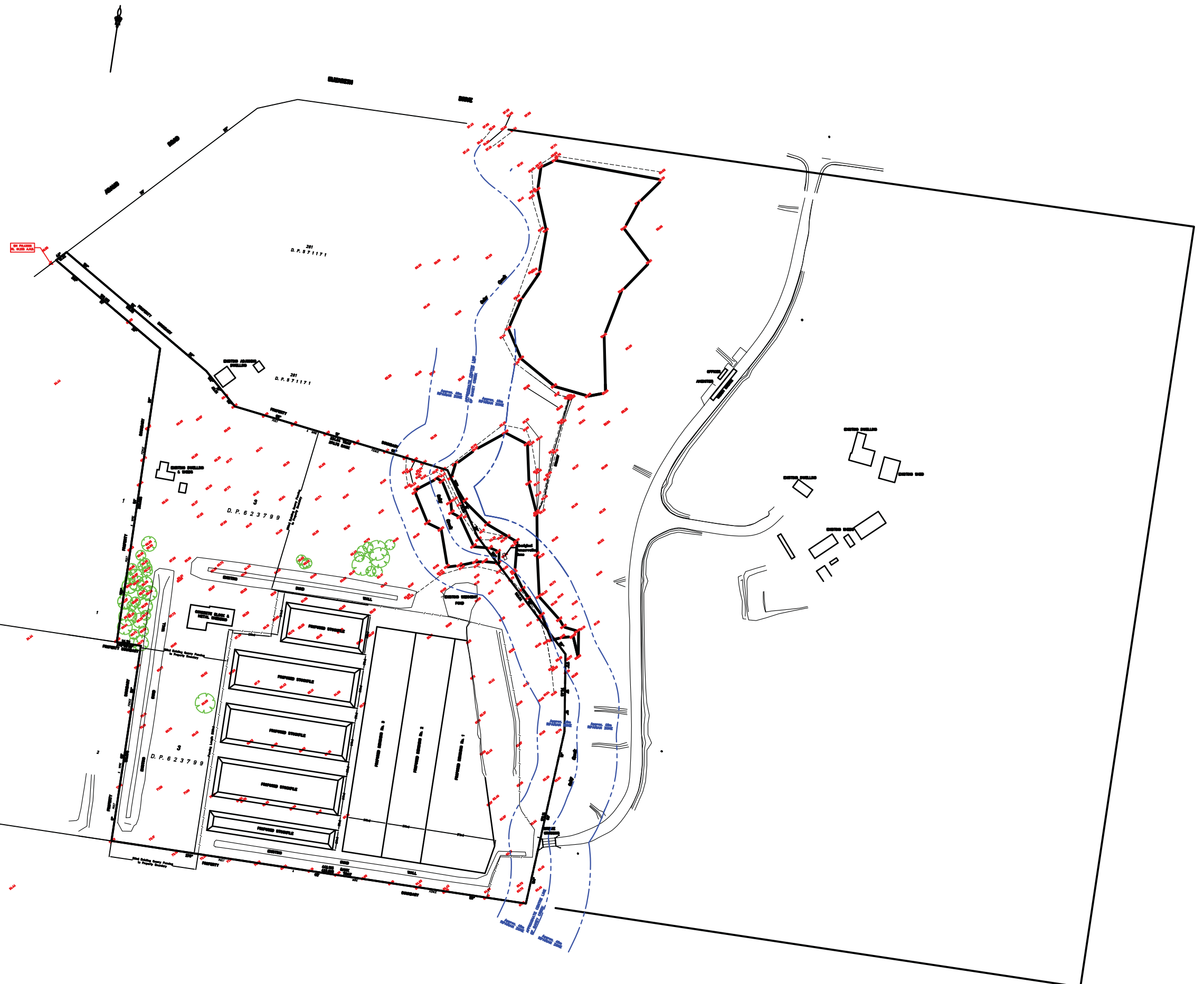
**MONAGHAN SURVEYORS PTY LTD**  
Consultants in Land & Engineering Surveying  
67 The Terrace, WINDSOR N.S.W. 2756  
Ph. (02)4577-5393 Fax (02)4577-5321  
email: admin@gjmonaghan.com.au

0 10 20 30 40 50										Table of mm 100 110 120 130 140 150									
Reduction Ratios										Prepared by : G. Monaghan									
Plan : 1:1500										Plan Date : 08-11-2010									
Horiz. : - Vert. : -										Checked : -									
Contour Interval : 1 metre										Surveyed by : Varoious									
Datum : AHD										Survey Date : Adendum 29-10-10									
Origin : PM43336 (RL61.255 AHD)										Signed : .....									

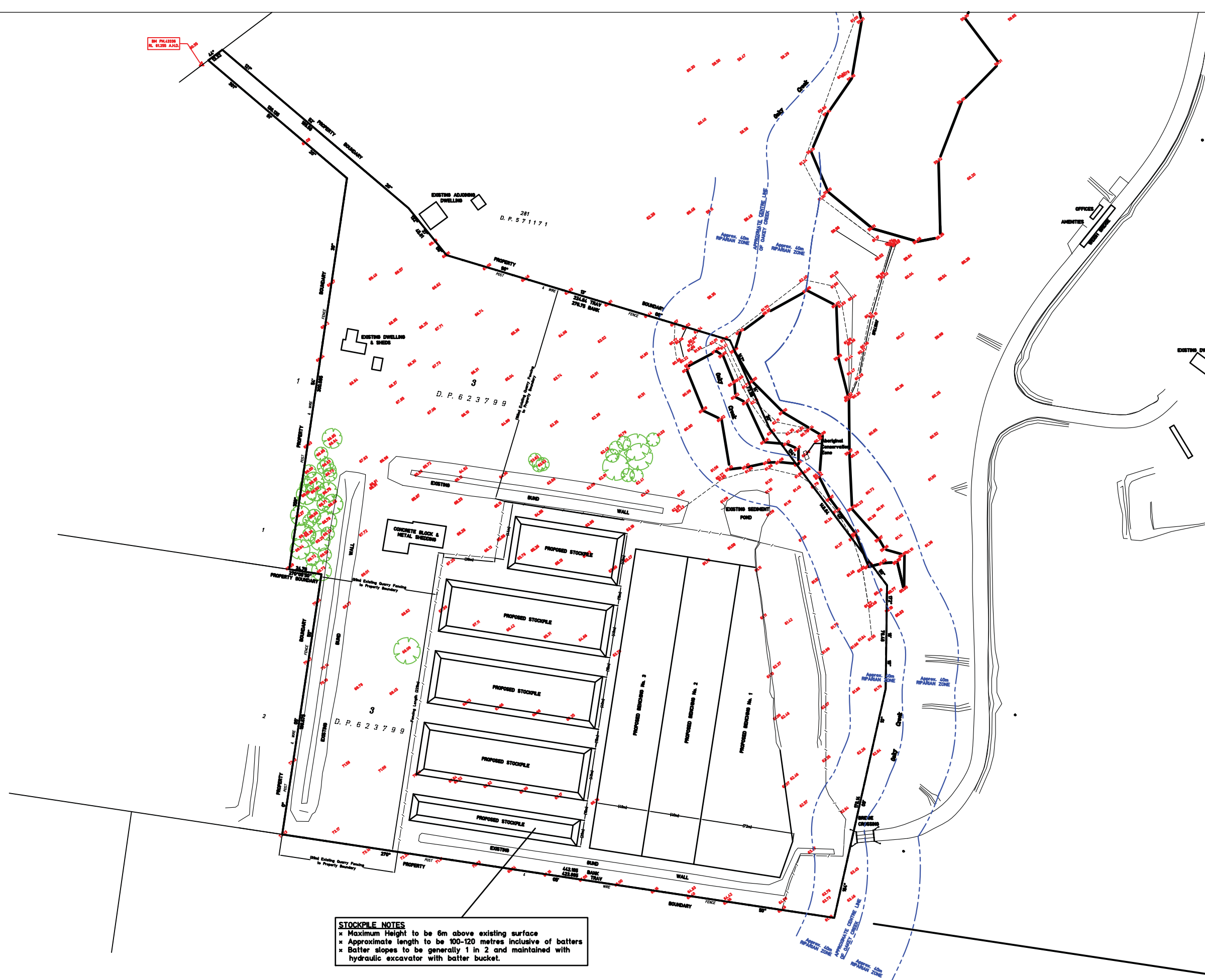
LOCALITY : Luddenham  
PARISH : Bringelly  
COUNTY : Cumberland  
Council : Liverpool  
Council Ref : -  
Approval Date : -

Client : Epic Mining  
Project : Plan of Compiled Detail Site Information  
of Lot 3 in D.P.623799  
& Adjoining Lot 281 in D.P.571171  
No. 275 Adams Road  
LUDDENHAM

Approved :	SHEET No. 2 OF 5 SHEETS
Computer Ref : 01019-T2	
Proj. Name :	
REF : 01019-T2	

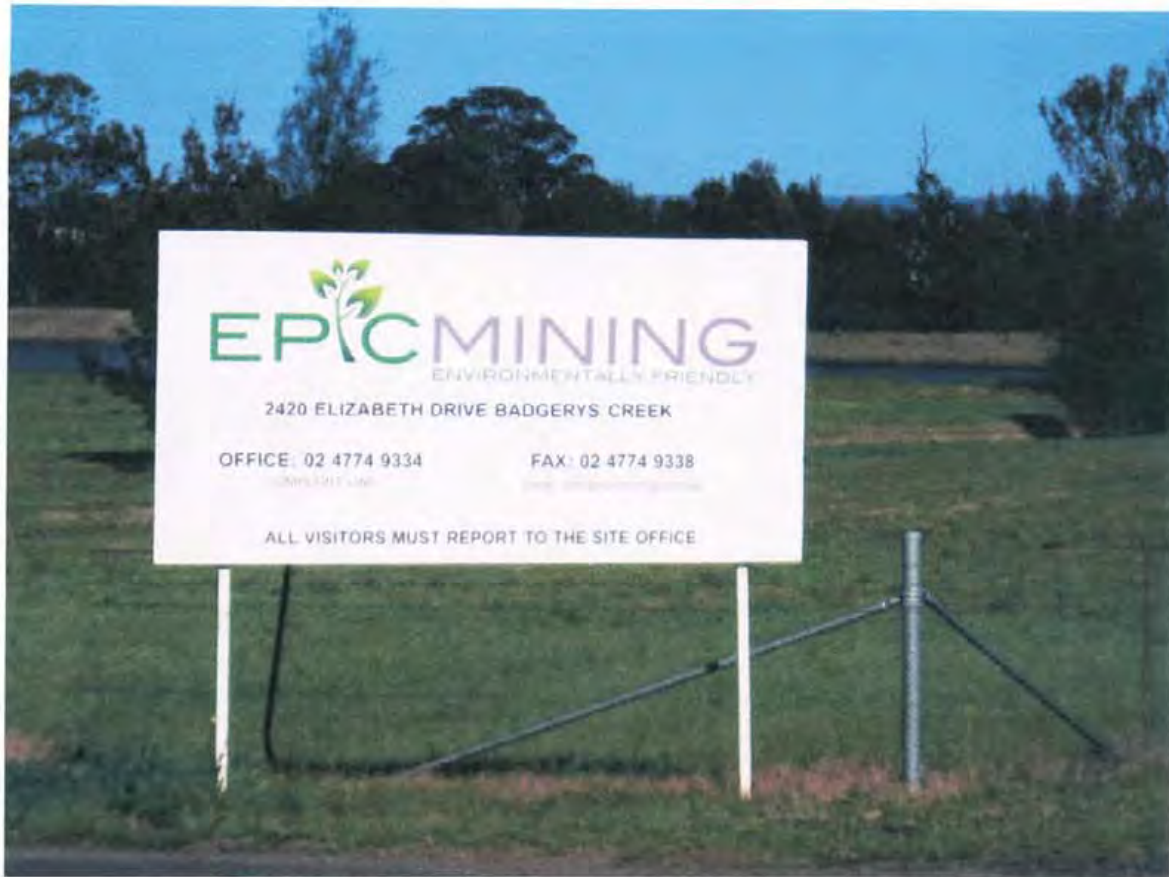






## APPENDIX E - Photos of Current Features within the Site

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**Photo 1 - Company's sign at main entrance to the quarry**



**Photo 2 – Aerial view of the site in the local context**





**Photo 3 –View of the quarry & other features within/outside the site**



**Photo 4 – Main entrance of quarry from Elizabeth Drive**





**Photo 5 – A view of the site's main entrance from Elizabeth Drive**



**Photo 6 – Another view of the main entrance from Elizabeth Drive**





**Photo 7 – View of the riparian zone – early stage**



**Photo 8 – Another view of the riparian zone – early stage**





**Photo 9 – View of the riparian zone – later stage**



**Photo 10 – Sedimentation pond 1**





**Photo 11 – Sedimentation pond 2**

## APPENDIX F – Current Environmental Discharge & Monitoring Locations

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## APPENDIX G - Summary of On-site Meteorological Conditions for 2011, 2012 & 2013



## ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:

ELEV: 80 m LAT: LONG:

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN			DEP.	HEAT	COOL	HI	DATE	LOW	DATE	MAX		MIN	
		MAX	MIN	MEAN	FROM	DEG	DEG					>-32	<=0	<=0	<=-18
11	1	30.7	19.4	26.4	0.0	0	99	41.1	31	13.5	30	10	0	0	0
11	2	30.5	20.0	26.7	0.0	0	110	41.3	1	13.7	24	10	0	0	0
11	3	27.1	17.8	23.6	0.0	1	64	34.8	1	13.0	8	2	0	0	0
11	4	22.4	13.1	19.4	0.0	8	20	27.3	9	6.4	12	0	0	0	0
11	5	19.4	12.0	17.0	0.0	5	1	22.2	1	3.6	28	0	0	0	0
11	6	17.0	8.0	14.4	0.0	41	0	20.3	21	1.8	7	0	0	0	0
11	7	19.3	8.2	14.6	0.0	59	4	27.0	22	0.0	8	0	0	1	0
11	8	19.2	7.6	15.7	0.0	39	7	25.3	4	1.3	10	0	0	0	0
11	9	22.0	9.4	17.7	0.0	29	23	31.1	23	2.9	13	0	0	0	0
11	10	23.0	12.9	19.6	0.0	18	34	33.4	24	6.1	12	1	0	0	0
11	11	27.5	17.1	23.7	0.0	4	76	36.8	14	12.2	2	7	0	0	0
11	12	23.3	16.6	20.7	0.0	6	37	29.9	25	10.3	5	0	0	0	0
		23.7	13.7	20.2	0.0	211	476	41.3	FEB	0.0	JUL	30	0	1	0

## PRECIPITATION (mm)

YR	MO	TOTAL	DEP.	MAX	DATE	DAYS OF RAIN		
			FROM	OBS.		OVER		
						.2	2	20
11	1	2.0	0.0	1.2	23	2	0	0
11	2	5.2	0.0	4.0	12	4	1	0
11	3	10.0	0.0	3.4	20	7	2	0
11	4	4.0	0.0	2.0	26	6	1	0
11	5	0.4	0.0	0.2	2	2	0	0
11	6	6.6	0.0	3.0	14	5	2	0
11	7	0.0	0.0	0.0	1	0	0	0
11	8	4.6	0.0	2.8	19	4	1	0
11	9	22.4	0.0	21.4	25	3	1	1
11	10	14.4	0.0	9.0	2	5	3	0
11	11	14.8	0.0	6.0	23	9	2	0
11	12	13.6	0.0	7.6	8	4	2	0
97.9						51	15	1

## WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM
					DIR
11	1	1.1	30.6	27	S
11	2	1.4	40.2	3	S
11	3	1.5	45.1	30	NNE
11	4	1.4	41.8	12	NNW
11	5	1.1	27.4	5	N
11	6	2.1	59.5	21	NNW
11	7	1.8	61.2	5	NE
11	8	1.2	45.1	19	SE
11	9	2.4	59.5	20	SE
11	10	1.4	40.2	2	SSW
11	11	1.5	51.5	14	SE
11	12	1.4	33.8	11	SSW
		1.6	61.2	JUL	SSW

## ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:  
 ELEV: 80 m LAT: LONG:

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=32	MAX <=0	MIN <=0	MIN <=-18
12	1	27.4	18.1	23.9	0.0	1	89	35.3	4	11.2	13	3	0	0	0
12	2	26.7	18.1	23.5	0.0	1	68	31.8	27	14.6	12	0	0	0	0
12	3	24.8	16.4	21.9	0.0	3	52	30.4	16	10.3	24	0	0	0	0
12	4	23.6	13.6	20.3	0.0	9	34	29.0	3	7.9	13	0	0	0	0
12	5	19.7	8.0	16.2	0.0	32	8	27.0	11	2.8	23	0	0	0	0
12	6	16.6	8.2	14.0	0.0	40	0	19.8	15	1.3	24	0	0	0	0
12	7	16.4	6.8	13.6	0.0	52	1	21.7	13	0.8	2	0	0	0	0
12	8	19.5	5.4	15.2	0.0	46	6	29.1	23	0.0	8	0	0	1	0
12	9	23.3	7.7	18.4	0.0	28	28	33.3	28	1.2	1	1	0	0	0
12	10	25.2	12.5	20.9	0.0	15	52	34.6	5	5.6	13	5	0	0	0
12	11	26.4	17.9	23.2	0.0	2	66	37.8	30	12.7	12	5	0	0	0
12	12	28.5	21.1	25.3	0.0	0	89	39.1	24	17.5	10	8	0	0	0
		23.2	12.8	19.7	0.0	229	492	39.1	DEC	0.0	AUG	22	0	1	0

## PRECIPITATION (mm)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.2	2	20
12	1	33.4	0.0	18.0	25	10	4	0
12	2	30.4	0.0	6.8	29	12	5	0
12	3	12.0	0.0	7.4	2	8	1	0
12	4	2.2	0.0	1.2	18	4	0	0
12	5	4.4	0.0	4.0	24	3	1	0
12	6	3.0	0.0	1.2	12	5	0	0
12	7	2.4	0.0	1.0	12	4	0	0
12	8	0.0	0.0	0.0	1	0	0	0
12	9	0.0	0.0	0.0	1	0	0	0
12	10	9.2	0.0	9.0	12	2	1	0
12	11	5.6	0.0	4.2	26	3	1	0
12	12	0.2	0.0	0.2	9	1	0	0
		102.8	0.0	18.0	JAN	52	13	0

## WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM DIR
12	1	1.7	54.7	11	S
12	2	0.7	33.8	12	S
12	3	1.2	35.4	8	S
12	4	1.0	40.2	24	NW
12	5	0.9	43.5	13	NNE
12	6	0.8	38.6	17	NE
12	7	1.5	38.6	20	NNW
12	8	2.3	67.6	17	NE
12	9	2.2	56.3	7	SSW
12	10	2.0	46.7	12	SSW
12	11	1.9	51.5	1	WSW
12	12	2.3	46.7	5	W
		1.5	67.6	AUG	S

## ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Blue Sky 1 CITY: STATE:  
 ELEV: 80 m LAT: 33° 48' 00" S LONG: 151° 18' 00" E

TEMPERATURE (°C), HEAT BASE 18.3, COOL BASE 18.3

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEF. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=32	MAX <=0	MIN <=0	MIN <=-18
13	1	31.3	22.3	27.6	0.0	0	120	45.6	18	17.6	14	15	0	0	0
13	2	27.5	20.2	24.8	0.0	0	78	35.2	8	15.7	2	3	0	0	0
13	3	27.4	21.2	25.1	0.0	0	76	32.6	28	16.8	2	3	0	0	0
13	4	23.3	14.5	20.3	0.0	5	25	29.0	14	9.7	23	0	0	0	0
13	5	20.0	15.4	18.4	0.0	1	1	23.2	8	10.8	5	0	0	0	0
13	6	15.5	12.0	14.1	0.0	10	0	18.3	26	6.9	22	0	0	0	0
13	7	18.1	6.5	14.5	0.0	45	2	22.1	17	1.2	23	0	0	0	0
13	8	19.5	7.5	16.0	0.0	26	6	24.6	30	4.1	21	0	0	0	0
13	9	25.2	10.4	20.6	0.0	16	48	32.2	25	5.7	28	1	0	0	0
13	10	27.3	11.8	22.2	0.0	13	71	36.7	21	5.1	15	6	0	0	0
13	11	25.4	16.0	22.0	0.0	5	53	35.3	28	11.2	6	4	0	0	0
13	12	29.6	19.0	25.7	0.0	0	114	41.8	20	11.8	7	6	0	0	0
		25.2	15.0	21.7	0.0	121	595	45.6	JAN	1.2	JUL	38	0	0	0

## PRECIPITATION (mm)

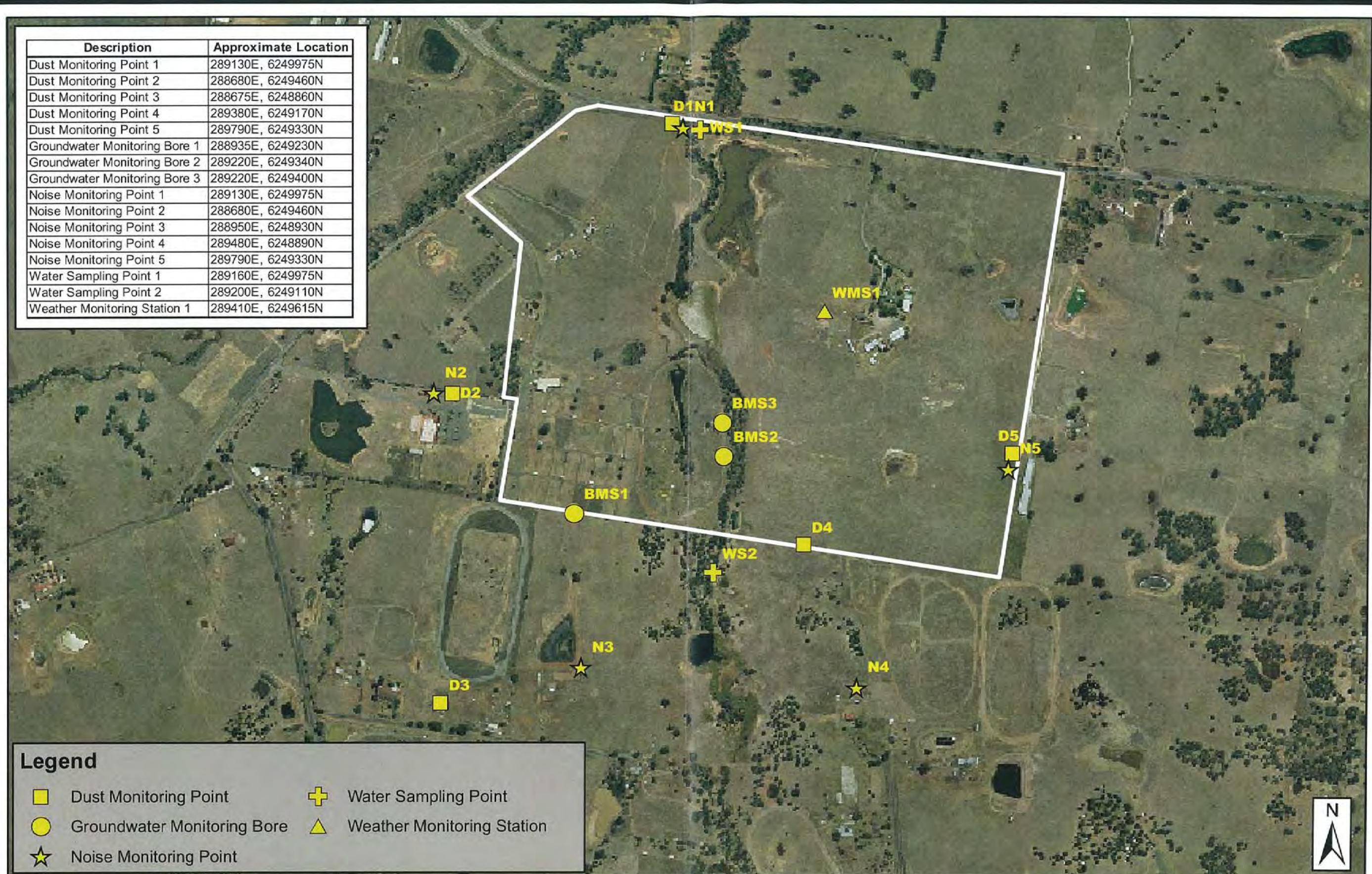
YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.2	2	20
13	1	3.4	0.0	1.8	29	5	0	0
13	2	27.0	0.0	24.2	23	6	1	1
13	3	2.8	0.0	2.8	2	1	1	0
13	4	4.4	0.0	2.0	20	7	1	0
13	5	0.0	0.0	0.0	1	0	0	0
13	6	7.6	0.0	2.6	25	7	1	0
13	7	0.0	0.0	0.0	1	0	0	0
13	8	0.0	0.0	0.0	1	0	0	0
13	9	1.2	0.0	1.0	20	2	0	0
13	10	0.2	0.0	0.2	23	1	0	0
13	11	23.2	0.0	8.2	11	8	3	0
13	12	5.6	0.0	5.6	25	1	1	0
		75.4	0.0	24.2	FEB	38	8	1

## WIND SPEED (km/hr)

YR	MO	AVG.	HI	DATE	DOM DIR
13	1	2.1	64.4	18	W
13	2	1.9	40.2	23	WSW
13	3	1.1	37.0	28	W
13	4	0.9	40.2	19	NE
13	5	0.3	17.7	5	WSW
13	6	0.6	25.7	26	N
13	7	1.0	43.5	5	SSE
13	8	2.0	53.1	6	NE
13	9	2.2	67.6	26	ENE
13	10	3.1	70.8	17	SW
13	11	2.1	53.1	3	N
13	12	1.8	48.3	5	WSW
		1.8	70.8	OCT	WSW



Description	Approximate Location
Dust Monitoring Point 1	289130E, 6249975N
Dust Monitoring Point 2	288680E, 6249460N
Dust Monitoring Point 3	288675E, 6248860N
Dust Monitoring Point 4	289380E, 6249170N
Dust Monitoring Point 5	289790E, 6249330N
Groundwater Monitoring Bore 1	288935E, 6249230N
Groundwater Monitoring Bore 2	289220E, 6249340N
Groundwater Monitoring Bore 3	289220E, 6249400N
Noise Monitoring Point 1	289130E, 6249975N
Noise Monitoring Point 2	288680E, 6249460N
Noise Monitoring Point 3	288950E, 6248930N
Noise Monitoring Point 4	289480E, 6248890N
Noise Monitoring Point 5	289790E, 6249330N
Water Sampling Point 1	289160E, 6249975N
Water Sampling Point 2	289200E, 6249110N
Weather Monitoring Station 1	289410E, 6249615N



Plan for indicative purposes only. Not for detailed measurement. Monitoring and sample locations are approximate and have not been fixed by land survey. Subject site boundary subject to final survey.



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PO Box 360  
369 Mann Street  
Gosford NSW 2250  
Ph: (02) 4324 7888  
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0 100 200 300 400 500 m  
1:10,000 Approximate at A4  
Original plan produced in A colour

Drawing No.	8102	Date
Drawn By	JM	06/05/09
Amendment		Date
A		
B		
C		

**Figure 1**  
**Monitoring Sites**  
**Luddenham Clay / Shale Quarry**

Source: Aerial © Department of Lands 2009



Description	Approximate Location
Dust Monitoring Point 1	289130E, 6249975N
Dust Monitoring Point 2	288680E, 6249460N
Dust Monitoring Point 3	288675E, 6248860N
Dust Monitoring Point 4	289380E, 6249170N
Dust Monitoring Point 5	289790E, 6249330N
Groundwater Monitoring Bore 1	288935E, 6249230N
Groundwater Monitoring Bore 2	289220E, 6249340N
Groundwater Monitoring Bore 3	289220E, 6249400N
Noise Monitoring Point 1	289130E, 6249975N
Noise Monitoring Point 2	288680E, 6249460N
Noise Monitoring Point 3	288950E, 6248930N
Noise Monitoring Point 4	289480E, 6248890N
Noise Monitoring Point 5	289790E, 6249330N
Water Sampling Point 1	289160E, 6249975N
Water Sampling Point 2	289200E, 6249110N
Weather Monitoring Station 1	289410E, 6249615N

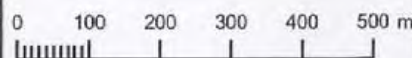
### Legend

- |                               |                              |
|-------------------------------|------------------------------|
| ■ Dust Monitoring Point       | + Water Sampling Point       |
| ● Groundwater Monitoring Bore | ▲ Weather Monitoring Station |
| ★ Noise Monitoring Point      |                              |

Plan for indicative purposes only. Not for detailed measurement. Monitoring and sample locations are approximate and have not been fixed by land survey. Subject site boundary subject to final survey.



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1:10,000 Approximate at A4

Original plan produced in A colour

Drawing No.	8102	Date
Drawn By	JM	06/05/09
Amendment		Date
A		
B		
C		

**Figure 1**  
**Monitoring Sites**  
**Luddenham Clay / Shale Quarry**

Source: Aerial © Department of Lands 2009



APPENDIX H - Epic Mining Pty Limited Revised Mine Operations Plans and Mining & Extraction  
Operational Plan

---



## ADAMS ROAD QUARRY BADGERYS CREEK

EPIC MINING MINE OPERATIONS PLAN  
M(MO)LA No 3  
DECEMBER 2013.

Prepared by: **SAMUEL TARABORI**

*EPIC MINING Pty Ltd*

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Email: [info@epicmining.com.au](mailto:info@epicmining.com.au)

*Report Date: December 2013*

*Report Number: V 1.3*

**Report Authorised by: Brad Casey**

**Reviewed by: Nicolas Israel**

**National Integrated Creative Solutions**

*Review Date: October 2014*

## ABBREVIATIONS

MOP	MINE OPERATIONS PLAN
PMA	PRIVATE MINING AGREEMENT
DPI	DEPARTMENT OF PRIMARY INDUSTRIES
DECCW	DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE & WATER
DA	DEVELOPMENT APPLICATION
EPA	ENVIRONMENT PROTECTION AUTHORITY
LALC	LOCAL ABORIGINAL LAND COUNCIL
LOT 1	LOT 1 DP 838361, 2420 ELIZABETH DRIVE BADGERYS CREEK
LOT 3	LOT 3 DP 823799, 275 ADAMS ROAD LUDDENHAM
M(MO)LA	MINE (MINERAL OWNERS) LEASE APPLICATION
LPI	LAND AND PROPERTY INFORMATION

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QUARRY INFORMATION & DECLARATION

Name of mine:	Epic Quarry
Titles/Mining Leases:	M(MO)LA No 3
MOP Commencement Date:	December 2010
Completion Date :	December 2017
Name of lease holder:	EPIC Mining Pty Ltd
ABN:	86 144 713 931
Name of mine operator (if different):	EPIC Mining Pty Ltd
ABN:	86 144 713 931
Landowner:	Fearndale Holding Pty Ltd
ACN:	123 361 973
Reporting Officer:	Samuel Tarabori
Title:	Operations Manager
Signature:	
.....	
Date:	

# STATUTORY DECLARATION

New South Wales

## STATUTORY DECLARATION

OATHS ACT, 1900

EIGHTH SCHEDULE

I,....., of ..... in the State of New South Wales, solemnly and sincerely declare as follows:

1. I am the duly appointed .....(management position)  
for .....(mine name)

2. I am authorised to make this Declaration on behalf of the Lease Holder,  
.....(name of leaseholder),  
A.C.N.....

3. All works and activities described in the Mining Operations Plan to which this declaration is attached comply with the conditions of the title of the mining lease (or mining leases) shown in the Mining Operations Plan, and with the conditions of Development Consent and all other relevant Government Agency approvals and licences granted in respect of them.

4. I confirm that all of the works and activities referred to in the previous paragraph lie wholly within the area shown in the Mining Operations Plan and that the tenements (mining leases, colliery holdings, land ownership) details of those tenements are correct.

**And I make** this solemn Declaration, conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

**Subscribed and Declared at** .....  
in the State of New South Wales this ..... day of.....in the year .....  
(sgd) .....

before me (sgd) .....Justice of the Peace

## EXECUTIVE SUMMARY

This report has been prepared by Epic Mining Pty Ltd to address the mining, stockpiling, processing and rehabilitation operations on the Epic Quarry (Adams Road) (M(MO)LA No 3) as required by the Department of Primary Industries - Mineral Resources.

The Mine Operations Plan (MOP) identifies issues with Lot 3 DP 823799 (Lot 3) only. Lot 3 is the approved extraction area while Lot 1 DP 838361 (Lot 1) is an ancillary parcel of land for services and utilities.

The period of the MOP is set for a maximum of Seven years to December 2017 and describes all mining and mining related activities, rehabilitation plans and land use outcomes over the MOP period. Any land clearing operations will be undertaken ahead of extraction which will progress in a Westerly direction from Oaky Creek. Progressive rehabilitation activities will follow behind the mining void moving in an East to West direction. It is expected that the mine when at full production will produce approximately 150,000 m<sup>3</sup> of Structural Clay-Shale per annum. Minimal exploration activities are planned and no significant infrastructure to be constructed over the MOP period.

The MOP presented does not include the final rehabilitation and closure phase of the mine, rehabilitation beyond the scope of the MOP are dealt with as concepts rather than in detail. An interim closure plan was developed in 2009 and was approved by NSW Department of Planning approved *Site Rehabilitation Plan, Clay/Shale Quarry Adams Road Luddenham April 2009 (Ref 8102) Prepared by Conacher Environmental Group*. A copy of this plan is documented as **Attachment H**.

An independent environmental audit has been conducted by *Australian Workplace Management Pty Ltd on the 17/10/2013*. A copy of this audit is documented as **Attachment I**.

The extent of the Epic Quarry life is dependent on a number of factors which include but not limited to the rate and demand of annual brick production within the NSW housing market. At this stage it is envisaged that mining at the Epic Quarry will extend many years beyond this MOP period.



# 1 INTRODUCTION

## 1.1 SCOPE

This report was prepared by Epic Mining in accordance with:

- ✓ Conditions of authority of M(MO)LA No 3.
- ✓ The Guidelines to the Mining, Rehabilitation and Environmental Management Process, issued by the Department of Primary Industries, Version 3 January 2006.
- ✓ Sites DA No 315-7-2003 issued 2004
- ✓ Sites EPA Licence No 12863 issued June 2009
- ✓

## 1.2 BACKGROUND

Operations of the mine is located off the Elizabeth Drive, Badgerys Creek and falls within Liverpool City Council Local Government boundaries but the quarry is overseen by NSW Planning Department as the project has been elevated to State Significant.

The site is gazetted in the *"Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)"* issued by NSW Government. A copy of this plan is documented as **Attachment J**.

The main quarry entrance and service amenities are located off 2420 Elizabeth Drive, Badgerys Creek NSW known as Lot 1. **Figure One** includes a Location Map for Epic Quarry.

The extraction area is located on Lot 3 which also has a secondary access of Adams Road Luddenham NSW 2525.

Prior to extraction operations beginning on site the land was used as horse training and spelling yards. Prior to this the land was part of much larger parcel that was a large milking dairy.

The then landowners the *"Harpley Family"* also operated a small produce supply store and currently resided on the site. Below is an aerial photo from 2007 showing the **Epic Quarry Pre Extraction Operation and Land Use (Refer to Figure Two)**.

Enquiries with Liverpool Council have indicated that the subject property, Lot 1, is Zoned RU1 Primary Producer under Liverpool Council Local Environment Plan 2008. A NSW LPI Title Search certificate is supplied for both Lot 1 and Lot 3 as **Attachment A**.

Extraction operations began early 2010 by Epic Mining Pty Ltd to supply the Sydney brickworks and surrounding areas with Colour Fired Selectively Mined clays and shales. The Department of Primary Industries holds M(MO)LA No 3 (Mineral Owners Lease) over the site, which is owned by the Fearndale Holdings Pty Ltd. Epic Mining Pty Ltd, extracts the structural clay-shale for brick & paver manufacturing by the major NSW brickmaking companies. Mining operations are conducted by using open cut methods.

## 1.3 PROPOSED AND FUTURE OPERATIONS

The Epic Quarry supplies Structural clay-shale to the local brick & paver manufacturing market.

The current Mineral Owners Lease (M(MO)LA No 3) will remain current until Epic Mining Pty Ltd is not the Mine Operator. The current Mine Operations Plan (MOP) is due to expire in December 2017.

The proven Structural Clay-Shale resource is not expected to be exhausted by end of the proposed MOP period and it is expected that extraction activities will continue for many years beyond that period.

A detailed clay and shale resource assessment was undertaken by R.W Corkery in 2005. In total, approximately 3.9 million tonnes of material could be extracted from the approved Epic Quarry if extraction proceeds to a common 30m depth. The full report by *"R.W Corkery & Co Pty Ltd - Badger Mining Company Estimates of Clay/Shale Resources within the Luddenham Quarry"* dated June 2005 is documented as **Attachment K**.

The total mine extraction life is dependent up on several outside parameters. The major consideration being the demand for clay-shale raw materials within the NSW brick production industry. Brick & paver manufacturing varies substantially year to year depending on the strength or weakness of the domestic housing market.

Hours of operation for the site are set out in both the DA and EPA Licence. Hours of extraction and haulage are 7am to 6pm Monday to Friday. On Saturday maintenance activities are allowed between the hours of 7am to 1pm. No works are to be undertaken outside these hours and public holidays.

#### **1.4 MINE CONTACTS DETAILS:**

##### **Mine Production Manager:**

Samuel Tarabori

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 Fax: 02 4774 9338 Mob: 041 0411 998

Email: [Samuelt@epicmining.com.au](mailto:Samuelt@epicmining.com.au)

##### **Mine Operator:**

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 Fax: 02 4774 9338

Email: [Info@epicmining.com.au](mailto:Info@epicmining.com.au)

##### **Mine Lease Holder**

Fearndale Holding Pty Ltd

PO Box 177 Kemps Creek NSW 2178

Office: 02 4774 9334 Fax: 02 4774 9338

##### **Environmental Officer:**

Nicolas Israel

National Integrated Creative Solutions Pty Ltd

PO Box 150 Seven Hills NSW 2147

Mobile: 0421 776 003 Email: [20nicolas15@gmail.com](mailto:20nicolas15@gmail.com)

FIGURE ONE - EPIC QUARRY LOCATION

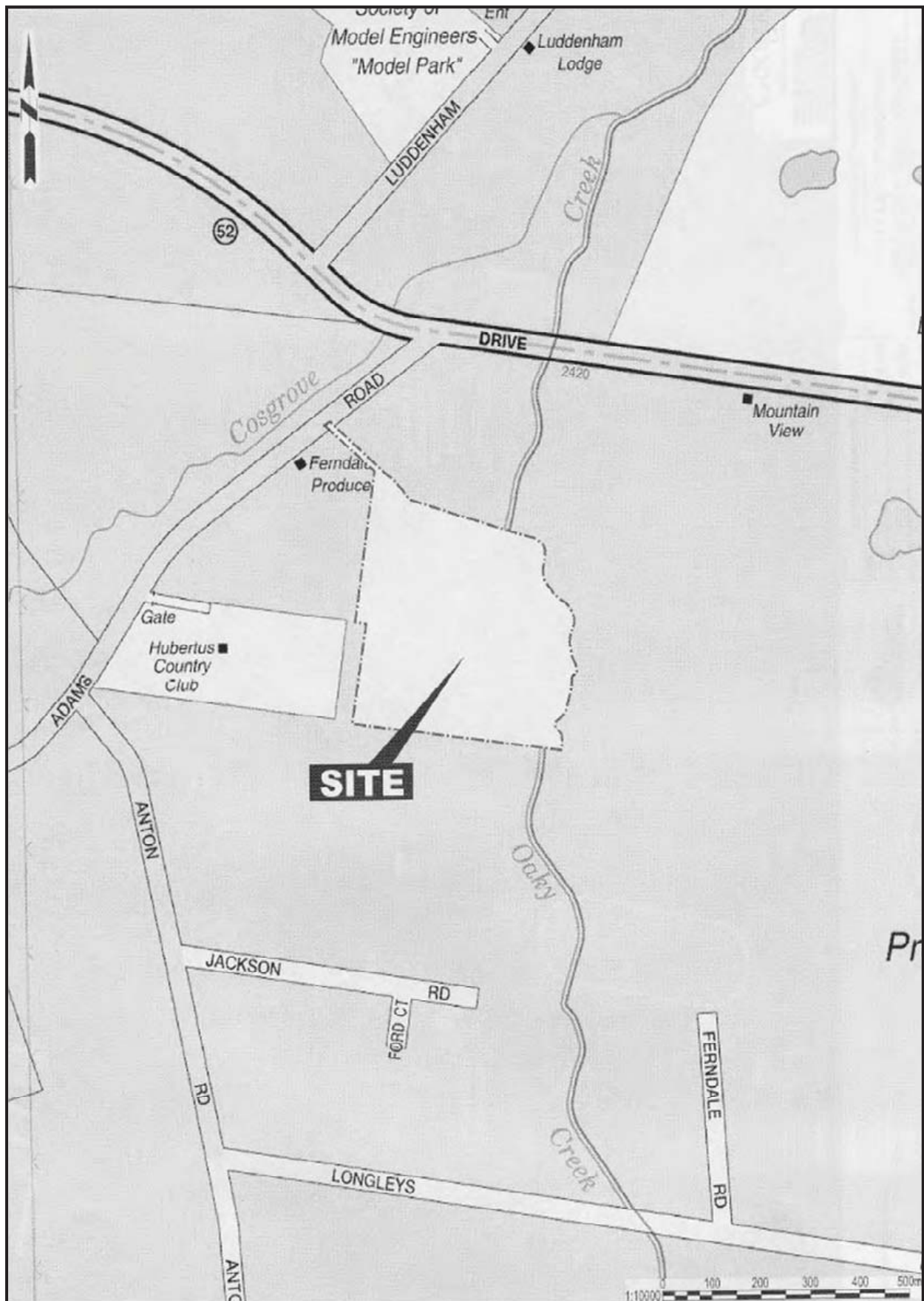
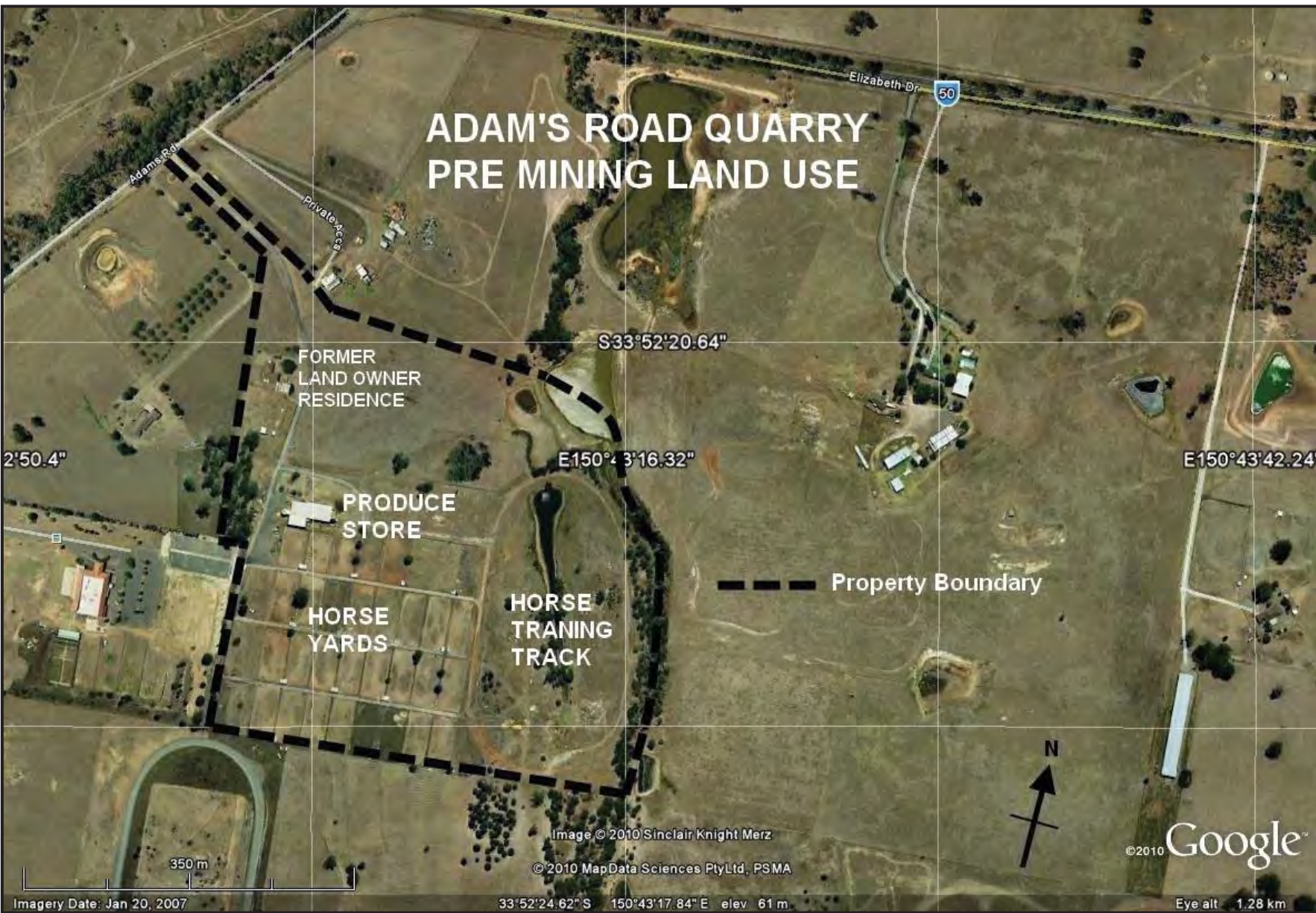




FIGURE TWO - EPIC QUARRY PRE-EXTRACTIVE OPERATIONS AND LAND USE



## 2 CONSENTS, LEASES AND LICENCES

### 2.1 NSW DEPARTMENT OF PRIMARY INDUSTRIES (DPI)

The DPI previously issued a PMA number 40. This has since been superseded and a Mineral Owners Lease issued (M(MO)LA No 3, Act 1992). It covers a total area of 6.66 hectares and the **Approved Quarry Footprint** in **Figure Three**. A more recent site survey, prepared by Monaghan Surveyors Pty Ltd on 8-11-10 Ref No. 01019-T5, is attached as an **Attachment F**. Copies of the previous PMA 40 and M(MO)LA No3 are supplied as **Attachment B**.

### 2.2 NSW DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER (NOW ENVIRONMENT PROTECTION AUTHORITY)

An Environment Protection Licence (EPL) was issued to Epic Mining Pty Ltd on the 5<sup>th</sup> June 2009. Licence number 12863. Copy of the full EPL is documented as **Attachment C**.

### 2.3 LIVERPOOL CITY COUNCIL & NSW DEPARTMENT OF PLANNING

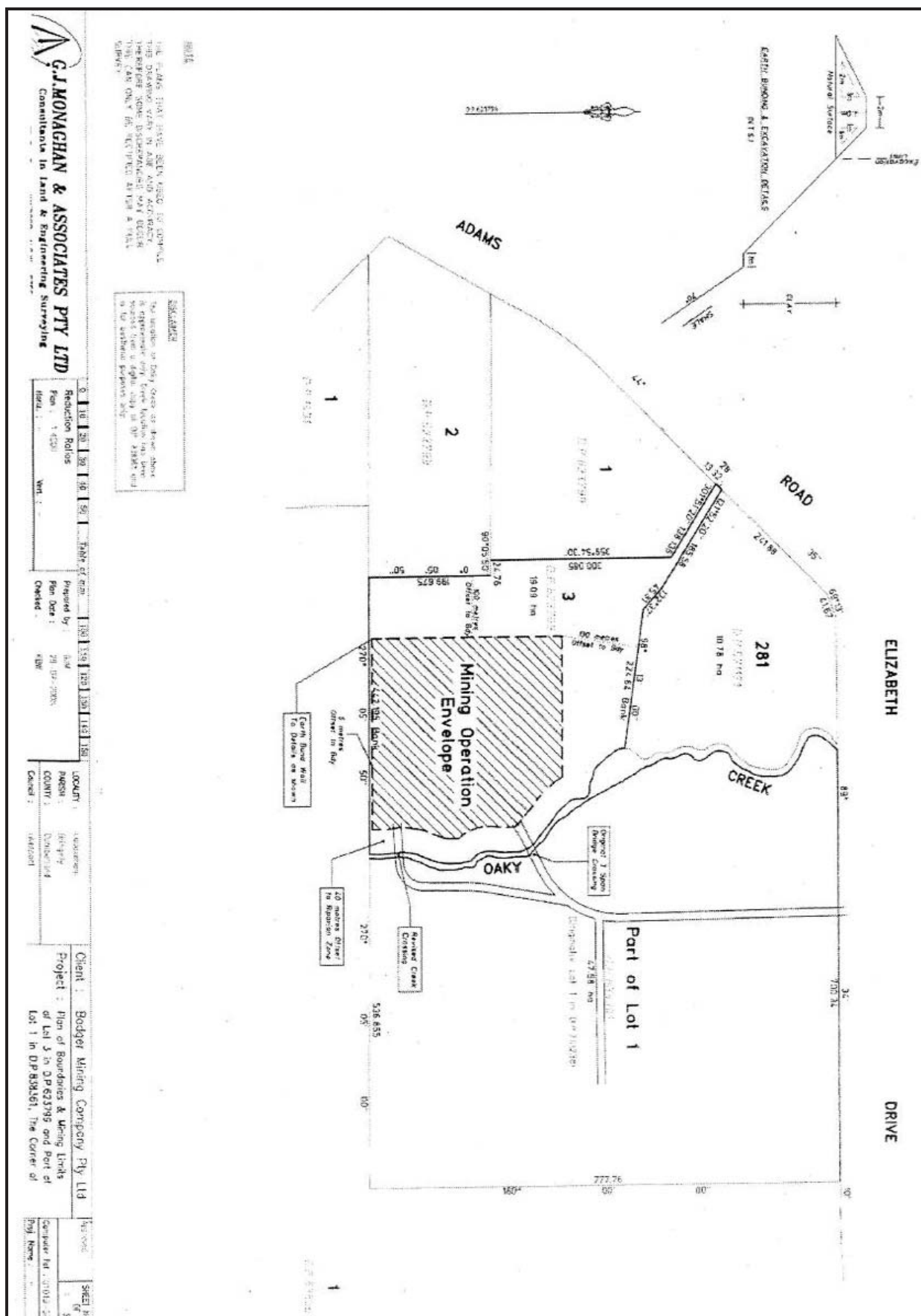
Liverpool City Council has not imposed conditions on the project. This is due to project being classified and elevated as having state significance. Site DA was issued in 2004 under *NSW Department of Planning*. A copy of the *DA No 315-7-2003* and modifications to the original DA are documented as **Attachment D**.

### 2.4 COMMUNITY CONSULTATION

Due to the semi-rural location of the quarry and other community or landowner stakeholders, a Community Consultative Committee has been implemented as per DA conditions in Schedule 5. The site has been moderately disturbed over the past decade and is considered of little natural or cultural significance by the National Parks and Wildlife Service and aboriginal communities. A small area 2m by 3m has been highlighted as having Aboriginal Heritage. This area has been identified and fenced to be protected as well as to prevent unauthorised access.



### FIGURE THREE - APPROVED QUARRY FOOTPRINT



## 3 PRE-MOP ENVIRONMENT

### 3.1 MINE GEOLOGY

The Luddenham area lies within the central part of the Sydney sedimentary basin. This basin is a large depression that began to form in the early Permian times and gradually filled with a variety of sedimentary strata, including a thick sequence of coal measures. The Hawkesbury Sandstone is a widespread and continuous sheet of sandstone that was deposited in Triassic times. This originally horizontal expanse of sandy sediments continued to form a shallow central depression that filled with mainly fine grained sediments forming a series of shaly and silty strata named the Wianamatta group; it included the Ashfield Shales and Bringelly Shale.

### 3.2 EXISTING LANDFORM

The project site is located in rural land holdings (Zoned RU1) that are used for grazing. Horse training activities are also prevalent in the area along with market gardens.

There is a small farming produce business that operates on the property. Once the quarry is operational the business will be relocated and existing buildings removed from site.

The surface of the site area lies approximately 60 - 70 metres above sea level and from reports prepared by the Geological Survey it was deduced that Wianamatta group of sedimentary strata below the site are about 120m thick. As the combined thickness of the Ashfield Shale and Minchinbury Sandstone is some 60 metres thick, the Bringelly Shale is about 60 metres thick.

Clean surface water runoff is diverted around the disturbed site via earth bund-walls and sediment dams are used to trap and treat any dirty water runoff from the disturbed areas. Despite the fact that the site has two licensed water monitoring and discharge points, it continues to operate with a “nil water discharge policy” to the environment.

Temporary vegetation is encouraged where possible in order to minimise erosion and reduce the generation of sediment laden waters. **Figure Four** includes a site aerial photograph which shows the **Site Existing Landforms & Environmental Management**.

FIGURE FOUR - SITE EXISTING LANDFORMS & ENVIRONMENTAL MANAGEMENT SYSTEMS





## 4 PROPOSED MINING ACTIVITIES

### 4.1 EXPLORATION

There is no exploration activities planned during this MOP period. Detailed exploration of the extraction area and surrounding area was undertaken by R.W Corkery & Company Pty Ltd in June 2005.

The resource identification consisted of a number of core drill bores being sunk and then kiln fired for colour verification for brickmaking purposes. The full report **Badger Mining Company Estimates of Clay/Shale Resources within the Luddenham Quarry Prepared by R.W Corkery & Co Pty Ltd** is documented as **Attachment K**.

### 4.2 LAND PREPARATION

Top soils in this area are typically thin in the order of 0.3m thick. They are of a silty clay loam texture and are classified as A Horizon of the weathered profile. As a result the topsoils are resistant to erosion and weathering due to the high clay content.

Any topsoil generated by the operations will be stored for extended periods, generally in forms of stockpiles or clean water bund diversion. Soils will be seeded with native species to prevent erosion. The soils will also be improved with the addition of composted organic material. This enriching will assist with rehabilitation projects and divert organic materials that otherwise would have been landfilled.

Tree clearing has occurred sometime ago and no trees have been identified for clearing during this MOP.

Clearing operations will be undertaken in an east to westerly direction from Okay Creek as the active mine face progress upslope.

### 4.3 CONSTRUCTION

No construction activities are planned for the MOP period.

### 4.4 MINING

The current industry best extraction method for brickmaking selective mined technique of ripping and cross ripping of shale/sandstone/clay with a bulldozer and pushing up material into stockpiles, to be loaded into articulated dump trucks and then layered into stockpiles for external sale, will be used and maintained. This selective extraction technique gives the greatest flexibility to provide the correct clay-shale mixes, reduce colour variations, increases fretting and scouring and removes unwanted shale-sandstone materials.

Numerous raw material product types are to be extracted from the site: These include: Red Clay, Pink-White Clay, Brown Shale, Apricot Shale, Sandstone and Cream Shale. They will be stockpiled separately behind the operational mine face and loaded out for external sale using an excavator or front-end loader.

Extraction will progress towards the west from Oaky Creek and will continue with benches and batters at heights as required. **Mining & Extraction Operational Plan** showing the typical benching, slopes, ramp design and batters is shown as an **Attachment E**.

Generally mining will occur once a year and a campaign may last from 3 - 8 months. Mining frequency and campaign durations will be driven by the demands of the NSW domestic housing market. The housing market is difficult to predict and as a result the extraction and stockpiling activities need to be flexible and are constantly being varied to suit the market demands.



Road haulage is restricted to dry periods. This will eliminate any mud/slurry from being transported onto Elisabeth Drive during wet periods.

Dust management will be undertaken by the sites own water-cart which draws water from various site dams and the main pit sump. The water-cart will be used to maintain dust suppression on dirt haul-roads, moisture conditions shale/clay stockpiles, irrigate riparian zone and other vegetation and to wash down the main asphalted road to Elisabeth Drive.

Material haulage will occur for the duration of the year as specified in the DA. A Road Transport Protocol has been prepared and indorsed by as part of the DA approval. A copy is available for viewing at the site office.

The approved annual volume of material utilised from the quarry is approximately 150,000 cubic metres, which is consistent with DA approval of 300,000T per year.

#### **4.5 MINERAL PROCESSING**

No mineral processing is undertaken on the site.

#### **4.6 WASTE AND OVERBURDEN MANAGEMENT**

Of the total extractable resources available in the mine only a small percentage is classified as overburden material. What overburden is generated is usually of a hard blue sandstone nature. This overburden material is used to batter back the mine for rehabilitation, used in bund-wall construction, used on haul-roads to improve durability or stockpiled for later sales when suitable uses have been identified.

There is no processing of waste materials, tailings or rubbish generated on-site. Any site rubbish is removed by the mining contractor. Rubbish bins are deposited throughout the site and emptied on a monthly cycle. Waste material is disposed by a licenced waste management company by the use of a front lift bin which is located at the main office block adjacent to the weighbridge.

Any waste material that is recyclable is separated and appropriate contractors engaged to remove and recycle the materials. These include but not limited to used oils, tyres, ferrous and non-ferrous metals.

#### **4.7 PRODUCT STORAGE**

Extracted raw materials are layered into 4-5 metre high stockpiles for external sales to the local brickwork customers. As previously mentioned there are many different products to be selectively extracted and therefore stockpiled.

Stockpile numbers, volumes and sizes are dependent on the volume and types of raw materials extracted during a mining campaign. Mining is undertaken when existing raw material stockpiles have been exhausted or nearing the end of supply.

Due to the nature of the housing market demands on raw materials the stockpile area design and layout is to be considered as dynamic and constantly changing.

A site stockpiling general layout can be found in attached **Mining & Extraction Operational Plan and Current Detailed Site Survey** attached as **Attachment E & F**.

Stockpiling and storage of material is an essential and necessary part of the souring and fretting process, it is a necessity within the brickmaking industry to ensure high quality fired product. The process of souring and fretting allows raw materials that are to be kiln fired for the heavy clay manufacturing industry to sit and weather. This allows the raw materials to

soften and breakdown. The souring process allows for any unwanted salts and other natural chemicals to be leached out through exposure to moisture, either by rain or by mechanical wetting. Also the process allows raw materials to fret in the open environment allowing for easier processing through the brick factories. Fretting also allows larger solid pieces of shale/sandstone to naturally break into smaller pieces by being exposed to moisture and hot/cold environments.

Stockpiles are to be built with a foot print that is as square as feasibly possible. The top of all stockpiles are to be built with a safety bund around the edges. The bund will have a dual purpose; it will capture and hold water for souring, fretting, dust management and will reduce the risk of falls.

A Typical Stockpile Cross Section is available in attached Mining & Extraction Operational Plan. The raw material stockpiles will be built so as to allow free drainage of dirty surface water for collection in to the pit sump. Raw material stockpiles will be compacted with the use of the mining equipment as they are constructed. Articulated dump trucks will compact material as they traverse the stockpiles and a dozer will further compact the material as it shapes the stockpile. The side walls of the stockpiles will be further smoothed and compacted by an excavator. This will help reduce erosion and therefore minimise the amount of sediment that will enter the dirty water system.

#### 4.8 WATER MANAGEMENT

Epic Mining's general approach to water management is based on following fundamental factors:

- ✓ Where practicable clean water runoff will be diverted around active mine areas, areas of disturbance or areas which do not carry stable pastures to limit the volume of water containing or potentially containing elevated levels of suspended solids which require treatment will be captured.
- ✓ All runoff leaving the site will be clarified by settling in sediment ponds and have low velocity discharge flow. This is achieved via trickle release of the water collected in the sediment ponds.
- ✓ Captured surface waters having high suspended sediment content will be treated by using appropriate flocculants and re-used onsite.
- ✓ All water that is captured on-site is to be re-used where possible to eliminate the usage of town water.
- ✓ A site water-cart will be used consistently during operational hours and a series of irrigation pipe network with sprinklers has been installed on the site to irrigate the surrounding owned land. This will ensure that riparian zones are well watered and site bund- walls are kept green to reduce erosion.
- ✓ All surface water that falls within the quarry approved footprint will be diverted to the pit sump. The dirty water collection sump will be located at the lowest point of the extraction area. This water is to be firstly used for dust suppression on internal haul-roads while mining is occurring and secondly for moisture conditioning and souring of raw material stockpiles. The dirty water sumps will be maintained as a dry sump throughout the year.

An up to date site survey with an aerial photograph overlay has been produced to detail the surface water measures to be implemented. The plan is documented as **Attachment G. Epic Mining Pty Ltd Luddenham Quarry Water Management Plan**. This plan was prepared by VGT Environmental Compliance Solutions. The plan outlines the measures that will be undertaken to ensure full environmental compliance is achieved.

## **4.9 CLEAN WATER MANAGEMENT**

All clean surface water is diverted around the exaction site via bund- wall construction. These bund- walls will require regular maintenance to maintain their design performance.

Topsoil and vegetation cleared from the current mine face will be pushed up along the top of the active face and provide a clean water diversion bank. *Figure Four* includes a current site aerial photograph which shows the Site *Existing Landforms & Environmental Management*.

## **4.10 DIRTY WATER MANAGEMENT**

Dirty water from the quarry extraction and stockpile area is directed into holding sumps located on the lowest point in the north-eastern side of the pit floor. The sump will be maintained as dry sumps were possible. Dirty water will be pumped from the pit sump into holding dams located adjacent to the Irrigation-Riparian Zone.

Dirty water will be used on-site for dust suppression, raw material moisture manipulation and vegetation management. Series of irrigation pipe works have been installed through the Riparian zone and up along the northern bund to the irrigation paddock. A fixed pump has been installed at the main sedimentation pond and will be used to operate the irrigation network and fill the site water-cart for dust suppression.

The water-cart will be able to draw water from any sedimentation dam onsite via the use of mobile water transfer pumps.

Dirty water holding dams have been enlarged from their original states and de-silted. The dams will have regular maintenance to ensure maximum efficiency and holding capacities. In the event of the dam overflowing the dirty water will enter a secondary dam that will also be maintained as a dry dam. If required the dirty water will then be treated with the appropriate flocculent and tested against discharge limits set by the site's EPA licence. It is envisaged that very little dirty water will require treatment as measures implemented will ensure that all dirty water is re-used onsite. In addition, Epic's "nil water discharge policy" has always been complied with so far despite the heavy rain experienced during 2013.

## **4.11 HAZARDOUS MATERIALS**

Where possible, only small quantities of hazardous materials will be stored on-site. Heavy Plant associated with the extraction operation will be filled by use of a portable fuel truck which is removed from the site upon completion of re-fuelling procedures. Fuels will be stored in appropriate containers and storage units. All containers will be clearly marked and sign posted. Contractors are required to clean up all spills of fuel or oil, if any, when on site.

A Hazardous Material Register has been established as per WH&S requirements.

## **4.12 OTHER INFRASTRUCTURE**

No other infrastructure other than the items shown on aerial photos exists on the site and none is planned during this MOP period.

## 5 ENVIRONMENTAL MANAGEMENT CONTROLS

### 5.1 NOISE AND AIR POLLUTION

Noise and air quality monitoring will be undertaken during the MOP period. The limits and frequency of testing are set by both the *Site EPA Licence and DA conditions* both of which are documented as **Attachments C and D** respectively.

Both dust and noise monitoring results are reviewed on a monthly basis and any exceedances reported through to the EPA. The proximity of the site to Elisabeth Drive, as well as its semi-rural location means that there is little effect on the amenity of neighbours.

Dirty water collected over the site is utilised for dust suppression during mining and haulage activities as required, alleviating any potential impacts of nuisance dust.

### 5.2 EROSION-SEDIMENT MINIMISATION

Little erosion occurs on the site due to the gentle slope of the land and the installed water diversion banks. Epic Mining will continue to monitor the site and remedy any erosion or sediment entrainment where practicable using similar methods to those currently used.

### 5.3 SURFACE WATER POLLUTION

The primary source of surface water pollution is the entrainment of sediment during rainfall events. Epic Mining's approach to help minimising the volume of dirty water is to divert clean water around the site via earth bunds and dish drains. Dirty water from the approved extraction/stockpile area will be captured within the quarry void or sedimentation ponds. A pit sump will be established at the lowest point within the pit. The storage capacity of sites sedimentation ponds and pit sump far exceeds the surface dirty water capture rates of rain fall events per year.

Dirty waters will be used for site dust suppression, stockpile conditioning and in vegetation rehabilitation zones. Any surplus dirty water will be clarified using appropriate flocculants. During normal extraction operations it is expected that very little water will be treated and discharged from the site.

Water to be discharged from the site will be tested to meet the sites discharge limits as set out in the sites EPA licence.

### 5.4 THREATENED FLORA OR FAUNA PROTECTION

No threatened or regionally significant plant species were recorded on the site by previous studies, nor are they likely to occur. This has been attributed mainly to the heavy clearing activities that have occurred on the site over the past 100 years. This site was used prominently as a cattle dairy for the vast majority of its life span.

However, special provision has been made in the landscaping program for improvement and regeneration of local threatened flora species. A 40m Riparian zone has been installed on the eastern boundary along Okay Creek. The Riparian zone has restricted access and runs adjacent to the entire section of Oaky Creek and Lot 3 boundary. Irrigation pipe work has been installed throughout the Riparian zone. Irrigation water is to be utilised from both the Dirty and Clean Water catchment programs. The programmed activities are spelled out in the sites *Vegetation Management Plan. Vegetation Management Plan Prepared by UBM Ecological Consultants Pty Ltd* February 2009 is available upon request for viewing at the site office.



## 5.5 WEED CONTROL & MANAGEMENT

Noxious weed populations are present throughout the site but are not expected to present any issues in the future. Within the sites *Vegetation Management Plan* a management and monitoring system will be implemented to eliminate any weed outcrop. Spraying of weeds will occur as per the *Vegetation Management Plan*. Regular slashing of paddocks also helps assist with elimination of weed outcrops.

## 5.6 ABORIGINAL/NATURAL HERITAGE

Two archaeological assessments of the proposed site have been carried out by Umwelt (Australia) Pty Limited, Environmental and Catchment Consultants.

The initial assessment occurred in 1991. It identified an area of Aboriginal cultural significance within the riparian zone on the western side of Oaky Creek. A second study, in consultation with the Gandangara Local Aboriginal Land Council (LALC), was completed in September 2000,

In 1991, Aboriginal archaeological material was observed around the margin of a dam that had been excavated for prior agricultural uses on the site in the 1930's in the floodplain of Oaky Creek and less than 20 metres from the creek bank. Water levels in the dam are highly variable, and the artefacts were observed on a surface exposed by low water levels. Some 22 pieces of flaked stone were observed, scattered across an area of 140 square metres within the dam. None of the artefacts could be considered to be in situ. The artefacts, which included flakes, flaked pieces and two cores, were considered to be the remnants of a former site that had been largely destroyed by previous earthworks. A small area of relatively intact floodplain surface remained between the dam margin and the bank of Oaky Creek, but it was considered that there was low potential for further in situ archaeological material to remain.

During the site inspection on 15 June 2000, the area of the Aboriginal site was readily located and it is considered that the condition of the site has not deteriorated significantly since 1991.

The site has been assessed as having moderately low scientific significance, but is valued by the local Aboriginal community, and it is the view of the Gandangara LALC that the site has cultural value and should be conserved in situ. Conservation of the site is feasible and achievable within the current quarry plan for the property. The method and management of this protection has been agreed between Epic Mining and the LALC.

## 5.7 BUSHFIRE

Fire Control Officer from Liverpool City Council has advised that the site is in an area where grass fires occur from time to time, often lit by the burning out of stolen cars or property. The Council does not have any records of past fires or maps indicating the general directional paths or extent of fire events.

Discussion with the District Fire Control office at Liverpool in June 2002 identified that neither Lot 3 nor Lot 1 are considered to constitute any level of bushfire risk and are not listed on any register or plan of bush fire prone areas.

The site consists predominantly of gently sloping grassland with the only areas of vegetation being located within the riparian zone around Oaky Creek, the Irrigation paddock to the north and a small stand of gum trees against the western boundary behind the house on Lot 3. The entire area of the house and the adjacent horse yards will be outside the precincts of the quarry. It is therefore considered to be of low bush fire risk.

The employment of good site management including preventing and removal of excessive fuel loads from grassland and vegetation will ensure that no bush fire risk develops on the site. A grass slashing program has been implemented as part of the *Site Vegetation Management Plan*. The site maintains a 20 foot slashed fire break around the entire site to help prevent grass fire from progressing to neighboring properties. The entire site is slashed on a regular basis with the use of the site's own tractor and slasher.

No blasting or processing is carried out within the subject area and no explosives or hazardous materials are stored on the mining lease. All mining operations are carried out by subcontractors and all fuel, oil and rubbish is stored and treated off-site.

Regular talks occur with the local Rural Bush Fire services, Luddenham branch. The site has been identified by the Rural Fire Services for accessibility and contact personnel.

## **5.8 PUBLIC SAFETY**

The approved quarry footprint is fenced by 6 foot mesh fencing with 3 strand barbed wire. The main entrance at Elizabeth Drive has a lockable gate. There is also a second lockable gate located at the quarry entrance.

The site has been sign posted to inform the public not to enter the site. Also two large company information signs have been installed at the quarry's Elizabeth drive entrance. The signs have relevant contact numbers and site information for the public.

A weighbridge and site office with a draw bar is located a few hundred meters along the main quarry entrance. A sign in book is made available with site safety instruction for visitors.

A monthly site inspection is carried out to ensure that all safety measures are in working order and identify where improvement or repairs need to occur.

## **5.9 SITE INSPECTIONS**

As part of the ongoing mine operation a monthly site inspection/audit will be conducted. Usually this will occur in the first week of each month.

The inspection will be conducted with the assistance of a check list and will ensure that any irregularities are addressed and reported. Some of the items covered by the check list include the following:

- ✓ Haul-road conditions, Ramp design and bund-wall conditions
- ✓ Pit wall conditions and slumping
- ✓ Site signage
- ✓ PPE and communication
- ✓ General housekeeping

The full Site Inspection Checklist can be found as an Appendix to site's Mine Safety Management Plan.

## 6 PROPOSED REHABILITATION ACTIVITIES

There is to be no Progressive or Complete Rehabilitation during this MOP period.

As per the Rehabilitation requirements included in Clause 33 to 37 of Schedule 4 within the approved DA a Final Rehabilitation Plan is required prior to 5 years of the completion of the project. This Final Rehabilitation Plan will be submitted and approved.

Due to the poor qualities of the local topsoils, a soil enrichment program has been implemented to add organic nutrients to the stockpiled topsoils removed from the extraction area and stored for the final rehabilitation.

An approved **Site Rehabilitation Plan Clay/Shale Quarry Adams Road, Luddenham April 2009 Ref 8102** has been submitted and approved as part of the DA. A copy of this plan is documented as **Attachment H**.

### 6.1 STAKEHOLDER CONSULTATION

Epic Mining has consulted with the NSW RTA, Liverpool City Council, Penrith City Council, Department of Environment, Climate Change and Water, NSW Planning, the local and surrounding community and the EPA on addressing any issues raised by the relevant authority.

### 6.2 REHABILITATION STATUS AT MOP COMMENCEMENT

Temporary vegetation is encouraged where possible in other areas in order to minimise erosion and the generation of dirty water. A 40m buffer Riparian zone along Okay Creek has been implemented and will be maintained for the life of the extraction activities.

All the topsoils that are stripped from the extraction area will be stockpiled and stabilised for later rehabilitation.

### 6.3 PROPOSED REHABILITATION STATUS AT MOP FINISH

Extraction will not be completed by the end of the proposed MOP period and therefore rehabilitation will be a combination of final and temporary vegetation.

Temporary vegetation will be encouraged over these areas whilst no mining activities are undertaken. Where possible, finished faces will be battered back to either a 30 degree slope for clay strata or 70 degree slope for shale strata.

An approved **Site Rehabilitation Plan Clay/Shale Quarry Adams Road, Luddenham April 2009 Ref 8102** has been submitted and approved as part of the DA. A copy of the plan is attached as **Attachment H**.

### 6.4 REHABILITATION OF DISTURBED LAND

Any topsoil made available during clearing operations will be stored in bund-walls, diversion bunds or stockpiled to be used later to rehabilitate works. Very little erosion occurs on site due to the gentle site slope. Some of the active faces will show minor erosion, however all sediment generated is collected within the dirty water capture system. The low levels of surface water runoff in the past few years has aided in minimising erosion on disturbed slopes.

A *Site Rehabilitation Plan* has been approved by NSW Planning. In the plan Local Eucalypt and Acacia species will be planted along the Riparian Zone adjacent to Okay Creek and the identified Wood plains area.

A weed eradication program will be continued in conjunction with clearing activities ahead of mining to minimise the spread of weeds in the disturbed areas. A grass slashing maintenance program has been established. Slashing also aids in the minimisation of weeds grow.

## **6.5 WATER MANAGEMENT (REHABILITATED LAND)**

Water received over areas where rehabilitation is incomplete will be treated as dirty water and collected in the sediment dams for clarification prior to being re-used. Clean water diversions will remain in place upslope of the rehabilitation areas. Where possible, once vegetation has been established over rehabilitated areas and the risk of sediment entrainment is minimised, rainfall will be diverted around the site as clean water.



## 7 FINAL REHABILITATION

### 7.1 REHABILITATED AREAS AND FEATURES

It is not expected that the mining operations will cease by the end of the proposed MOP period, so final rehabilitation will be incomplete. The final landform, however, will be consistent with the surrounding land use activities which may include farming, open paddocks, sporting fields or activities to do with Sydney's second airport.

This may be undertaken progressively in portions of the mine that are no longer active thereby minimising the total amount of disturbed land.

It must be noted that within the sites DA approval process a final rehabilitation plan that details the specific of how the site is to be rehabilitated are not required until the extraction period reaches its final 5 years of life.

The site is located within the Sydney catchment for naturally excavated materials from building sites. As a fail-safe rehabilitation the site could be remediated with materials that are excavated from commercial/residential building constructions sites as Sydney has a short fall of approved disposal sites. This exercise could be conducted on a neutral cost variance.

*A Site Rehabilitation Plan* has been submitted and approved by NSW Planning.

## **8 CALCULATION OF SECURITY DEPOSIT**

Discussions with titles department has identified that a security bond is not applicable to the project due to a large Environmental Security Bond (\$166,750) which has been lodged with the Planning NSW as part of the DA rehabilitation provision. This bond was required under Schedule 4 clause 37 of the DA.

### **8.1 INFRASTRUCTURE AREAS**

Due to the small scale of the mine operations, there is no major infrastructure, other than the stockpile area and the access road from Elisabeth Drive. The weighbridge and associated building are portable and will be easily removed when operations are completed.

It is noted that the tar sealed haul-road from Elisabeth Drive to the entrance to the existing quarry is on Commonwealth Land. The road will be handed over to the Commonwealth when operations are completed on site.

### **8.2 TAILINGS AND REJECTS EMPLACEMENTS**

No tailings or rejects are generated by this operation.

### **8.3 WASTE ROCK DUMPS**

No waste rock dumps will be generated from the operation.

### **8.4 ACTIVE MINE AND VOIDS**

The original land form was grassing paddocks with no void space created on site. It is expected that the void space will be created at the rate of 150,000m<sup>3</sup> per annum. This figure will be depended on the health and demands of the local brick making market.

### **8.5 THIRD PARTY PROJECT MANAGEMENT AND CONTINGENCIES**

Due to the progressive nature of the current rehabilitation and small scale of the site operations, the estimated cost of the Third Party involvement has been limited to environmental assessments and monitoring, surveying with the addition of a 'contingency' cost.

## **ATTACHMENTS:**

- ATTACHMENT A** NSW LPI TITLE SEARCH CERTIFICATE LOT 1 & LOT 3
- ATTACHMENT B** PRIVATE MINING AGREEMENT 40 & M(MO)LA No 3
- ATTACHMENT C** ENVIRONMENT PROTECTION LICENCE 12863
- ATTACHMENT D** DEVELOPMENT APPROVAL CONDITIONS DA315-7-2003
- ATTACHMENT E** TYPICAL MINING & EXTRACTION OPERATION PLAN
- ATTACHMENT F** CURRENT DETAILED SITE SURVEY with proposed Raw Material storage yard & Extraction sequence. Monaghan Surveyors Pty Ltd
- ATTACHMENT G** EPIC MINING, LUDDENHAM QUARRY, WATER MANAGEMNT PLAN Prepared by VGT Environmental Compliance Solutions
- ATTACHMENT H** SITE REHABILITATION PLAN CLAY/SHALE QUARRY ADAMS ROAD LUDDENHAM April 2009 (Ref: 8102)
- ATTACHMENT I** INDEPENDENT ENVIRONMENTAL AUDIT for Epic Mining 17/10/2013 Prepared by Australian Workplace Management Pty Ltd
- ATTACHMENT J** SYDNEY REGIONAL ENVIRONMENTAL PLAN No 9 EXTRACTIVE INDUSTRY (No 2-1995)
- ATTACHMENT K** BADGER MINING COMPANY ESTIMATES OF CLAY/SHALE RESOURCES WITHIN THE LUDDENHAM QUARRY Prepared by: R.W. Corkery & Co Pty Ltd - June 2005



## Industry & Investment

Reference: 10/5872

Samuel Tarabori  
Operations Manager  
Epic Mining Pty Ltd  
35 Connaught Crt  
KELLYVILLE NSW 2155

Dear Sir

### **PRIVATE MINING AGREEMENT NO 40**

I refer to previous correspondence concerning this matter and acknowledge the lodgement of the required security with.

Operations may commence on the area and should be conducted in accordance with the conditions set out in Schedule 4 of the Regulations.

Please note however that before any operations commence, you should ensure that no applications, or granted authorities and mineral claims, affect the area (see Section 6 and 7 herewith).

For further information, please contact the undersigned on 02 4931 6462.

Yours faithfully

Chris Cottier  
**for Director General**  
24 November 2010



MINING LEASE  
MINING ACT 1992

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NO M(MO)LA 3

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DATED 13<sup>th</sup> November 2012

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DIRECTOR GENERAL  
DEPARTMENT OF TRADE AND  
INDUSTRY, REGIONAL  
INFRASTRUCTURE AND SERVICES  
OF THE STATE  
OF NEW SOUTH WALES  
TO  
**FEARNDALE HOLDINGS PTY LTD**  
**(ACN 123 361 973)**

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**MINING ACT 1992**

**MINING LEASE**

THIS DEED made the 13<sup>th</sup> day of NOVEMBER  
Two thousand and 12 in pursuance of the provisions of the *Mining Act 1992*  
(hereinafter called "the Act") BETWEEN **MARK I PATERSON AO, DIRECTOR  
GENERAL** of the State of New South Wales (hereinafter called "the Director General"  
which expression shall where the context admits or requires include the successors in  
office of the Director General and the person acting as such Director General for the  
time being) AND **FEARNDALE HOLDINGS PTY LTD (ACN 123 361 973)** (which with  
its successors and transferees is hereinafter called "the lease holder") of 2 Adams  
**Road, Luddenham NSW 2745.** 275

**WHEREAS**

- (a) in conformity with the Act application was made for a mining lease over the lands hereinafter described; and
- (b) all conditions and things required to be done and performed before granting a mining lease under the Act have been done and performed NOW THIS DEED WITNESSETH that in consideration of the observance and performance of the covenants contained in this Deed and the payment of royalty by the lease holder, the Director General in pursuance of the provisions of the Act DOES HEREBY demise and lease to the lease holder ALL THAT piece or parcel of land containing by admeasurement **19.09** hectares as shown on Plan No. **MO3-001**, more particularly described and delineated in the plan attached for the purpose of prospecting and mining for **clay/shale and structural clay**.

TO HOLD the said land together with any appurtenances thereon subject to:

- (a) such rights and interests as may be lawfully subsisting therein or which may be reserved by the Act at the date of this Deed; and
  - (b) such conditions, provisos and stipulations as are contained in this Deed UNTO the lease holder from and including the date of this Deed for the term of **twenty one (21) years** for the purpose as stated and for no other purpose.
1. THAT in this lease except insofar as the context otherwise indicates or requires:



- (a) any reference to an Act includes that Act and any Act amending or in substitution for the same; "Director-General" means the person for the time being holding office or acting as Director-General, Department of Trade and Investment; Regional Infrastructure and Services; the word "mine" has the meaning assigned to it by the Act; words importing the singular number shall include the plural, the masculine gender the feminine or neuter gender and vice versa; and
  - (b) any covenant on the part of two or more persons shall be deemed to bind them jointly and severally.
- 2. THAT the lease holder shall during the said term pay to the Director General in Sydney in respect of all such minerals as stated, recovered from the land hereby demised, royalty at the rate or rates prescribed by the Act and the Regulations thereunder at the time the minerals are recovered, or at the rate or rates fixed by the Director General from time to time during the term of this demise in exercise of the power in that behalf conferred upon him by the Act.
- 3. THAT the lease holder shall at all times during the term of this lease keep and preserve the said mine from all avoidable injury or damage and also the levels, drifts, shafts, watercourses, roadways, works, erections and fixtures therein and thereon in good repair and condition and in such state and condition shall on the expiration or sooner determination of the said term or any renewal thereof deliver possession of the land and the premises hereby demised to the Director General or other persons authorised to receive possession thereof.
- 4. THAT the conditions and provisions set forth in the Schedule of Mining Lease Conditions 2010 herein and numbered: **1 to 20 (inclusive)** are embodied and incorporated within this Deed as conditions and provisions of the lease hereby granted AND that the lease holder shall observe fulfil and perform the same. Conditions 1 to 13 and 17 to 19 (if included in the mining lease) are identified as conditions relating to environmental management for the purposes of Section 374A(1) of the *Mining Act 1992*.  
*Note: Conditions 1 to 13 and 17 to 19 of this mining lease are imposed pursuant to sections 238 and 239 of the Mining Act 1992. Clause 7 of Schedule 12 of the Mining Regulation 2010 saves higher penalties for a breach of condition imposed by or under sections 238 or 239 of the Act.*



PROVIDED always and it is hereby declared as follows:

- (a) THAT this lease is granted subject to amendment as provided under Section 79 and 168A of the Act.
- (b) THAT if the lease holder at any time during the term of this demise -
  - (i) fails to fulfil or contravenes the covenants and conditions herein contained; or
  - (ii) fails to comply with any provision of the Act or the Regulations with which the lease holder is required to comply; or
  - (iii) fails to comply with the requirements of any agreement or assessment in relation to the payment of compensation,

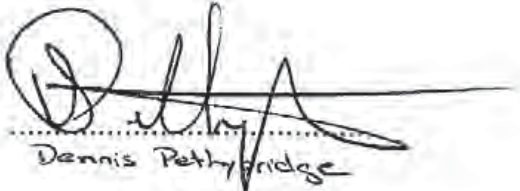
this lease may be cancelled by the Director General by instrument in writing and the cancellation shall have effect from and including the date on which notice of the cancellation is served on the lease holder or on such later date as is specified in the notice; and any liability incurred by the lease holder before the cancellation took effect shall not be affected.

- (c) THAT no implied covenant for title or for quiet enjoyment shall be contained herein.
- (d) THAT all the conditions and provisions contained in the *Mining Act 1992* and the Regulations thereunder, the *Mine Health & Safety Act 2004*, the *Mine Health and Safety Regulation 2007* or the *Coal Mine Health & Safety Regulation 2006*, or any other law hereafter to be passed or prescribed shall be incorporated within this Deed as conditions and provisions of the lease granted. The lease holder hereby covenants to observe, fulfil and perform the same.
- (e) THAT such of the provisions and conditions declared and contained in this Deed as requiring anything to be done or not to be done by the lease holder, shall be read and construed as covenants by the lease holder with the Director General which are to be observed and performed.

IN WITNESS WHEREOF the parties hereto have executed this Deed the day and year first abovewritten.


SIGNED AND DELIVERED  
BY

**FEARNDALE HOLDINGS PTY LTD**  
**(ACN 123 361 973)**




.....  
Dennis Pettybridge

in the presence of




.....  
Witness  
SAMUEL TARABORRELLI

SIGNED AND DELIVERED  
BY



.....  
Chasance Harpley

In the presence of



.....  
Witness  
SAMUEL TARABORRELLI



# Environment Protection Licence

Licence - 12863



Licence Details	
Number:	12863
Anniversary Date:	05-June

Licensee	
EPIC MINING PTY LIMITED	
PO BOX 177	
KEMPS CREEK NSW 2171	

Premises	
FERNDALÉ	
275 ADAMS ROAD	
LUDDENHAM NSW 2525	

Scheduled Activity	
Extractive Activities	

Fee Based Activity	Scale
Other Land-Based Extraction	> 100000-500000 T obtained

Region	
Metropolitan - Sydney Industry	
Level 3, NSW Govt Offices, 84 Crown Street	
WOLLONGONG NSW 2500	
Phone: (02) 9995 5000	
Fax: (02) 9995 6900	
PO Box 513 WOLLONGONG EAST	
NSW 2520	

# Environment Protection Licence

Licence - 12863



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# Environment Protection Licence

Licence - 12863



## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

# Environment Protection Licence

Licence - 12863



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

### Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

### Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

### This licence is issued to:

EPIC MINING PTY LIMITED
PO BOX 177
KEMPS CREEK NSW 2171

subject to the conditions which follow.



# Environment Protection Licence

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## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Extractive Activities	Other Land-Based Extraction	> 100000 - 500000 T obtained

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
FERNDALE
275 ADAMS ROAD
LUDDENHAM
NSW 2525
LOT 3 DP 623799, LOT 1 DP 838361

### A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

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## Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Dust deposition monitoring		Dust deposition gauge located 5 m from the northern boundary near Elizabeth Drive shown as point D1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
2	Dust deposition monitoring		Dust deposition gauge located 30 m from the boundary of the Hubertus Country Club shown as point D2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
3	Dust deposition monitoring		Dust deposition gauge located 150 m from the south western boundary of the site shown as point D3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
4	Dust deposition monitoring		Dust deposition gauge located in the middle of the southern boundary of the site shown as point D4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
5	Dust deposition monitoring		Dust deposition gauge located at the eastern boundary of the site shown as point D5 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
11	Weather monitoring station		Weather monitoring station located near the site offices near the middle of the site labelled as WSM1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

## Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
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# Environment Protection Licence

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6	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	Outlet from the site to Oaky Creek labelled as point WS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
7	Effluent quality monitoring - Discharge to waters	Effluent quality monitoring - Discharge to waters	At Oaky Creek located 20 m from the southern boundary of the site labelled as point WS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group
8	Groundwater monitoring		Groundwater monitoring bore located at the southern boundary of the site labelled as BMS1 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
9	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and the southern boundary of the site labelled as BMS2 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group
10	Groundwater monitoring		Groundwater monitoring bore located near Oaky Creek and -- southern boundary of the site labelled as BMS3 on drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry", dated 06/05/09 and prepared by Conacher environmental group

## 3 Limit Conditions

### L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

### L2 Concentration limits

- L2.1 For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.
- L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.
- L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table.

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## L2.4 Water and/or Land Concentration Limits

### POINT 6

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

### POINT 7

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Biochemical oxygen demand	milligrams per litre				150
Oil and Grease	milligrams per litre				30
pH	-				5.5-8.5
Total suspended solids	milligrams per litre				50

## L3 Volume and mass limits

- L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
- a) liquids discharged to water; or;
  - b) solids or liquids applied to the area;
- must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
6	kilolitres per day	1000

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7	kilolitres per day	1000
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## L4 Waste

- L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

## L5 Noise limits

- L5.1 Noise from the premises must not exceed an LAeq(15 minute) noise emission criterion of 41 dB(A) at any residential or other sensitive receptors not associated with the activities except as expressly provided by this licence.

Where LAeq means the equivalent continuous noise level - the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

- L5.2 To determine compliance with condition(s) L6.1 noise must be measured at, or computed for, the locations specified in the table titled "noise monitoring locations". A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "Environmental Noise Management - NSW Industrial Noise Policy (January 2000)".
- L5.3 The noise emission limits identified in this licence apply under all meteorological conditions except:
- during rain and wind speeds (at 10m height) greater than 3m/s; and
  - under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.



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## **L6 Hours of operation**

- L6.1** Activities covered by this licence, including haulage vehicles entering and leaving the premises, must only be carried out between the hours of 0700 and 1800 Monday to Friday and at no time on Saturdays, Sundays and Public Holidays.

This condition does not apply to the delivery of material outside the hours of operation, 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, prior notification is provided to the EPA and affected residents as soon as possible, or within a reasonable period in the case of emergency.

## **L6.2 Hours of operations for maintenance purposes**

Maintenance of equipment used on site may be conducted during normal operating hours and on Saturdays between 0700 and 1300 hrs provided that the noise emission criterion of 41 dB(A) LAeq(15 minute) is not exceeded at the locations specified in table titled "Noise monitoring locations".

## **4 Operating Conditions**

### **O1 Activities must be carried out in a competent manner**

- O1.1** Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

### **O2 Maintenance of plant and equipment**

- O2.1** All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

### **O3 Dust**

- O3.1** The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

- O3.2** The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.

### **O4 Other operating conditions**

- O4.1** A Stormwater Management Plan must be prepared for the development and must be implemented as soon

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as normal operations commence. Implementation of the Plan must mitigate the impacts of stormwater runoff from and within the premises following the completion of construction activities. The Stormwater Management Plan should be consistent with the guidance contained in *Managing Urban Stormwater: Council Handbook* (available from the EPA).

O4.2 Blasting is not permitted on or within any part of the premises.

## 5 Monitoring and Recording Conditions

### M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:

- a) in a legible form, or in a form that can readily be reduced to a legible form;
- b) kept for at least 4 years after the monitoring or event to which they relate took place; and
- c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

### M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

#### POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

#### POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

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## POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

## POINT 4

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003
PM10	micrograms per cubic metre	Monthly	AS/NZS 3580.9.6:2003

## POINT 5

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Continuous	Australian Standard 3580.10.1-2003

## M2.3 Water and/ or Land Monitoring Requirements

## POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Quarterly during discharge	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

## POINT 7

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	-	Special Frequency 1	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

M2.4 Special frequency 1 referred to under Point 6 and Point 7 means: monitoring for the specified pollutants shortly after commencement of normal operation on site and on a quarterly basis thereafter provided that water is being discharged from the site. If water is not being discharged from the site, the monitoring must be conducted at least twice in the first 12 months period of normal operation. In this case the monitoring must be conducted at least 150 days apart.

## M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

- any methodology which is required by or under the Act to be used for the testing of the

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concentration of the pollutant; or

b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

**Note:** The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

**M3.2** Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

## M4 Weather monitoring

**M4.1** For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	oC	Continuous	1 hour	AM-4
Wind direction	o	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta	o	Continuous	15 minute	AM-2 & AM-4
Rainfall	mm	Continuous	24 hour	AM-4

## M5 Recording of pollution complaints

**M5.1** The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

**M5.2** The record must include details of the following:

- the date and time of the complaint;
- the method by which the complaint was made;
- any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

# Environment Protection Licence

Licence - 12863



- M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

## M6 Telephone complaints line

- M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M6.3 The preceding two conditions do not apply until 3 months after:
  - a) the date of the issue of this licence or
  - b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

## M7 Requirement to monitor volume or mass

- M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:
  - a) the volume of liquids discharged to water or applied to the area;
  - b) the mass of solids applied to the area;
  - c) the mass of pollutants emitted to the air;at the frequency and using the method and units of measure, specified below.

### POINT 6

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

### POINT 7

Frequency	Unit of Measure	Sampling Method
Each overflow event	kilolitres per day	In line instrumentation

Note: In line instrumentation means using manufacturer's specifications for the existing pump multiplied by the time it is used.

## M8 Other monitoring and recording conditions

- M8.1 The licensee must monitor the noise emanating from the activities at all five (5) locations specified in the table titled "Noise monitoring locations". This monitoring must be conducted shortly after commencement of normal operation on site and on a quarterly basis thereafter.



# Environment Protection Licence

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## Noise monitoring locations

Location number	Location description	Easting	Northing
N1	Noise monitoring station located 5 m from the northern boundary near Elizabeth Drive shown as point N1 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289130	6249975
N2	Noise monitoring station located 30 m from the boundary of the Hubertus Country Club shown as point N2 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288680	6279460
N3	Noise monitoring station located 150 m from the south western boundary of the site shown as point N3 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	288950	6248930
N4	Noise monitoring station located in the middle of the southern boundary of the site shown as point N4 on Drawing No 8102 titled "Figure 1 - Monitoring Sites - Luddenham Clay/Shale Quarry" and dated 06/05/09 prepared by Conacher environmental group	289480	6248890

M8.2 The monitoring specified in conditions M2, M4, M7 and M8 must be conducted for a minimum period of 12 months.

Following assessment of the monitoring results for this 12 months period, the EPA will adjust the monitoring requirements in consultation with the licensee.

## 6 Reporting Conditions

### R1 Annual return documents

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R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

- a) a Statement of Compliance; and
- b) a Monitoring and Complaints Summary.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

- a) the licence holder; or
- b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.8 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

## R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

# Environment Protection Licence

Licence - 12863



- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

## R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
  - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
  - b) the type, volume and concentration of every pollutant discharged as a result of the event;
  - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
  - d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
  - e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
  - f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
  - g) any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

## R4 Other reporting conditions

- R4.1 The licensee must provide a written report to the Manager Sydney Industry, PO Box 668, DECC Parramatta 2124 within 28 days of the completion of the monitoring required in conditions M2, M6, M7 and M8.
- R4.2 At the end of the first 12 months period, the licensee must submit to the EPA's Manager Sydney Industry, PO Box 668 Parramatta NSW 2124, a report outlining the results of the monitoring. The report must be submitted within 28 days from the completion of the monitoring.

# Environment Protection Licence

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Licence - 12863



## 7 General Conditions

### **G1 Copy of licence kept at the premises or plant**

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

# Environment Protection Licence

Licence - 12863



## Dictionary

### General Dictionary

<b>3DGM [in relation to a concentration limit]</b>	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
<b>Act</b>	Means the Protection of the Environment Operations Act 1997
<b>activity</b>	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
<b>actual load</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>AM</b>	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>AMG</b>	Australian Map Grid
<b>anniversary date</b>	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>annual return</b>	Is defined in R1.1
<b>Approved Methods Publication</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>assessable pollutants</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>BOD</b>	Means biochemical oxygen demand
<b>CEM</b>	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>COD</b>	Means chemical oxygen demand
<b>composite sample</b>	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
<b>cond.</b>	Means conductivity
<b>environment</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>environment protection legislation</b>	Has the same meaning as in the Protection of the Environment Administration Act 1991
<b>EPA</b>	Means Environment Protection Authority of New South Wales.
<b>fee-based activity classification</b>	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
<b>general solid waste (non-putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997



# Environment Protection Licence

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<b>flow weighted composite sample</b>	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
<b>general solid waste (putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>grab sample</b>	Means a single sample taken at a point at a single time
<b>hazardous waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>licensee</b>	Means the licence holder described at the front of this licence
<b>load calculation protocol</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>local authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>material harm</b>	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
<b>MBAS</b>	Means methylene blue active substances
<b>Minister</b>	Means the Minister administering the Protection of the Environment Operations Act 1997
<b>mobile plant</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>motor vehicle</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>O&amp;G</b>	Means oil and grease
<b>percentile [in relation to a concentration limit of a sample]</b>	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
<b>plant</b>	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
<b>pollution of waters [or water pollution]</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>premises</b>	Means the premises described in condition A2.1
<b>public authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>regional office</b>	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
<b>reporting period</b>	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>restricted solid waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>scheduled activity</b>	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
<b>special waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>TM</b>	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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<b>TSP</b>	Means total suspended particles
<b>TSS</b>	Means total suspended solids
<b>Type 1 substance</b>	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
<b>Type 2 substance</b>	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
<b>utilisation area</b>	Means any area shown as a utilisation area on a map submitted with the application for this licence
<b>waste</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>waste type</b>	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr David Gathercole

Environment Protection Authority

(By Delegation)

Date of this edition: 05-June-2009

End Notes	
1	Licence transferred through application 146040, approved on 22-Dec-2009, which came into effect on 14-Dec-2009.
2	Licence varied by notice 1112136, issued on 15-Mar-2010, which came into effect on 15-Mar-2010.
3	Licence transferred through application 146392, approved on 18-Jan-2011, which came into effect on 18-Jan-2011.
4	Licence varied by notice 1502055 issued on 28-Nov-2011

# Notice of Modification

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, I modify the development consent referred to in Schedule 1, as set out in Schedule 2.



Chris Ritchie  
A/Director  
Major Development Assessment

Sydney, 28<sup>th</sup> January

2010

### SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

### SCHEDULE 2

1. Delete the definition for "DEC" in the list of Definitions in Schedule 2, and insert in alphabetical order the following:

DECCW	Department of Environment, Climate Change and Water
SEE	Statement of Environmental Effects
2. Delete all references to "DECC" and replace with "DECCW".
3. In condition 2 of schedule 3, delete all words after "Castle Pty Ltd" and replace with:
  - e) Modification Application DA 315-7-2003 MOD 2 and the accompanying SEE titled "*Section 96(1A) Modification Application, 275 Adams Road Luddenham*" produced by Planning Direction Pty Ltd and dated 3 November 2009 and "*Acoustic Report – Clay/Shale Quarry at 275 Adams Road Luddenham*" produced by Golders Associates Ltd and dated 15 December 2009; and
  - f) conditions of this consent.
4. Delete condition 3 of schedule 3 and replace with:
  3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
6. After condition 4 of schedule 3 insert the following:
  - 4A. The Applicant shall prepare revisions of any strategies, plans or programs required under this consent 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.



7. Delete condition 5 of schedule 3 and replace with:

5. The Applicant may undertake quarrying operations on the site until 31 December 2024.

*Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General. Consequently, this consent will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been properly rehabilitated.*

8. After condition 12 of schedule 4 insert the following:

- 12A. When extraction operations are taking place in Bench 1, as indicated on Figure 1 in Appendix 1, operations are restricted to the use of 1 truck and 1 excavator, until the quarry floor is at least 1.5m below the existing ground level.

8. In condition 6 of schedule 5, delete the first sentence and replace with:

Before 31 December 2010, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development.

9. After condition 10 of schedule 5 insert:

#### APPENDIX 1 GENERAL SITE LAYOUT



Figure 1: General Layout of the Site

# Notice of Modification

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

Under Section 96(1A) of the *Environmental Planning and Assessment Act 1979*, I, the Acting Deputy Director-General, Office of Sustainable Assessments and Approvals, modify the development consent referred to in Schedule 1, as set out in Schedule 2.

Yolande Stone  
**Acting Deputy Director-General**  
**Office of Sustainable Assessment and Approvals**  
**(as Delegate for the Minister for Planning)**

Sydney

2006

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### SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

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### SCHEDULE 2

1. Delete the word “and” at the end of condition 2(c) of schedule 3.
2. Add the following after condition 2(c) of schedule 3:
  - (d) information accompanying modification application DA 315-7-2003-MOD-1 for the relocation of the access bridge across Oakey Creek, lodged 16 November 2005, and prepared by Stuart J Castle Pty Ltd; and
3. Replace the numbering of condition 2(d) of schedule 3 with 2(e).
4. Replace the words “the Department” at the end of the first sentence of condition 29 of schedule 4 with “the Department of Natural Resources”.
5. Modify the text of the following definitions in schedule 2 to read:

Department  
Director-General  
Minister

Department of Planning  
Director-General of the Department of Planning, or delegate  
Minister for Planning, or delegate



# Development Consent

## Section 80 of the *Environmental Planning & Assessment Act 1979*

I, the Minister for Infrastructure, Planning and Natural Resources, approve the Development Application referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

These conditions are required to:

- (i) prevent, minimise, and/or offset adverse environmental impacts;
- (ii) set standards and performance measures for acceptable environmental performance;
- (iii) require regular monitoring and reporting; and
- (iv) provide for the on-going environmental management of the development.

Craig Knowles, MP  
Minister for Infrastructure, Planning and Natural Resources

Sydney,

2004

File No. P91/02045

### SCHEDULE 1

<b>Development Application:</b>	DA No. 315-7-2003.
<b>Applicant:</b>	Badger Mining Company Pty Limited.
<b>Consent Authority:</b>	The Minister for Infrastructure, Planning and Natural Resources.
<b>Land:</b>	Lot 3, DP 623799 and Lot 1, DP 838361.
<b>Proposed Development:</b>	The development and operation of a clay/shale quarry on Lot 3, DP 623799 and the construction and use of an access road and service facilities on Lot 1, DP 838361.
<b>State Significant Development</b>	The proposal is classified as State significant development under section 76A(7) of the <i>Environmental Planning and Assessment Act 1979</i> because it is a class of development listed in the schedule of the Minister's declaration of 3 August 1999.
<b>Integrated Development</b>	The proposal is classified as integrated development under section 91 of the <i>Environmental Planning and Assessment Act 1979</i> , because it requires approvals under the: <ul style="list-style-type: none"><li>• <i>Protection of the Environment Operations Act 1997</i>;</li><li>• <i>Rivers and Foreshores Improvement Act 1948</i>;</li><li>• <i>Water Act 1912</i>; and</li><li>• <i>Roads Act 1993</i>.</li></ul>
<b>Designated Development</b>	The proposal is classified as designated development under section 77A of the <i>Environmental Planning and Assessment Act 1979</i> , because it would disturb a total surface area of more than 2 hectares of land by clearing or excavating, and consequently meets the criteria in Schedule 3 of the <i>Environmental Planning and Assessment Regulation 2000</i> .

**BCA Classification:**

Class 10b

Bunded fuel storage  
Plant nursery  
Weighbridge  
Bridge  
Conveyor and hoppers

*Note:*

- 1) *To find out when this consent becomes effective, see Section 83 of the Environmental Planning and Assessment Act 1979 (EP&A Act);*
  - 2) *To find out when this consent is liable to lapse, see Section 95 of the EP&A Act; and*
  - 3) *To find out about appeal rights, see Section 97 of the EP&A Act.*
-

## SCHEDULE 2

### DEFINITIONS

AEMR	Annual Environmental Management Report
Applicant	Badger Mining Company Pty Limited
BCA	Building Code of Australia
DA	Development Application
DEC	Department of Environment and Conservation (also includes the former Environment Protection Authority and the National Parks and Wildlife Service)
Department	Department of <del>Infrastructure, Planning and Natural Resources</del>
Director-General	Director-General of the Department of <del>Infrastructure, Planning and Natural Resources</del> , or <del>her</del> delegate
DNA	Douglas Nicolaisen & Associates Pty Ltd
Dust	Any solid material that may become suspended in air or deposited
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act, 1997</i>
GTA	General Terms of Approval
Land	The whole of a lot in a current plan registered at the Land Titles Office at the date of this consent
LCC	Liverpool City Council
Minister	Minister for <del>Infrastructure and Planning</del> , or delegate
PCC	Penrith City Council
Privately-owned land	Land where: <ul style="list-style-type: none"> <li>a private agreement does not exist between the Applicant and the land owner; and</li> <li>there are no land acquisition provisions requiring the Applicant to purchase the land upon request from the land owner</li> </ul>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Riparian zone	A 40 metre-wide strip of land adjacent to a local watercourse, measured horizontally from the top of the bank of the watercourse
RTA	NSW Roads and Traffic Authority
SEMP	Site Environmental Management Plan
Site	Land to which the DA applies
Vacant land	The whole of a lot in a current plan registered at the Land Titles office that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot at the date of this consent



**SCHEDULE 3  
ADMINISTRATIVE CONDITIONS**

**Obligation to Minimise Harm to the Environment**

1. The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

**Scope of Development**

2. The Applicant shall carry out the development generally in accordance with:
  - (a) DA No. 315-7-03
  - (b) EIS titled *Proposed Clay/Shale Extraction Operation - Lot 3 - 275 Adams Road Luddenham*, dated May 2003, and prepared by Douglas Nicolaisen & Associates Pty Ltd (DNA);
  - (c) correspondence from DNA to the Department dated 16 March 2004 relating to operating hours, location of environmental bunds and reduction in the proposed extraction area; and
  - (e) <sup>24</sup> ~~the~~ conditions of this consent.
3. <sup>(d)</sup> ~~If there is any inconsistency between the above, either the conditions of this consent or the most recent document shall prevail to the extent of the inconsistency.~~ *information accompanying modification application DA 3157-2003 - Mod-1 for the replacement of the access bridge across Tanker Creek dated 16/11/05...*
4. The Applicant shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
  - (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained in these reports, plans or correspondence.

**Limits on Approval**

5. This consent lapses 15 years from the date on which it is granted.

*Notes:*

- (a) *The conditions of approval may require rehabilitation activities to be undertaken more than 15 years after the date on which the consent is granted; and*
- (b) *This condition does not affect the operation of section 95 of the EP&A Act.*

**Limits on Production**

6. The hours of operation for the development are limited to between 7 am and 6 pm Monday to Friday. The Applicant shall ensure that no haulage vehicles enter or leave the site between 6 pm and 7 am Monday to Friday, and on public holidays. Maintenance activities may be conducted between 7 am and 1 pm on Saturday. No other work is to be undertaken on Saturday, Sunday and public holidays.
7. The production of quarry products from the quarry shall not exceed 300,000 tonnes per annum.
8. The Applicant shall provide annual production data to the Department of Mineral Resources, in the manner required, on the standard form supplied for that purpose. These data are also to be included in the Annual Environmental Management Report (AEMR).

**Protection of Public Infrastructure**

9. The Applicant shall:
  - (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
  - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

**Structural Adequacy**

10. The Applicant 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:*

- (a) *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- (b) *Part 8 of the EP&A Regulation sets out the requirements for the certification of development.*

#### **Demolition**

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

#### **Operation of Plant and Equipment**

12. The Applicant shall ensure that all plant and equipment at the site, or used in connection with the development, are:
  - (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

#### **Compliance**

13. Prior to commencement of development on Lot 3 DP 629799 and Lot 1 DP 838361, the Applicant shall commission an independent person(s) or organisation(s), approved by the Director-General, to certify in writing to the satisfaction of the Director-General, that the Applicant has complied with all relevant conditions of this consent applicable prior to that event.



## SCHEDULE 4 ENVIRONMENTAL PERFORMANCE

### AIR QUALITY

#### Impact Assessment Criteria

1. The Applicant shall ensure that the air pollution generated by the development does not exceed the criteria listed in Tables 1, 2, and 3 at any privately-owned land.

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

Table 1: Long-term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 $\mu\text{m}$ ( $\text{PM}_{10}$ )	24 hour	50 $\mu\text{g}/\text{m}^3$

Table 2: Short-term impact assessment criterion for particulate matter

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 $\text{g}/\text{m}^2/\text{month}$	4 $\text{g}/\text{m}^2/\text{month}$

Table 3: Long-term impact assessment criteria for deposited dust

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

#### Environmental Management

2. <sup>1</sup>The site must be maintained in a condition that minimises or prevents the emission of dust from the site, including the prompt and effective rehabilitation of all disturbed areas.
3. <sup>2</sup>The Applicant shall ensure that all vehicles entering or leaving the site, carrying a load that may generate dust, are covered to prevent dust emissions at all times, except during loading and unloading.
4. <sup>3</sup>The Applicant shall ensure that all vehicles leaving the site are subject to equipment or facilities to remove adhering materials from wheels and underneath the bodies, unless otherwise approved by the DEC. The aims of the installed facilities are:
  - preventing materials from being carried away from the site to adjoining road surfaces; and
  - collecting, treating and disposing of any washdown.
5. The Applicant shall ensure that all internal unsealed roadways, quarry floor and stockpiles are to be watered as required to minimise dust generation.

<sup>1</sup> Incorporates DEC's GTA

<sup>2</sup> Incorporates DEC's GTA

<sup>3</sup> Incorporates DEC's GTA



6. <sup>4</sup>The Applicant shall not allow offensive odour to be emitted from the site.

*Notes:*

- (a) Section 129 of the POEO Act provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant Environment Protection Licence (EPL) as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.
- (b) No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the POEO Act.

**Monitoring**

7. The Applicant shall establish air quality monitoring stations at a minimum of 5 locations around the site, (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) to monitor, by sampling and obtaining results by analysis, dust deposition to the satisfaction of DEC and the Director-General, using the specified averaging period, frequency, and sampling method in Table 4:

Pollutant	Units of Measure	Averaging Period	Frequency	Sampling method <sup>1</sup>
Dust Deposition	g/m <sup>2</sup> /month	Month, annual	Continuous	AS-3580.10.1 <sup>2</sup>
Siting	-	-	-	AM-1

Table 4: Air quality monitoring

<sup>1</sup> NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

<sup>2</sup> Standards Australia, 1991, AS 3580.10.1-1991, *Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method*.

8. Before carrying out any development, the Applicant shall prepare an Air Quality Monitoring Program, in consultation with DEC, and to the satisfaction of the Director-General.

**Soil and Land Management**

9. The Applicant shall immediately utilise or stockpile, for use in the rehabilitation of the site, any topsoil removed during the development. Topsoil shall not be mixed with other overburden products. The topsoil stockpile(s) shall be protected from erosion. The topsoil stockpile(s) shall be sown with appropriate vegetation to stabilise the soil if they are to be stored for longer than 6 weeks. The topsoil stockpile(s) shall have a maximum height of 1.5 metres.
10. The Applicant shall minimise the removal of trees and other vegetation from the project site, and restrict any clearance to the areas occupied by quarrying activities, noise attenuation bund, access roads and ancillary facilities.
11. The Applicant shall regularly consult with adjoining property owners to ensure property management issues including maintenance of common fences, weed control measures, and bushfire management are coordinated. Details of this consultation are to be reported in the AEMR.

**NOISE**

**Noise Impact Assessment Criterion**

12. <sup>5</sup>The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criterion presented in Table 5.

<sup>4</sup> Incorporates DEC's GTA

<sup>5</sup> Incorporates DEC's GTAs



Day L <sub>Aeq</sub> (15 minute)	Property
41	All residential or sensitive receptors not associated with the development

Table 5: Noise impact assessment criterion dB(A)

**Notes:**

- (a) The noise limits in Table 5 are for the noise contribution of the establishment and operation of the clay/shale quarry on Lot 3, DP 623799 and Lot 1 DP838361, Adams Road, Luddenham.
- (b) The criterion in Table 5 does not apply to a six-week period for the construction of a noise attenuation bund adjacent to the quarry excavation area.
- (c) Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary.
- (d) To determine compliance with the L<sub>Aeq</sub>(15 minute) noise limits in the above table where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

**Operating Conditions**

13. The Applicant shall ensure that all vehicles travelling on internal roads do not exceed 20 kilometres per hour.
14. The Applicant shall design operations to minimise the need for reversing of trucks and machinery where reversing beepers may contribute to noise impacts exceeding the criterion in condition 12.

**Monitoring**

15. The Applicant shall prepare noise compliance assessments of the operations at the site, within 3 months of the commencement of operations, and at intervals of 3 months thereafter, unless otherwise directed by the Director-General. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

**Construction of the Noise Attenuation Bund**

*Note: The noise attenuation bund also functions as visual screen of the operations associated with the extraction of the clay/shale resource.*

16. The Applicant shall minimise noise levels during the construction of the noise attenuation bund by the implementation of best available techniques economically achievable.
17. The Applicant shall complete the construction of the noise attenuation bund in the minimum time, not to exceed 6 weeks from the commencement of its construction, unless otherwise approved by the Director-General.
18. The Applicant shall prepare a noise assessment of the construction of the noise attenuation bund within 3 weeks of the commencement of construction of the bund. The assessment shall be carried out by a suitably qualified and experienced acoustical consultant, approved by the Director-General, and submitted to the DEC and the Department.

**Environmental Management**

19. Prior to carrying out any development on the site, the Applicant shall prepare a Noise Management Plan for the development, in consultation with the DEC and to the satisfaction of the Director-General, which addresses;
  - actions to be undertaken to achieve compliance with condition 12;
  - actions to be undertaken during the construction of the noise attenuation bund;



- circumstances that would lead to the construction of the noise attenuation bund to a height of 5 or 6 metres instead of the proposed 4 metre height, and any additional noise control measures to be undertaken during the construction of a higher bund;
- measurement of the acoustic performance of plant and equipment used on site to demonstrate that the predictions of the EIS and documentation listed in condition 2 of schedule 3 are met; and
- a program for monitoring noise generated by the development at a minimum of 5 locations around the site, (including the Hubertus Country Club, the "northern" residence in the EIS, and locations representative of the most-affected residences in Jackson Road, Ferndale Road and adjoining landowners to the east of the site) which includes a noise monitoring protocol for evaluating compliance with the criterion in condition 12.

## METEOROLOGICAL MONITORING

20. The Applicant shall maintain a permanent meteorological station at a location approved by the DEC, and to the satisfaction of the Director-General, to monitor the parameters specified in Table 6, using the specified units of measure, averaging period, frequency, and sampling method in the table.

Parameter	Units of measure	Averaging period	Frequency	Sampling method <sup>†</sup>
Rainfall	mm/hr	1 hour	Continuous	AM-4
Sigma Theta @ 10 m	°	1 hour	Continuous	AM-2
Siting				AM-1
Wind Direction @ 10 m	°	1 hour	Continuous	AM-2
Wind Speed @ 10 m	m/s	1 hour	Continuous	AM-2

Table 6: Meteorological monitoring

<sup>†</sup>NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

## BLASTING

21. Blasting is not permitted on the site.

## <sup>§</sup>SURFACE & GROUND WATER

*Note: The Applicant is required to obtain licences for the development under the Water Act 1912, the Rivers and Foreshores Improvement Act 1948 and the Protection of the Environment Operations Act 1997.*

### Pollution of Waters

22. Except as may be expressly provided by a DEC licence, the Applicant shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the development.

### Surface Water Management System

23. The Applicant shall:
- design, install, operate and maintain a stormwater management system for the site in accordance with the publication titled *"Managing Urban Stormwater: Soil and Construction, Department of Housing 1998"* for a 90 percentile five day rainfall interval (unless condition 9 applies);
  - install bund(s) around areas in which fuels, oils and chemicals are stored. Bunds must:
    - have walls and floors constructed of impervious materials;
    - be of sufficient capacity to contain 110% of the volume of the tank (or 110% of the volume of the largest tank where a group of tanks are installed);
    - have walls not less than 250 millimetres high;
    - have floors graded to a collection sump; and
    - not have a drain valve incorporated in the bund structure;
  - conduct maintenance on mobile plant and equipment within a bunded area, unless within the quarry excavation;
  - install a wastewater treatment facility with oil separator and sediment trap to treat the drainage from any hardstand, vehicle servicing and workshop areas; and
  - divert stormwater away from disturbed land surfaces. All diversion banks, channels and points of discharge should be constructed or stabilised so as to minimise erosion and scouring.

<sup>§</sup> Incorporates DEC's GTAs



## Site Water Management Plan

24. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Water Management Plan for the site, to the satisfaction of the Director-General. This plan must include:
- (a) a Surface Water Monitoring Program;
  - (b) a Groundwater Monitoring Program;
  - (c) an Erosion and Sediment Control Plan; and
  - (d) an Irrigation Management Plan.
25. The Surface Water Monitoring Program shall include:
- (a) detailed baseline data on surface water flows and quality in Oakey Creek upstream and downstream of the development;
  - (b) surface water impact assessment criteria;
  - (c) a program to monitor surface water flows and quality in Oakey Creek; and
  - (d) a program to monitor the effectiveness of the Erosion and Sediment Control Plan.
26. The Groundwater Monitoring Program shall include:
- (a) baseline data on groundwater levels and quality, based on statistical analysis, to benchmark the pre-quarrying natural variation in groundwater levels and quality;
  - (b) groundwater impact assessment criteria;
  - (c) a program to monitor groundwater impacts during quarry operations.

*Note: Licences are required under the Water Act 1912 for groundwater monitoring bores.*

27. The Erosion and Sediment Control Plan shall:
- (a) comply with the requirements of the with the publication titled "Managing Urban Stormwater: Soils and Construction, Department of Housing 1998";
  - (b) identify activities that could cause soil erosion or discharge sediment or water pollutants from the site;
  - (c) describe the location, function and capacity of all erosion and sediment control structures;
  - (d) describe the measures to minimise soil erosion and the potential migration of sediments to downstream waters.
28. The Irrigation Management Plan shall:
- (a) comply with the requirements of the Surface Water Licence issued under the *Water Act 1912* for the use of water obtained from the quarry;
  - (b) identify the specific areas of land to be irrigated, determine sustainable water application rates and monitoring requirements;
  - (c) describe measures to prevent any tailwater drainage from entering Oakey Creek; and
  - (d) ensure that the soils subject to irrigation are not adversely affected by the concentration of salts.

## Internal Road Crossing of Oakey Creek

29. Prior to the commencement of any work within 40 metres of Oakey Creek, a permit under Part 3A of the *Rivers and Foreshores Improvement Act 1948* shall be obtained from the Department of Natural Resources. All works shall be:
- (a) undertaken in accordance with the permit application, except as otherwise provided by conditions of the permit;
  - (b) constructed generally in accordance with the information contained in the documents (including the EIS) listed in condition 2 of schedule 3; and
  - (c) designed and constructed such that the works do not cause sedimentation, erosion or permanent diversion of the Protected Waters;
- Note: Should Crown land, as defined under the Crown Lands Act 1989, be included in the crossing, there is a requirement to seek approval from the Department of Lands under the Crown Lands Act 1989.*



## WASTE MANAGEMENT

30. <sup>7</sup>The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.

*Note: This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the site if it requires an Environment Protection Licence under the Protection of the Environment Operations Act 1997.*

31. The Applicant shall ensure that the site has a suitable sewage disposal system, to the satisfaction of the LCC.

## ABORIGINAL HERITAGE

32. The Applicant shall:
- (a) protect from disturbance, by fencing, the Aboriginal site and relics (the site) located close to Oakey Creek shown in Figure 2 of Technical Document 8 of the EIS (*Assessment and Management Recommendations for the Aboriginal Archaeological Site at 275 Adams Road Luddenham*) prepared by Umwelt (Australia) Pty Limited and dated September 2001;
  - (b) not allow stormwater or other discharges to be directed across the site;
  - (c) not allow sedimentation to occur on the site;
  - (d) provide training in the cultural values of Aboriginal sites to all permanent staff;
  - (e) protect the site from damage; and
  - (f) allow access to the site by representatives of the Gandangara Local Aboriginal Land Council to allow educational and cultural activities and monitoring of the condition of the site.

## REHABILITATION & VEGETATION

33. Prior to the carrying out of any development on the site, the Applicant shall prepare a Site Rehabilitation Plan in accordance with the rehabilitation guidelines in the document titled *"Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2) – Planning Report"*, to the satisfaction of the Director-General. The Site Rehabilitation Plan shall include a Vegetation Management Plan.
34. The Vegetation Management Plan shall include:
- (a) revegetation of the riparian zone of Oakey Creek;
  - (b) protection, establishment and maintenance of the riparian zone;
  - (c) protection of remnant native vegetation;
  - (d) restoration of any areas within the riparian zone disturbed by the development; and
  - (e) a program to vegetate the noise attenuation bund.
35. The Applicant shall provide annual audits of the performance of the rehabilitation undertaken on the site to be included in the AEMR. The audit shall be conducted by a qualified rehabilitation consultant, approved by the Director-General.
36. Prior to 5 years of the estimated completion of extractive activities at the site, the Applicant shall submit a report to the Department identifying the final land use of the site and method of treatment for the final void.

## Rehabilitation Bond

37. Prior to commencement of operations on Lot 3, DP 623799, the Applicant shall provide a Rehabilitation Bond in the sum of \$166,750 in the form of an insurance bond or bank guarantee acceptable to the Director-General from any bank licensed pursuant to the *Banking Act 1959 (Cth)*. The Rehabilitation Bond shall be made in favour of the Minister administering the *Environmental Planning & Assessment Act 1979* to ensure completion of the rehabilitation and landscaping works at the site. The sum of the Rehabilitation Bond is calculated based on \$2.50 per square metre for a maximum exposed area of 6.67 hectares (ha).

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<sup>7</sup> DEC GTA



The Department shall review the adequacy of Rehabilitation Bond to provide for the completion of rehabilitation and landscaping works on the site at intervals of not less than three years. The Applicant shall ensure that the Rehabilitation Bond is in accordance with the sum determined by the review.

*Notes:*

- (a) *The Director-General may at any time, and without notice to the Applicant, demand all or part of the monies available under the Rehabilitation Bond if, in the Director-General's opinion, the Applicant has failed to make satisfactory progress on the rehabilitation and landscaping of the site.*
- (b) *The Director-General shall apply the monies to ensure that the actions specified in the documents listed in condition 2 of schedule 3 and/or any approved Site Rehabilitation Plan are achieved.*
- (c) *The Rehabilitation Bond will be released when the Applicant submits documentation prepared by a qualified rehabilitation consultant certifying that the final rehabilitation has been completed in accordance with the conditions of this consent and/or any approved Site Rehabilitation Plan, to the satisfaction of the Director-General.*

## **VISUAL AMENITY**

- 38. The Applicant shall carry out the development in a way that prevents and/or minimises the visual impacts of the development.
- 39. Buildings, structures and roadworks shall be designed and constructed to present a neat and orderly appearance, to blend as far as practicable with the surrounding landscape and to minimise visual impact.

## **TRAFFIC & TRANSPORT**

### **Site Access Road/Elizabeth Drive Intersection**

- 40. <sup>8&9</sup> Prior to the transport of clay/shale materials from the site, the Applicant shall construct an intersection of the site access road and Elizabeth Drive in accordance with the information contained in the EIS, to the satisfaction of the RTA. This treatment shall be in accordance with RTA standards for a Rural Type AUR Right Turn Treatment and shall:
  - (a) incorporate an auxiliary left turn deceleration lane;
  - (b) safely integrate existing access to the neighbouring property immediately to the east of the intersection;
  - (c) incorporate signs and linemarking in accordance with the relevant RTA standards;
  - (d) provide intersection lighting to the relevant standards, should the intersection be used outside of daylight hours; and
  - (e) be in accordance with detailed design plans submitted to the RTA for approval prior to the commencement of any roadworks.

*Note: All works must be carried out at the Applicant's expense. A plan checking fee and lodgement of performance bond may be required prior to the release of approved road design plans by the RTA.*

- 41. <sup>10</sup> Prior to 8 years from the commencement of this consent, the Applicant shall review the access arrangements to Elizabeth Drive, in consultation with PCC and LSC, and to the satisfaction of the RTA.

*Note: Part of the RTA's proposal for the road widening of Elizabeth Drive would result in its conversion to a four lane divided carriageway that would restrict access to the quarry site to left-in/left-out movements only.*

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<sup>8</sup> Incorporates RTA's GTAs

<sup>9</sup> Incorporates PCC's GTA

<sup>10</sup> Incorporates RTA's GTA

## Road Transport Protocol

42. <sup>11</sup>Prior to the commencement of road haulage from the site, the Applicant shall develop a Road Transport Protocol, in consultation with the RTA, PCC and LCC. This protocol shall:
- (a) specify the haulage route(s) to be used, the maximum number of road movements and the haulage hours;
  - (b) include a Traffic Management Plan which addresses:
    - procedures to ensure that drivers adhere to the designated haulage route(s) as required under this Protocol;
    - measures to achieve a low-frequency, regular trucking schedule rather than a high-frequency, campaign trucking schedule;
    - contingency plans where, for example, any designated transport route is disrupted. This shall also address procedures for notifying relevant agencies and affected communities by the implementation of any such contingency plan;
    - procedures to ensure that all haulage vehicles associated with the quarry are clearly distinguishable as Badger Mining Company product haulers;
    - details for procedures for receiving and addressing complaints from the community concerning traffic issues associated with haulage from the quarry or return of unladen trucks to the quarry; and
    - measures to ensure the provisions of the traffic management plan are implemented, for example, education of drivers and any contractual agreements with operators of heavy vehicles which serve the quarry.
  - (c) include a Code of Conduct for drivers which addresses:
    - travelling speeds;
    - staggering of truck departures to ensure a regular trucking schedule throughout the day;
    - instructions to drivers not to overtake each other on the haulage route(s), as far as practicable, and to maintain appropriate distances between vehicles;
    - instructions to drivers to adhere to the designated haulage route(s);
    - instructions to drivers to be especially safety conscious and to ensure that traffic regulations are obeyed strictly;
    - driver training in the Code to ensure that all drivers are made aware and adhere to the Code; and
    - procedures for ensuring compliance with and enforcement of the Code.

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<sup>11</sup> Incorporates RTA's GTAs



## SCHEDULE 5

### ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

#### ENVIRONMENTAL MANAGEMENT STRATEGY

1. Before carrying out any development, the Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:
  - (a) provide the strategic context for environmental management of the development;
  - (b) identify the statutory requirements that apply to the development;
  - (c) describe in general how the environmental performance of the development would be monitored and managed during the development;
  - (d) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - receive, handle, respond to, and record complaints;
    - resolve any disputes that may arise during the course of the development;
    - respond to any non-compliance;
    - manage cumulative impacts; and
    - respond to emergencies; and
  - (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.
2. Within 14 days of the Director-General's approval, the Applicant shall:
  - (a) send copies of the approved strategy to the relevant agencies, PCC, LCC and the Community Consultative Committee (CCC) (see condition 8); and
  - (b) ensure the approved strategy is publicly available during the development.

#### ENVIRONMENTAL MONITORING PROGRAM

3. Before carrying out any development, the Applicant shall prepare an Environmental Monitoring Program for the development in consultation with the relevant agencies, and to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 4 of this consent into a single document.
4. The Applicant shall regularly review, and if necessary update, this program in consultation with the Director-General.

#### ANNUAL REPORTING

5. The Applicant shall submit, annually, an AEMR to the Director-General and the relevant agencies. This report must:
  - (a) provide a summary of the operations conducted at the site in the reporting period;
  - (b) provide details of quantities of light-firing claystone/shale, dark-firing claystone/shale, plastic clay, sandstone and waste materials extracted;
  - (c) provide monthly summaries of the quantities of extracted materials transported, and number of truck movements, to each market destination;
  - (d) identify the standards and performance measures that apply to the development;
  - (e) include a summary of the complaints received during the past year, and compare this to the complaints received in the previous years;
  - (f) include a summary of the monitoring results on the development during the past year;
  - (g) include an analysis of these monitoring results against the relevant:
    - impact assessment criteria;
    - monitoring results from previous years; and
    - predictions in the EIS;
  - (h) identify any trends in the monitoring over the life of the development;
  - (i) identify any non-compliance during the previous year; and
  - (j) describe what actions were, or are being, taken to ensure compliance.

#### INDEPENDENT ENVIRONMENTAL AUDIT

6. Within 2 years of the date of this consent, and every 5 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
  - (a) be conducted by a suitably qualified, experienced, and independent person whose appointment has been endorsed by the Director-General;



- (b) be consistent with *ISO 19011:2002 – Guidelines for Quality and/or Environmental Systems Auditing*, or equivalent updated versions of this guideline;
  - (c) assess the environmental performance of the development, and its effects on the surrounding environment;
  - (d) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
  - (e) review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and, if necessary,
  - (f) recommend measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems.
7. Within 3 months of commissioning this audit, the Applicant shall submit a copy of the audit report to the Director-General, with a response to any of the recommendations contained in the audit report.

#### COMMUNITY CONSULTATIVE COMMITTEE

8. The Applicant shall ensure that there is a Community Consultative Committee to oversee the environmental performance of the development. This committee shall, unless otherwise agreed by the Director-General:
- (a) be comprised of:
    - 2 representatives from the Applicant, including the person responsible for environmental management at the quarry;
    - 1 representative from LCC;
    - invited representatives from DEC and the Department; and
    - 3 representatives from the local community
 whose appointment has been approved by the Director-General, in consultation with LCC;
  - (b) be chaired by an independent Chair, whose appointment is approved by the Director-General;
  - (c) meet at least four times in the first year of its operation and at least twice a year thereafter; and
  - (d) review and provide advice on the environmental performance of the development, including any construction or environmental management plans, monitoring results, audit reports, or complaints.
9. The Applicant shall, at its own expense:
- (a) ensure that 2 of its representatives attend the Committee's meetings;
  - (b) provide the Committee with regular information on the environmental performance and management of the development;
  - (c) provide meeting facilities for the Committee;
  - (d) arrange site inspections for the Committee, if necessary;
  - (e) take minutes of the Committee's meetings;
  - (f) make these minutes available to the public for inspection within 14 days of the Committee meeting, or as agreed to by the Committee;
  - (g) respond to any advice or recommendations the Committee may have in relation to the environmental management or performance of the development;
  - (h) forward a copy of the minutes of each Committee meeting, and any responses to the Committee's recommendations to the PCC, LCC and Director-General within a month of the Committee meeting.
10. The Applicant shall ensure that the Committee has its first meeting before the Environmental Management Strategy (see condition 1) is submitted to the Director-General for approval.

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COUNTY :	Cumberland
Council :	Liverpool
Council Ref :	—
Approval Date :	—

Client : Epic Mining

**Project :** Plan of Compiled Detail Site Information

of Lot 3 in D.P.623799

**& Adjoining Lot 281 in D.P.571171**

No. 275 Adams Road

LUDDENHAM

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OF

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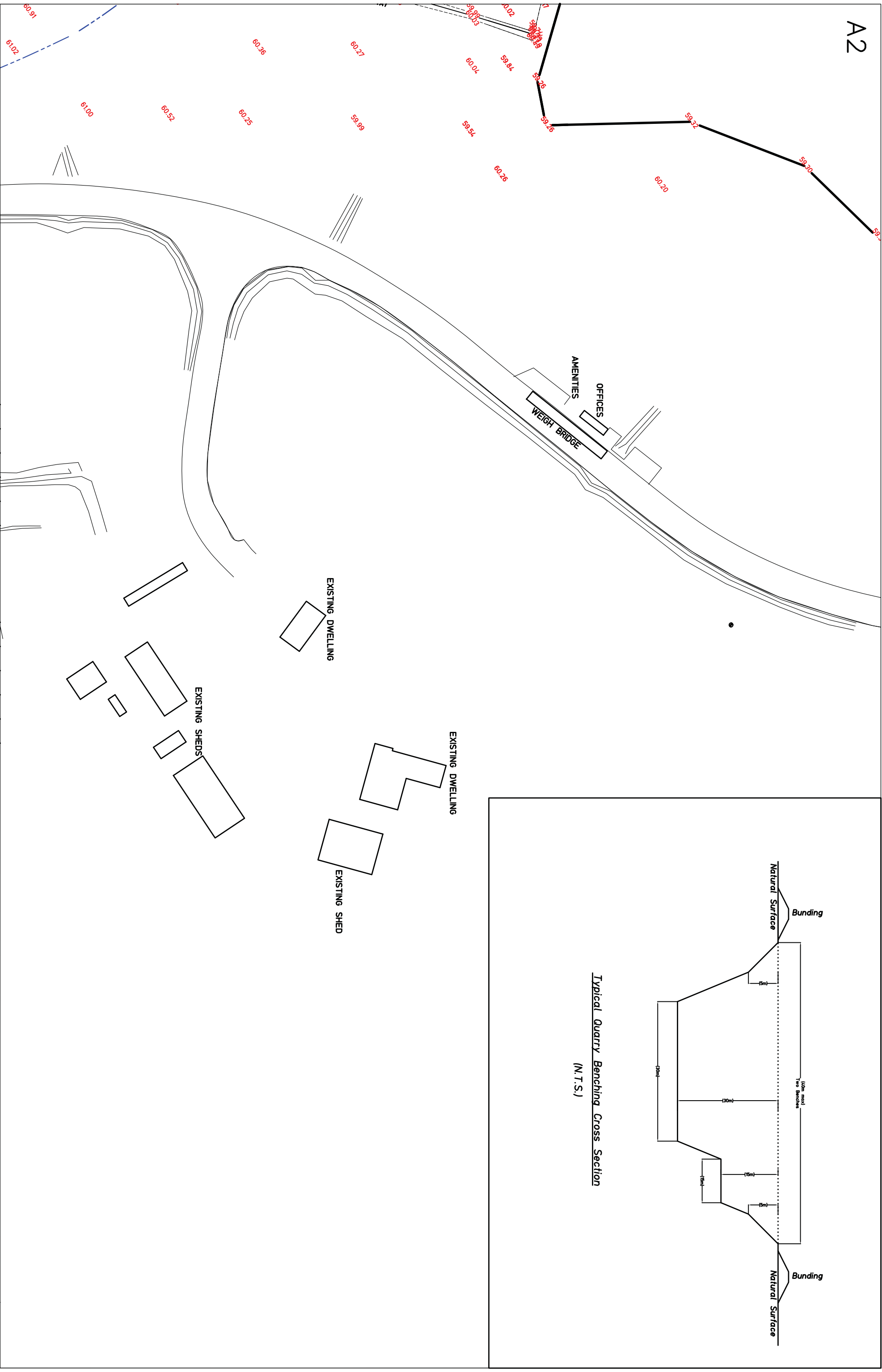
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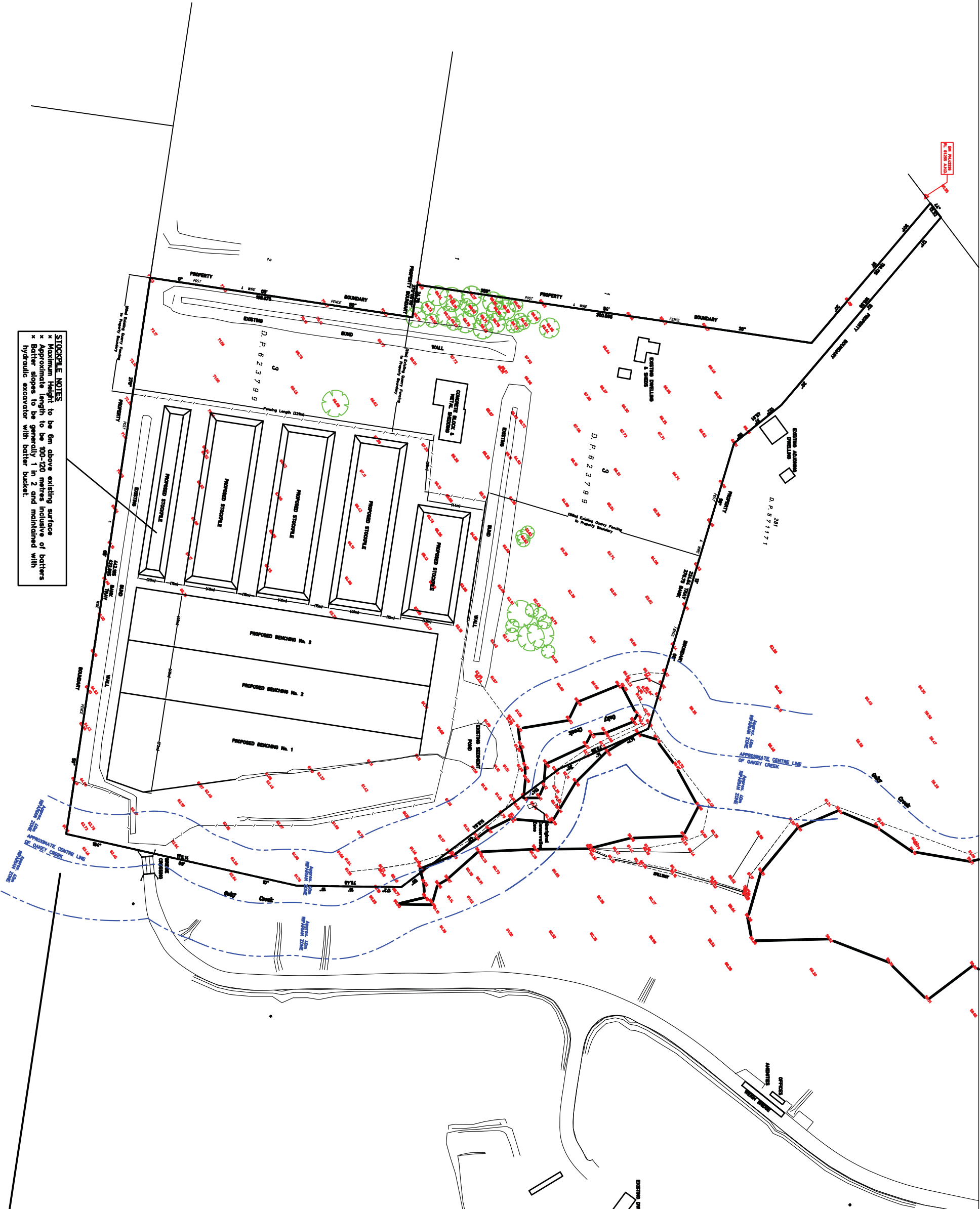
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<b>Contour Interval :</b> 1 metre <b>Datum :</b> AHD <b>Origin :</b> PMA3336 (RL61,255 AHD)									

## **SITE REHABILITATION PLAN**

**CLAY/SHALE QUARRY**

**ADAMS ROAD, LUDDENHAM**

**APRIL 2009  
(REF: 8102)**

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**SITE REHABILITATION PLAN**

**CLAY/SHALE QUARRY  
ADAMS ROAD, LUDDENHAM**

**APRIL 2009**

**Conacher Environmental Group**

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## SECTION 1

### INTRODUCTION

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#### 1.1 BACKGROUND

This Site Rehabilitation Plan (SRP) has been prepared for the approved quarry at Adams Road, Luddenham to address Consent Condition No. 33 of Schedule 4. The content of this SRP follows the requirements for preparing rehabilitation plans identified in the Planning Report for Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2).

This SRP relates to the areas used for the quarry activities including the clay/shale extraction pit, internal roads, loading areas, stockpile areas and the noise attenuation bund. Other areas of the site required to be revegetated and managed with a natural vegetation cover are incorporated into the Vegetation Management Plan prepared by UBM Ecological Consultants. These areas include the vegetation along Oaky Creek, a 40 metre wide revegetation zone from the creek and an area of woodland vegetation in the western part of the site.

The current consent is for a clay shale quarry but does not include provision for importation of fill material. The final land use (at present) is expected to be rural activities permissible within the zoning of the land.

A future development application may be submitted for ongoing extraction of clay/shale or for importation of suitable fill material for the void created by the extraction of clay/shale. Until an alternative land-use or development application has been approved the current consent conditions apply to the quarry area. Consent Condition No 5 (Schedule 3) identifies that consent lapses 15 years from date of consent (May 2004) while rehabilitation activities may be more than 15 years after consent was granted.

At this stage it is expected that clay/shale will continue to be extracted until the end of the current consent 2019 with rehabilitation works being undertaken at the start of 2019, allowing five months to complete the earthworks required for site rehabilitation.

#### 1.2 REQUIREMENTS FOR SITE REHABILITATION PLAN

The Requirement for preparing a site rehabilitation plan is included within Consent Condition No. 33 of Schedule 4. The details for inclusion in the SRP are outlined in the Planning Report for Sydney Environmental Plan No. 9 – Extractive Industry (No. 2).

These details from SREP No 9 are provided below in italics. Specific comment in relation to each of the requirements and reference to where this matter has been addressed in this SRP follows each requirement.

1. *Contain schedules detailing the proposed phases of rehabilitation of extracted areas to ensure that progressive rehabilitation is coordinated with the extractive operations.*

Rehabilitation of the quarry extraction area will be undertaken as one stage due to the requirement to use material within the haul roads and noise bunds as backfill material and topsoil material for revegetation. Refer to Sections 2.1, 2.2, 2.3, 2.4 and 2.5 of this SRP.



2. *Identify a final land use option towards which progressive rehabilitation can proceed.*

The final land use (at present) is expected to be rural activities permissible within the zoning of the land. Final land use of the rehabilitated quarry pit area will be dependant on the final contours of the rehabilitated pit. The final land use is to be determined by 2014 (Consent Condition No 36, Schedule 4) Refer to Section 1.1 & 1.4 of this SRP.

3. *Ensure that after rehabilitation the site is compatible with its surroundings and does not require ongoing maintenance in addition to normal land management practices.*

Following rehabilitation the site will comprise two different rehabilitation areas including the rehabilitated quarry pit area and rehabilitated infrastructure areas (roads, noise bunds, stock pile areas, loading areas etc). The rehabilitated quarry pit area will require specific ongoing management and maintenance to ensure that the vegetative cover is maintained. The other rehabilitated areas of the site are expected to be rehabilitated to a condition which can be managed utilizing normal agricultural land management practices.

The specific shape and design of the final rehabilitation and methods applicable to achieving this rehabilitated condition will be detailed in a SRP prepared in 2018 as part of the Annual Environmental Management Report. Refer to Sections 1.3 and 1.4 of this SRP.

4. *Identify a final stable and permanent landform which is environmentally and visually acceptable.*

At this stage the final landform for the excavated quarry pit area is likely to be a depression with sloped batters (2H:IV) leading to a pond at the base of the rehabilitated quarry pit. Refer to Section 1.4 and Section 2 of this SRP for details on the Rehabilitation Program.

5. *Ensure that the rehabilitated land surface is in a stable form conducive to sustainable vegetation cover.*

The final landsurfaces will be reshaped to stable landforms and certified safe by geotechnical engineers. Revegetation will be undertaken using appropriate seed and fertilizer mixes following soil tests of the areas to be revegetated. Refer to Section 2 of this SRP.

6. *Include an erosion and sediment control plan.*

An Erosion and Sediment Control Plan has been prepared for the site by SEEC Morse McVey. This plan will require amendments in 2018 when the final SRP is to be prepared.

7. *Include a water management plan.*

A Water Management Plan has been prepared for the site by SEEC Morse McVey. This plan will require amendments in 2018 when the final SRP is to be prepared.

8. *The rehabilitation plans should include information on: soil handling, vegetation handling, erosion and sediment control, excavations, rock faces, overburden dumps, tailing/reject disposal, visual amenity, removal of facilities infrastructure.*



Where relevant these matters are addressed in the SRP or are to be addressed in more detail in the 2018 SRP.

9. *Monitoring and reporting of extractive industry operations.*

The details for the environmental monitoring and reporting of the approved quarry are provided in the Environmental Management Strategy and Environmental Monitoring Program prepared by *Conacher Environmental Group*. Annual reports are required to be prepared with all records maintained on a monthly basis.

10. *Security deposit*

Consent Condition No 37 of Schedule 4 requires the operators to provide a Rehabilitation Bond of \$166,750 in the form of an insurance bond or bank guarantee to ensure rehabilitation and landscaping works on the site.

### 1.3 SITE REHABILITATION OBJECTIVES

This SRP outlines the measures, procedures and timing of works which will be undertaken to rehabilitate the site. The principal objectives of site rehabilitation are to:

- i) Remove fill material (soil, rock, roadbase) from around the site and use this material to recontour the void created by clay/shale extraction;
- ii) Recontour the excavated batters within the clay/shale extraction pit to achieve regularly shaped slopes which are structurally stable;
- iii) Revegetate disturbed land surfaces to create a grassed, stable soil surface to prevent soil erosion;
- iv) Rehabilitate the disturbed land surfaces in a manner with the final determined land use.

### 1.4 STATUS OF THIS SITE REHABILITATION PLAN

This SRP should be considered a concept plan for site rehabilitation as the rehabilitation works will not be undertaken until 2019. The extent of works required for adequate site rehabilitation will be identified in the 2018 Annual Environmental Management Report for the quarry. The 2018 Annual Environmental Management Report will provide a detailed SRP which will be based on the extent of the excavation pit and detailed volumetric analysis of the material available for reshaping the batters of the excavation pit.

Consent Condition No. 35 of Schedule 4 requires that *"Prior to 5 years of the estimated completion of extractive activities at the site, the Applicant shall submit a report to the Department identifying the final land use of the site and method of treatment fro the final land use"*.

Therefore it would be appropriate for the final land use and rehabilitation methods identified in the 3014 Annual Environmental Management Report for the quarry. This will provide adequate time to prepare the final Site Rehabilitation Plan (2018 version) which will incorporate the final land use objectives and methods of treatment to achieve this final land use.



## **SECTION 2**

### **REHABILITATION PROGRAM**

---

#### **2.1 AREAS TO BE REHABILITATED**

The areas to be rehabilitated include all areas disturbed for the purposes of operating and managing the quarry. These areas and works include:

- Filling the batters of the excavation pit;
- Removal of the main haul road to Elizabeth Drive;
- Removal of the bridge over Oaky Creek;
- Removal of storage and loading areas;
- Removal of the noise attenuation mound;
- Revegetation of all disturbed areas.

The extent of the areas to be rehabilitated will be identified in the SRP to be prepared in 2018. This plan will be based on the contour plans of the excavation pit which will identify the depth, extent and batter gradients of the excavation pit.

#### **2.2 RESHAPING OF EXCAVATION PIT BATTERS**

The vertical batters of the excavation pit will be reshaped to batters with a maximum gradient of 2H:1V, subject to geotechnical recommendations based on the type of material available.

The material for batter reshaping will be obtained from the material obtained from removal of the haul road, loading area and any clay/shale stockpiles available. The final surface of the reshaped batters will be shaped with the subsoil and topsoil material contained within the noise attenuation mound. This will ensure that the crushed concrete and gravel material from the haul road is placed at the base of the reshaped batters.

#### **2.3 TOPSOIL TREATMENT**

Topsoil material is contained within the noise mound and topsoil stockpiles to be created following the removal of topsoil from areas to be quarried. Prior to reuse samples of topsoil material are to be analysed at a NATA registered laboratory to determine the requirements for any soil amelioration such as lime, doleromite, fertilizer, trace elements etc which will assist with providing a suitable medium for revegetation purposes. Soil tests are also to be taken from areas disturbed for roads, bunds and stockpiles to determine any soil constraints and soil amelioration requirements.

#### **2.4 REVEGETATION**

All disturbed areas will be revegetated to achieve a grass / pasture cover similar to the existing vegetative cover of the agricultural paddocks.

At this stage revegetation using native tree, shrub or groundcover species is not proposed. These species are more suited to the riparian zones identified for revegetation in the Vegetation Management Plan (UBM Ecological Consultants 2009).

The final species mix for the revegetation process is to be detailed in the 2018 Site Rehabilitation Plan. This species mix will include permanent pasture species (Kikuyu, Rye Grass, Clover) with a temporary cover crop (Oats, Japanese Millet) and a surface mulch.



The steeper slopes within the reshaped quarry pit may require seeding by the hydro seeding technique where the revegetation mix is sprayed onto the soil surface by a hydroseeder and covering with a protective surface mulch.

## **2.5 SURFACE MULCHING**

All areas of revegetation will be covered by a protective surface mulch of straw. This will provide surface protection against rainfall impact and protection for germinating seeds. The organic matter from the breakdown of the mulch material will also benefit the soil structure for revegetation.

## **SECTION 3**

### **ONGOING MANAGEMENT OF REHABILITATION AREAS**

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#### **3.1 REGULAR INSPECTIONS AND MONITORING**

Regular monthly inspections (for a 12 month period) are to be undertaken to monitor the growth of revegetation and presence of any weeds or pests within the revegetated areas. Management works are to be undertaken on a quarterly basis.

#### **3.2 WEED MANAGEMENT**

Any environmental or noxious weeds growing in the revegetated areas are to be removed during each quarterly management program.

#### **3.3 PEST MANAGEMENT**

Any pests affecting the revegetated areas are to be controlled by implementing appropriate pest control techniques applicable at the time of rehabilitation and revegetation.

#### **3.4 VEGETATION MANAGEMENT**

Regrowth vegetation within the revegetated areas may require controlled mowing/slashing to control growth and to encourage a robust vegetative cover. The mowing regime to be used will be dependant on the growth of the vegetative cover.

#### **3.5 MAINTENANCE FERTILIZER**

Application of fertilizers to promote plant growth on rehabilitated areas is to be undertaken six months after seeding. The type and application rate of the fertilizer is to be determined following the results of soil tests for the site.

#### **3.6 REPORTING**

A report is to be prepared for each quarterly management program based on the results of the monthly monitoring inspections. An annual report is to be prepared for the rehabilitation areas which is to be incorporated into the Annual Environmental Management Report for the quarry.



## Sydney Regional Environmental Plan No 9—Extractive Industry (No 2—1995)

[1995-574]



### Status Information

#### Currency of version

Current version for 29 November 2006 to date (accessed 15 September 2010 at 13:00).

Legislation on this site is usually updated within 3 working days after a change to the legislation.

#### Provisions in force

The provisions displayed in this version of the legislation have all commenced. See [Historical notes](#)

#### Formerly known as:

Sydney Regional Environmental Plan No 9—Extractive Industry (No 2)

#### Deemed SEPP

From 1 July 2009 this plan is taken to be a State environmental planning policy (see clause 120 of Schedule 6 to the [Environmental Planning and Assessment Act 1979](#)).

**Authorisation:** This version of the legislation is compiled and maintained in a database of legislation by the Parliamentary Counsel's Office and published on the NSW legislation website, and is certified as the form of that legislation that is correct under section 45C of the [Interpretation Act 1987](#).

File last modified 1 July 2009.

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## **1 Name of plan**

This plan may be called [\*Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2—1995\)\*](#).

## **2 Aims, objectives etc**

This plan aims:

- (a) to facilitate the development of extractive resources in proximity to the population of the Sydney Metropolitan Area by identifying land which contains extractive material of regional significance, and
- (b) to permit, with the consent of the council, development for the purpose of extractive industries on land described in Schedule 1 or 2, and
- (c) to ensure consideration is given to the impact of encroaching development on the ability of extractive industries to realise their full potential, and
- (d) to promote the carrying out of development for the purpose of extractive industries in an environmentally acceptable manner, and
- (e) to prohibit development for the purpose of extractive industry on the land described in Schedule 3 in the Macdonald, Colo, Hawkesbury and Nepean Rivers, being land which is environmentally sensitive.

### 3 Land to which plan applies

This plan applies to the local government areas specified in Schedule 4, which comprise part of the land declared under section 4 (6) of the [\*Environmental Planning and Assessment Act 1979\*](#) (by order published in Gazette No 185 of 11 December 1981, at page 6381) to be a region known as the Sydney Region.

### 4 Relationship to other environmental planning instruments

- (1) This plan prevails to the extent of any inconsistency between it and another environmental planning instrument, except a State environmental planning policy.
- (2) This plan repeals *Sydney Regional Environmental Plan No 9—(Extractive Industry)*.

### 5 Definitions

In this plan:

***council***, in relation to development, means the council of the area in which the development is or is proposed to be carried out.

***extractive industry*** means:

- (a) the winning of extractive material, or
- (b) an undertaking, not being a mine, which depends for its operations on the winning of extractive material from the land on which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land.

***Extractive Industry Report*** means the report prepared by the Department of Planning dated 1994 and titled “Sydney Regional Environmental Plan No 9—Extractive Industry (No 2) Planning Report” available at the offices of the Department and of the councils of the areas specified in Schedule 4.

***extractive material*** means sand, gravel, clay, turf, soil, rock, stone or any similar substance.

***Richmond Lowlands*** means the land referred to in Item 2 of Schedule 5.

***the map*** means the map marked “Sydney Regional Environmental Plan No 9—Extractive Industry (No 2)” comprising 10 Sheets held in the head office of the Department of Urban Affairs and Planning and copies of which are held at the Department’s offices at Newcastle, Parramatta and Wollongong and at the offices of the councils of the areas specified in Schedule 4.

## **6 Consent authority**

The council is the consent authority for the purposes of this plan.

## **7 Extractive industries permissible with consent**

(1) This clause applies to land described in Schedule 1 or 2.

(2) A person may, with the consent of the council, carry out development for the purpose of an extractive industry on land to which this clause applies.

(3) The council must not grant such a consent unless:

(a) it has considered the effect of the development on flood behaviour, the water quality, quantity and hydrodynamics of any watercourse or underground waters and also the effect of flood behaviour on the development and operations associated with the development in the vicinity, and

(b) it has considered a rehabilitation plan prepared in accordance with the *Guidelines for Rehabilitation Plans in the Extractive Industry Report*, and

(c) it is satisfied that, while the development is being carried out, noise and vibration levels will generally be in accordance with the guidelines in the *State Pollution Control Commission Environmental Noise Manual* (1985 edition) available at the offices of the Environment Protection Authority and the councils of the areas specified in Schedule 4, and

(d) it is satisfied that rehabilitation measures will be carried out in accordance with the guidelines in the *Urban Erosion and Sediment Control Handbook* (1992) prepared by the Department of Conservation and Land Management and available at the offices of the Department of Land and Water Conservation.

## **8 Consultation with Department of Mineral Resources**

(1) This clause applies when a council receives an application for consent:

(a) to the carrying out of development for the purpose of extractive industry in respect of land described in Schedule 1, 2 or 5, or

(b) to the carrying out of development for a purpose other than an extractive industry on land described in Division 1, 3, 4, 5, 6, 7, 8 or 9 of Schedule 1 or in Schedule 2.

(2) When this clause applies, the council must, within 7 days after receipt of the development application, forward a copy of the application to the Director-General of the Department of Mineral Resources.

(3) The council must not determine the development application until:

(a) it has received a written representation with respect to the application from the Director-General of that Department, or

(b) the Director-General has informed the council in writing that the Director-General does not wish to make any representation with respect to the application, or

(c) 21 days have elapsed after the date on which the copy of the application was forwarded to the Director-General without any written response being received from the Director-General,

whichever occurs first.

(4) If the council has received a written representation from the Director-General of the Department of Mineral Resources within the 21 days, the council must have regard to that representation in determining the development application.

(5) In this clause, a reference to the Director-General of the Department of Mineral Resources includes a reference to any officer of that Department who is delegated by the Director-General the function of responding on behalf of the Director-General for the purposes of this clause.

## **9 Extractive industry on Schedule 1 or 2 land—matters for consideration**

(1) This clause applies to land described in Schedule 1 or 2.

(2) When considering an application for consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies, the council must take into account the recommendations for future extraction outlined in the Extractive Industry Report.

## **10 Extractive industry at Wrights and Wellums Creeks—matters for consideration**

(1) This clause applies to land described in Item 1 of Schedule 5.

(2) The council must not grant consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies unless it has considered the effect of the proposed development on:

(a) the wetlands system, particularly Wellums Lake, and

(b) the nature and extent of flooding, and

(c) silting of the Lower Macdonald and Hawkesbury Rivers, and

(d) the scenic amenity of the Macdonald River Valley.

## **11 Special requirements for extractive industry at Maroota**

(1) This clause applies to land described in Schedule 2.

(2) The council must not grant consent to the carrying out of development for the purpose of extractive industry on land to which this clause applies unless the council is satisfied that the



proposed development:

- (a) is unlikely to have a significant adverse impact on the Maroota groundwater resource or on other groundwater users in the region, and
- (b) will conserve the environmentally sensitive and significant areas and features of the Maroota locality, including the environment of threatened species, populations and ecological communities, and
- (c) will involve controlled and limited access points to main roads, and
- (d) will result in a final landform capable of supporting sustainable agricultural production or other post-extraction land uses compatible with the established character and the landscape and natural quality of the Maroota locality.

## **12 Future development controls for extraction from the Richmond Lowlands**

A council should not prepare a draft local environmental plan to permit development for the purpose of an extractive industry on land described in Item 2 of Schedule 5 unless it has considered the following matters:

- (a) the amount of extractive material it is economic to recover, and
- (b) the need to extract from the Richmond Lowlands and the timing and duration of extraction, to be determined with reference to:
  - the supplies of extractive material from the remaining reserves at Penrith Lakes, and
  - the current and likely future yields of extractive material from such supplies, and
  - the duration of such supplies in relation to the market, and
- (c) alternative potential sources of supply, and
- (d) the effect of the proposed development on:
  - the current and future agricultural value and regional agricultural significance of the land underlain by the extractive material and land in the vicinity of that land, and
  - the heritage value of the Richmond Lowlands, having regard to the relationship of such land to the Hawkesbury River and to nearby settlements, and
  - the tourism potential of the Richmond Lowlands, and
  - the environmental value of the Richmond Lowlands, and
  - the environmental value of the wetland areas of the Richmond Lowlands, including the importance of such areas to migratory birds and to the groundwater regime, and
  - the nature and effects of flooding on the Richmond Lowlands, and
- (e) the need for extractive operations to follow a co-ordinated plan of management, and

(f) the effect that flooding may have on the proposed development.

### **13 Future development controls for extraction from Schedule 1 or 2 land**

A council should not prepare a draft local environmental plan to prohibit development for the purpose of an extractive industry on land described in Schedule 1 or 2.

### **14 Notification of certain matters affecting land in the vicinity of extractive industry sites**

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Before a council exhibits under the Act a draft local environmental plan for a parcel of land to which this clause applies:

(a) which will decrease the minimum lot size for any such land or rezone any such land from a rural or non-urban zone to permit rural-residential, residential or urban development, and

(b) which, in the opinion of the council, is likely to result in development which will restrict the obtaining of deposits of extractive material from land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1,

the council should serve written notice of the draft plan on the owner of the parcel.

(3) When a council receives an application for consent to carry out development of land to which this clause applies that, in the council's opinion, is likely to have the effect of restricting the obtaining of deposits of extractive materials from a parcel of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1, the council must serve written notice of the application on the owner of the parcel.

### **15 Consultation over local environmental plans likely to restrict extractive operations**

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Before a council exhibits under the Act a draft local environmental plan for land to which this clause applies:

(a) which will decrease the minimum lot size for any such land or rezone any such land from a rural or non-urban zone to permit rural-residential, residential or urban development, and

(b) which, in the opinion of the council, is likely to result in development which will restrict the obtaining of deposits of extractive material from land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1,

the council should forward copies of the draft plan to the Director-General of the Department of Mineral Resources and the Director-General of the Environment Protection Authority.

(3) The council should not exhibit under the Act a draft plan a copy of which has been so forwarded to a Director-General (or a draft plan substantially similar to such a draft plan) until:

(a) it has received written representations with respect to the draft plan from the Director-General,

and

(b) the Director-General has informed the council that the Director-General does not wish to make any representation with respect to the plan, or

(c) 40 days have elapsed after the date on which the copy of the draft plan was submitted in accordance with subclause (2) without any written response being received from the Director-General,

whichever occurs first.

(4) If the council has received a written representation from either Director-General within the 40 days, the council should, in finalising the draft plan, have regard to that representation.

(5) If either Director-General is of the opinion that the copy of the draft plan forwarded is inconsistent with any of the aims of this plan, the Director-General must forward a copy of his or her representations to the Director of Planning for consideration.

## **16 Restrictions on development in the vicinity of extractive resource sites**

(1) This clause applies to land in the vicinity of land described in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) A council must not grant an application for consent to carry out development of land to which this clause applies unless it is satisfied that, if the development is carried out in accordance with the consent:

(a) the proposed development will not be adversely affected by noise, dust, vibration or reduced visual amenity from any nearby extractive industry, and

(b) the proposed development will not in any way adversely affect any existing nearby extractive industry or prevent any such extractive industry from realising its full economic potential by adversely affecting future expansion of the extractive industry of which the council is aware.

## **17 Development control codes**

(1) The council of the area concerned may prepare, or cause to be prepared, a development control code in respect of land in the vicinity of land identified in Division 1, 4, 6, 7, 8 or 9 of Schedule 1.

(2) Such a code does not have effect until it is approved by the Director-General of the Department of Mineral Resources and the Director-General of the Environment Protection Authority.

(3) The format, structure, subject-matter and procedures for the preparation, public exhibition, approval, amendment and repeal of any such development control code are to comply with Part 3 of the *Environmental Planning and Assessment Regulation 1994* which is to be construed as if:

(a) a reference in that Part to a development control plan were a reference to a development control code, and

(b) a reference in that Part to a local environmental plan were a reference to this plan.

(4) A development control code prepared in accordance with this clause is to be made available for public inspection, without charge, at the office of the council during ordinary office hours.

## **18 Dwellings within 50 metres of a quarry access road**

A local environmental plan should not permit a subdivision of land which will allow a residential building situated within 50 metres of a road:

- (a) constructed to provide access to a quarry on land described in Schedule 1, 2 or 5, or
- (b) principally used to provide access to such a quarry.

## **19 Extractive industry and waste**

(1) Nothing in this plan allows the use of land for the disposal of waste brought on to the land from other land, whether or not such a use is ancillary to the use of land for the purpose of extractive industry.

(2) A council must not consent to the carrying out of development for the purpose of extractive industry on land to which this plan applies unless it is satisfied that the extraction will be carried out in such a way as maximises the quality of the material extracted and minimises the creation of waste.

## **20 Extractive industry prohibited in certain places**

(1) This clause applies to land described in Schedule 3.

(2) A person must not carry out development for the purpose of extractive industry on land to which this clause applies.

(3) This clause does not prevent the carrying out of development described in item (6) of clause 11 of [\*Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River \(No 2—1997\)\*](#) in accordance with that plan.

(4), (5) (Repealed)

## **Schedule 1**

(Clauses 2, 7, 8, 9, 13, 14, 15, 16, 17, 18)

### **Division 1 Clay/shale extraction areas of regional significance—current and potential**

#### **1 (Repealed)**

**2** Lot 1, DP 373863; Lots 54–59 DP 3050; Lot 1, DP 981161; Martin Road, Badgerys Creek; Part Lot 1, DP 981748 and Part Portions 29 and 34 in Certificate of Title Volume 12466, Folio 2, area of Bringelly, County of Cumberland. Boral Bricks, Badgerys Creek.

**3** Lot 53, DP 8453; Lot 1, DP 55379; Lot 1, DP 984965; Lot 1, DP 947317; Lot A, DP 333558, Eastwood. Land contained within Certificate of Title Volume 4782, Folio 232, being part land in DP 55380 and Certificate of Title Volume 2751, Folio 12. Austral Bricks, Eastwood.



- 4 Lot 2, DP 733115, Greendale Road, Bringelly. Boral Bricks, Bringelly.
- 5 Lots 4–8 and 10–14, DP 236527; Lots 1–2, DP 533788 and Part Lot 25 (Section 5), DP 2954, Cecil Road, Cecil Park. PGH Brickworks, Cecil Park.
- 6 Lot 1, DP 106143 Cnr. Old Wallgrove Road and Burley Road, Horsley Park. PGH, Horsley Park.
- 7 Lots 3 and 4, DP 235478; Lot 1, DP 206617; Lot E, DP 384514 Wallgrove Road, Horsley Park. Austral Plants 1 and 2, Horsley Park.
- 8 Lot 2, DP 120673, Old Wallgrove Road, Horsley Park. Land in Conveyance Book 2842 No 807, excluding Lot 1, DP 579002, Old Wallgrove Road, Horsley Park, being Part Portion 32 and Part Portion 45, Parish of Melville, County of Cumberland. Austral Plant 3, Horsley Park.
- 9 Lots 1–4, DP 233539; Lot 4, DP 229769, Wallgrove Road, Eastern Creek. Austral Brick Pit, Eastern Creek.
- 10 Lot 3, DP 232574, Townson Road, Schofields. PGH Schofields.
- 11 Lots 58, 59, 62, 66 and 69, DP 1358, Burfitt Road, Riverstone. Abax, Riverstone.
- 12 Lot 4, DP 521268, Patons Lane, Erskine Park. Erskine Quarries, Erskine Park.
- 13 Lots 17–23, DP 2566, Clifton Avenue, Kemps Creek. Khari and Ghossayn, Kemps Creek.
- 14 Lots 1–3, DP 221313 and Lot 1, DP 716403, Elizabeth Drive, Kemps Creek. Nolans Quarrying and Mining, Kemps Creek.
- 15 Lot 740, DP 810111; Lot 1, DP 542395, Elizabeth Drive, Badgerys Creek. Pacific Waste Management, Badgerys Creek.
- 16 Lot 9A, DP 561214, Elizabeth Drive, Kemps Creek. Brandown, Kemps Creek.
- 17 Land covered by Mining Lease 554 and Special Lease 84/7, Wyee. Boral, Wyee.
- 18 **(Repealed)**
- 19 Lot 3, DP 623799, Adams Road, Luddenham. Ferndale Resources, Luddenham.
- 20 The land covered by Mining Lease 6030; Mining Lease 6031; Mining Lease 6032 (clay) Sydney Mining Division. Monier Clay Pits, Londonderry.
- 21 The land covered by Mining Lease 6024 (clay), Sydney Mining Division. Camide Clay Pits, Londonderry.
- 22 The land identified on Sheet 1 of the map as Mulgoa clay/shale.

#### **Division 2 Potential clay/shale extraction areas of regional significance**

- 1 The land identified on Sheet 2 of the map as Bringelly clay/shale.

#### **Division 3 Other potential clay/shale extraction areas of regional significance**

- 1 The land identified on Sheet 3 of the map as Central Coast Plateau Area clay/shale.
- 2 The land identified on Sheet 4 of the map as Castlereagh clay.

#### **Division 4 Sand extraction areas of regional significance—current and potential**

- 1 The land identified on Sheet 5 of the map as Agnes Banks sand.
- 2 The land identified on Sheet 6 of the map as Elderslie sand/soil.
- 3 Lot 2, DP 793146 and Lot 33, DP 755246, Somersby, Pioneer.
- 4 Lot 2, DP 229889, Calga, Calga Sands.
- 5 Lot 4, DP 214861, Somersby, CSR.
- 6 Lot 1, DP 569057; Lots 1 and 3, DP 571083, Lots 5–6, DP 755235, Lot 1, DP 392219, Lots 2 and 3, DP 620901; Lots 1 and 2, DP 729030, Kulnura, Hymix.

#### **Division 5 Sand and gravel extraction areas of regional significance—current and potential**

- 1 The land at Windsor covered by Licence Number 74/3, Windsor. Rocla, Hawkesbury River, Windsor.
- 2 The land at Pitt Town covered by Licence Number 82/14, Windsor. Breen Holdings P/L, Hawkesbury River, Pitt Town.
- 3 The land in Port Hacking within Zone 16—Environmental Protection (Waterways) under [\*Sutherland Shire Local Environmental Plan 2006\*](#).

#### **Division 6 Hard rock quarries of regional significance**

- 1 Lot 2, DP 262213; Part Lot 1, DP 400697, being land contained in Certificate of Title Volume 12180, Folio 203, Lot 11, DP 558723; Lot W, DP 419612 and part Lot 1, DP 109198, being land contained in Certificate of Title Volume 12050, Folio 249, Wallgrove, Pioneer.
- 2 Lots A–E, DP 318676; Lot 1, DP 215510 and Part Portion 75, Parish of South Colah, County of Cumberland, being land contained in Certificate of Title Volume 2169, Folio 187, Hornsby, CSR.
- 3 Lot 1, DP 519182; Lots A and B, DP 33023; Lots 5 and 8, DP 235064; Lot 3, DP 218194; Lot 2, DP 222382; Lots 1–3, DP 566729, Prospect, Boral.
- 4 Lots 1–7, DP 260704, Prospect, CSR.
- 5 Portions 3 and 4, Parish of Kooree, County of Northumberland and Lot 81, DP 755235; Portion 71 and part Portion 79, being land contained in Certificate of Title Volume 8308 Folio 140; Parish of Kooree, County of Northumberland. Lots 1 and 2, DP 233808; lot 1, DP 652375, Kulnura, Hymix.
- 6 Portions 2–4, Parish of Popran, County of Northumberland, Lots 49, 105 and 143, DP 755253, Boral, Peats Ridge.

#### **Division 7 Hard rock deposits of regional significance**

- 1 Lot 1, DP 527102; Lots 1 and 41, DP 755235, and Lot 22, DP 787019, Kulnura, Hymix, Basalt Hill.

#### **Division 8 Crushed sandstone quarries of regional significance**

- 1 Lot 25, DP 706475, Mt. Hunter, CSR.
- 2 Lot D, DP 339526, Wallacia, Nolan Quarrying and Mining.
- 3 Lot 2, DP 622362, Medhurst Road, Menangle Park, Cleary Brothers.
- 4 The land covered by Licence Number 76/31 Metropolitan, Sandy Point, CSR.
- 5 The land covered by Licence Number 64/193 Metropolitan, Belrose, Warringah Gravel and Stone Supplies.
- 6 Lot 2, DP 569408, Weromba, Nepean Quarries, Cobbitty.
- 7 Lots 221, 222 and 223, DP 623304, Kurrajong, CSR.
- 8 Lot 1, DP 437699; Lot 4, DP 556534, Kurrajong and Part Portion 106, Parish of Meehan, County of Cook, being land contained in Certificate of Title Volume 6858, Folio 53, East Kurrajong, Schaffer Corporation.

#### **Division 9 Dimensional sandstone quarries of regional significance**

- 1 The land covered by Permissive Occupancies Nos 55/113 Gosford, and 88/10 Gosford (Wondabyne), Gosford Quarries.
- 2 The land covered by Permissive Occupancy No 66/91, Gosford (Somersby), Gosford Quarries.
- 3 The land covered by Permissive Occupancy No 54/54, Gosford (Piles Creek), Gosford Quarries.
- 4 Lots 11, 12, 13 and 14, DP 618324, Somersby, Tydds Quarry.
- 5 Lot 1, DP 522099, Somersby, Melocco Quarries.
- 6 The land covered by Permissive Occupancy No 79/104, Gosford (Mount White), Gosford Quarries.
- 7 The land shown edged heavy black on the map marked "Sydney Regional Environmental Plan No 9—Extractive Industry (No 2) (Amendment No 1)" held in the head office of the Department of Urban Affairs and Planning, Mount White, Central Coast (Sandstone).
- 8 The land covered by Special Lease 1988/2 Gosford, (Somersby), Sandstones of Australia.
- 9 The land covered by Special Lease 1973/7 (Lot 173, DP 755246), Quarry Road, Somersby, Gosford Quarries.

#### **Schedule 2**

(Clauses 2, 7, 8, 9, 11, 13, 18)

- 1 The land identified on Sheet 8 of the map as Maroota sand and clay/shale.

### Schedule 3

(Clauses 2, 20)

- 1 The Macdonald River from its confluence with the Hawkesbury River and for its entire length within the Hawkesbury local government area, being land comprising the bank or bed of the river and the land within 40 metres of the river (being 40 metres measured horizontally from the top of the bank of that river).
- 2 The Colo River from its confluence with the Hawkesbury River and for its entire length within the Hawkesbury local government area, being land comprising the bank or bed of the river and the land within 40 metres of the river (being 40 metres measured horizontally from the top of the bank of that river).
- 3 The Hawkesbury and Nepean Rivers, downstream of the Wallacia Bridge, comprising the bank or bed of the river and the land within 10 metres of the river (being 10 metres measured horizontally from the top of the bank of that river), but excluding:
  - (a) land identified in Division 5 of Schedule 1, and
  - (b) land to which [\*Sydney Regional Environmental Plan No 11—Penrith Lakes Scheme\*](#) applies.

### Schedule 4

(Clauses 3, 5, 7)

Baulkham Hills	Hornsby
Blacktown	Liverpool
Camden	Parramatta
Campbelltown	Penrith
Fairfield	Sutherland Shire
Gosford	Warringah
Hawkesbury	Wollondilly
Holroyd	Wyong

### Schedule 5

(Clauses 5, 8, 10, 12, 18)

- 1 The land identified on Sheet 7 of the map as Wrights and Wellums Creeks sand, clay and peat.
- 2 The land identified on Sheet 9 of the map as Richmond Lowlands sand/gravel.



## Historical notes

The following abbreviations are used in the Historical notes:

Am	amended	LW	legislation website	Sch	Schedule
Cl	clause	No	number	Schs	Schedules
Cll	clauses	p	page	Sec	section
Div	Division	pp	pages	Secs	sections
Divs	Divisions	Reg	Regulation	Subdiv	Subdivision
GG	Government Gazette	Regs	Regulations	Subdivs	Subdivisions
Ins	inserted	Rep	repealed	Subst	substituted

## Table of amending instruments

[Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2—1995\)](#) (formerly [Sydney Regional Environmental Plan No 9—Extractive Industry \(No 2\)](#)) published in Gazette No 113 of 15.9.1995, p 6794 and amended in Gazettes No 91 of 15.8.1997, p 6363 and No 119 of 7.11.1997, p 9006 and as follows:

[Sutherland Shire Local Environmental Plan 2000](#) (GG No 162 of 15.12.2000, p 13236)

Liverpool Local Environmental Plan 1997 (Amendment No 75) (GG No 117 of 9.7.2004, p 5799)

**2006 (669)**     [Sutherland Shire Local Environmental Plan 2006](#). GG No 138 of 15.11.2006, p 9577.

Date of commencement, the day occurring 14 days after the date of its publication in the Gazette, cl 2.

## Table of amendments

Cl 1             Am 7.11.1997.

Cl 11            Subst 15.8.1997.

Cl 20            Am 7.11.1997.

Sch 1            Am 15.8.1997; 15.12.2000; 9.7.2004; 2006 (669), Sch 1.3.

[Top of page](#)



## ADAMS ROAD QUARRY BADGERYS CREEK

EPIC MINING MINE OPERATIONS PLAN  
M(MO)LA No 3  
AUGUST 2012.

Prepared by:  
SAMUEL TARABORI  
EPIC MINING Pty Ltd

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Kemps Creek NSW 2178  
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Report Date: August 2012  
Report Number: V 1.1  
Report Authorised by:  
Name: Brad Casey  
Signature:  
Date:

## **ABBREVIATIONS**

MOP	MINE OPERATIONS PLAN
PMA	PRIVATE MINING AGREEMENT
DPI	DEPARTMENT OF PRIMARY INDUSTRIES
DECCW	DEPARTMENT OF ENVIRONMENT CONSERVATION CLIMATE & WATER
DA	DEVELOPMENT APPROVAL
EPA	ENVIRONMENTAL PROTECTION AUTHORITY
LALC	LOCAL ABORIGINAL LAND COUNCIL

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## QUARRY INFORMATION AND DECLARATION

Name of mine:	Adams Road		
Titles/Mining Leases:	M(MO)LA No 3		
MOP Commencement Date:	December 2010	Completion Date :	December 2017
Name of leaseholder:	EPIC Mining Pty Ltd		
Name of mine operator (if different):	EPIC Mining Pty Ltd		
Landowner:	Fearndale Holding Pty Ltd		
Reporting Officer:	Samuel Tarabori		
Title:	Operations Manager		
Signature:			
.....			
Date:	01/09/2012		

# STATUTORY DECLARATION

New South Wales

## STATUTORY DECLARATION

OATHS ACT, 1900

EIGHTH SCHEDULE

I,....., of ..... in the State of New South Wales,  
solemnly and sincerely declare as follows:

1. I am the duly appointed .....(management position)  
for .....(mine name)

2. I am authorised to make this Declaration on behalf of the Lease Holder,  
.....(name of leaseholder),  
A.C.N.....

3. All works and activities described in the Mining Operations Plan to which this declaration is attached comply with the conditions of the title of the mining lease (or mining leases) shown in the Mining Operations Plan, and with the conditions of Development Consent and all other relevant Government Agency approvals and licences granted in respect of them.

4. I confirm that all of the works and activities referred to in the previous paragraph lie wholly within the area shown in the Mining Operations Plan and that the tenements (mining leases, colliery holdings, land ownership) details of those tenements are correct.

**And I make** this solemn Declaration, conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

**Subscribed and Declared at** .....  
in the State of New South Wales this ..... day of.....in the year .....  
(sgd) .....

before me (sgd) .....Justice of the Peace

## EXECUTIVE SUMMARY

This report has been prepared by Epic Mining to address the mining, processing and rehabilitation operations on the Adams Road Quarry (M(MO)LA No 3) as required by the Department of Primary Industries - Mineral Resources.

The period of the Mine Operations Plan (MOP) is set for a maximum of Seven years to December 2017 and describes all mining and mining related activities, rehabilitation plans and land use outcomes over the MOP period. Any land clearing operations will be undertaken ahead of mining which will generally progress in a Westerly direction.

Progressive rehabilitation activities will follow behind the mining void moving in an East to West direction. It is expected that the mine when at full production will produce approximately 150,000 m<sup>3</sup> of Clay-Shale per annum. Minimal exploration activities are planned and no significant infrastructure to be constructed over the MOP period.

The MOP presented does not include the final rehabilitation and closure phase of the mine, rehabilitation beyond the scope of the MOP are dealt with as concepts rather than in detail. An interim closure plan has been addressed by NSW Department of Planning approved *"Site Rehabilitation Plan, Clay/Shale Quarry Adams Road Luddenham April 2009 (Ref 8102)" Prepared by Conacher Environmental Group*. Copy available for viewing at quarry site office.

The extent of the Adams Road Quarry life is dependent on a number of factors which include but not limited to the rate and demand of annual brick production and the possibility of supplementation of material from alternative sources. At this stage it is envisaged that mining at the Adams Road Quarry will extend many years beyond this MOP period.



# INTRODUCTION

## SCOPE

This report was prepared by Epic Mining in accordance with:

- ✓ Conditions of authority of M(MO)LA NO 3.
- ✓ The Guidelines to the Mining, Rehabilitation and Environmental Management Process, issued by the Department of Primary Industries, Version 3 January 2006.

## BACKGROUND

Operations of the mine, located off the Elizabeth Drive, Badgerys Creek, are within Liverpool City Council Local Government boundaries but the quarry is overseen by NSW Planning as the project has been elevated to State Significant. As gazetted in the *"Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)"* issued by NSW Government. *Location map below (Figure One).*

Prior to mining operation beginning on site the land was used for horse training and spelling yards. The then landowners the *"Harpley Family"* also operated a small produce supply store and currently resided on the site. An aerial photo shows the *Pre Mining Operation Land Use (Figure Two)*

Enquiries with Liverpool Council have indicated that the subject property is Zoned RU1 Primary Producer under Liverpool Council Local Environment Plan 2008. A *NSW LPI Title Search certificate* is supplied in **Appendix**.

Extraction operations began early 2010 by Epic Mining Pty Ltd to supply the Sydney brickworks and surrounding areas with selectively mined clays and shales. The Department of Primary Industries holds M(MO)LA No 3 (Mineral Owners Lease) over the site, which is owned by the Fearndale Holdings Pty Ltd. Epic Mining Pty Ltd, extracts the structural clay-shale for brick & paver manufacturing by the major NSW brickmaking companies. Mining operations are conducted by using open cut methods.

## PROPOSED AND FUTURE OPERATIONS

The Adams Road Quarry supplies Structural clay-shale to the local brick & paver manufacturing market.

The current Mineral Owners Lease (M(MO)LA NO 3) will remain current until Epic Mining Pty Ltd is not the Mine Operator. However the current Mine Operations Plan (MOP) is due to expire in December 2017.

The proven resource is not expected to be exhausted by end of the proposed MOP period and it is expected that mining will continue for many years beyond that period. The total mine life is dependent up on several parameters. The demand for clay-shale is dependent on annual brick production by the major brick & paver manufactures and will vary substantially from year to year.

Hours of operation for the site are set out in both the DA and EPA Licence. Hours of extraction and haulage are 7am to 6pm Monday to Friday. On Saturday maintenance activities are allowed

between the hours of 7am to 1pm. No works are to be undertaken outside these hours and public holidays.

## **CONTACTS:**

### **Mine Production Manager:**

Samuel Tarabori

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

**Office:** 02 4774 9334 **Fax:** 02 4774 9338 **Mob:** 041 0411 998

**Email:** [Samuelt@epicmining.com.au](mailto:Samuelt@epicmining.com.au)

### **Mine Operator:**

Epic Mining Pty Ltd

PO Box 177 Kemps Creek NSW 2178

**Office:** 02 4774 9334 **Fax:** 02 4774 9338

### **Environmental Officer:**

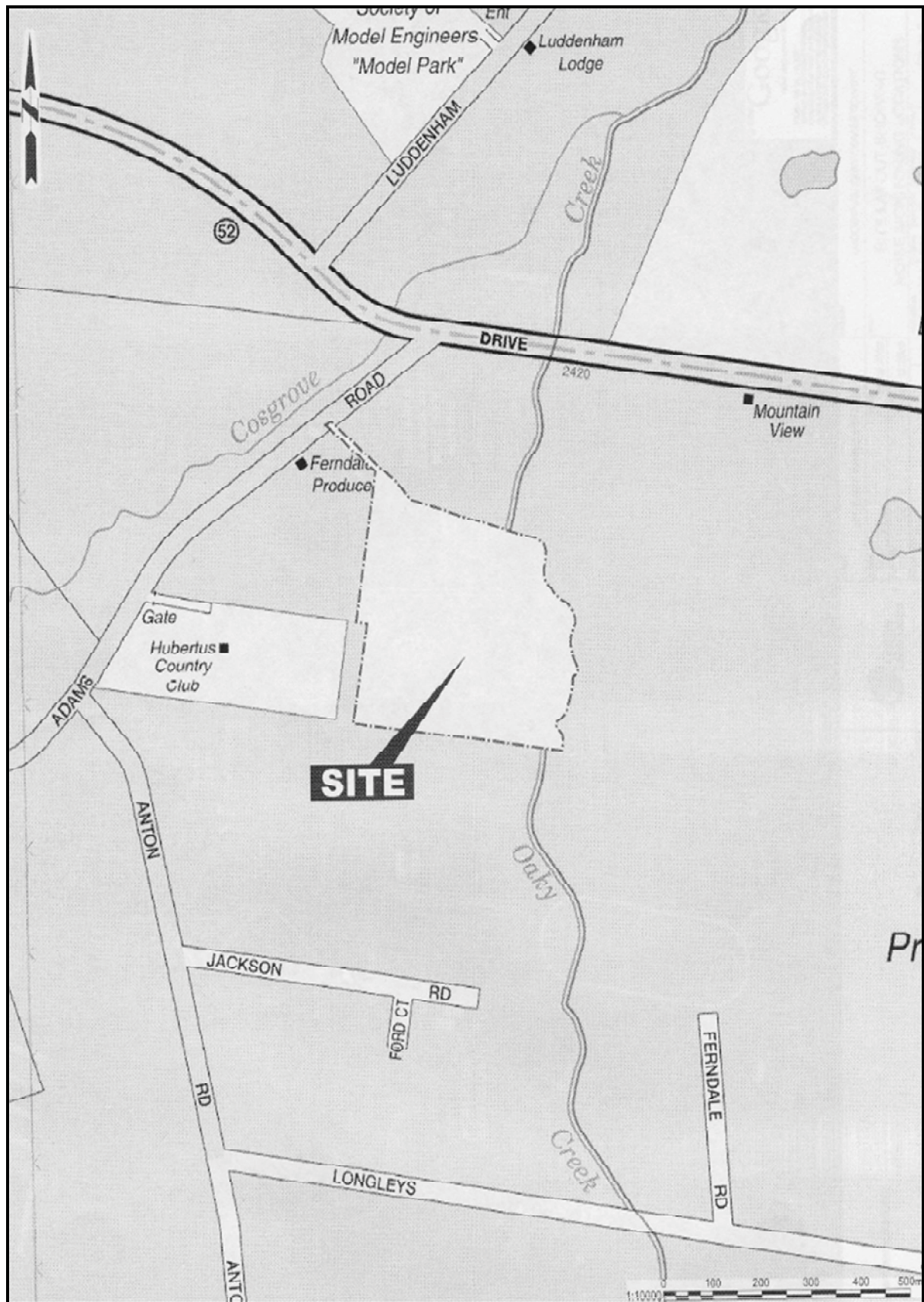
Greg Thomson

VGT Pty Ltd

PO Box 2335, Greenhills, NSW 2323

**Phone:** (02) 4028 6412 **Fax:** (02) 4028 6413 **Mobile:** 0428 279 023 **Email:** [greg@vgt.com.au](mailto:greg@vgt.com.au)

## ADAMS ROAD QUARRY LOCATION:



**FIGURE ONE**



## ADAM'S ROAD QUARRY PRE-EXTRACTIVE OPERATIONS:

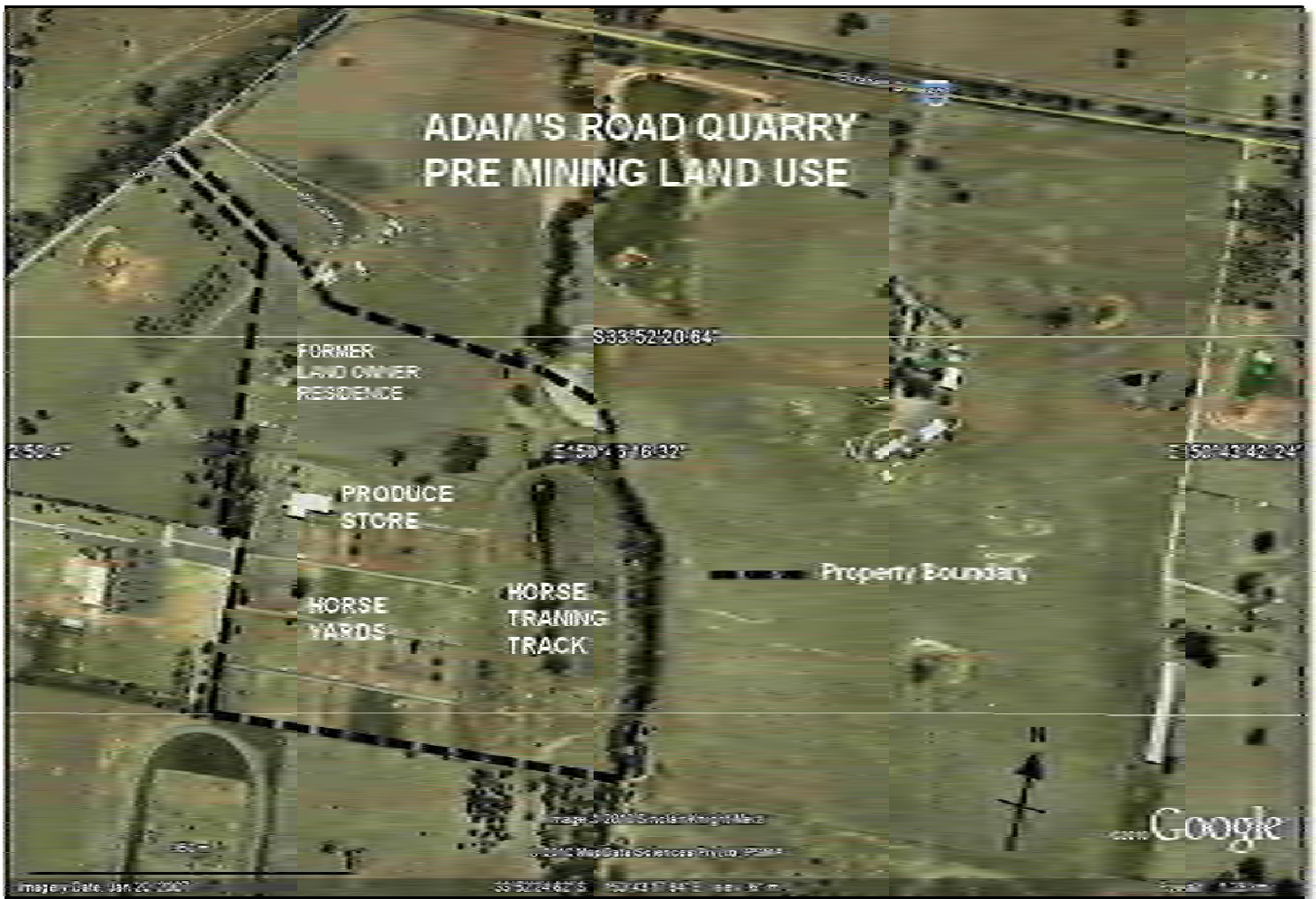


FIGURE TWO

## CONSENTS, LEASES AND LICENCES

### NSW DEPARTMENT OF PRIMARY INDUSTRIES (DPI)

The DPI previously issued a PMA number 40. This has since been revoked and a Mineral Owners Lease issued (M(MO)LA NO 3, Act 1973). It covers a total area of 6.66 hectares and the *Approved Quarry Footprint* in **Figure Three**. A more recent site survey, prepared by Monaghan Surveyors Pty Ltd on 8-11-10 Ref No. 01019-T5, is attached as an **Appendix**. A copy of the previous PMA is supplied as an **Appendix**.

### NSW DEPARTMENT OF ENVIRONMENT, CONSERVATION, CLIMATE AND WATER (DECCW)

A site licence has been issued to Epic Mining Pty Ltd on the 5<sup>th</sup> June 2009. Licence number 12863. Copy attached as an **Appendix**.



## LOCAL COUNCIL & NSW PLANNING

Liverpool City Council has not imposed conditions on the project. This is due to project being classified as having state significance. Site DA was issued in 2004 under *NSW Department of Planning. DA No 315-7-2003* attached is a copy as an **Appendix**.

## CONSULTATION

Due to the location of the mine and other community or landowner stakeholders. A Community Consultative Committee has been implemented as per DA conditions in Schedule 5. The site has been moderately disturbed over the past decade and is considered of little natural or cultural significance by the National Parks and Wildlife Service and aboriginal communities. A very small area (2m by 3m) has been highlighted as having Aboriginal Heritage. This area has been identified and fenced to protect and eliminate unauthorised access.

# APPROVED QUARRY FOOTPRINT:

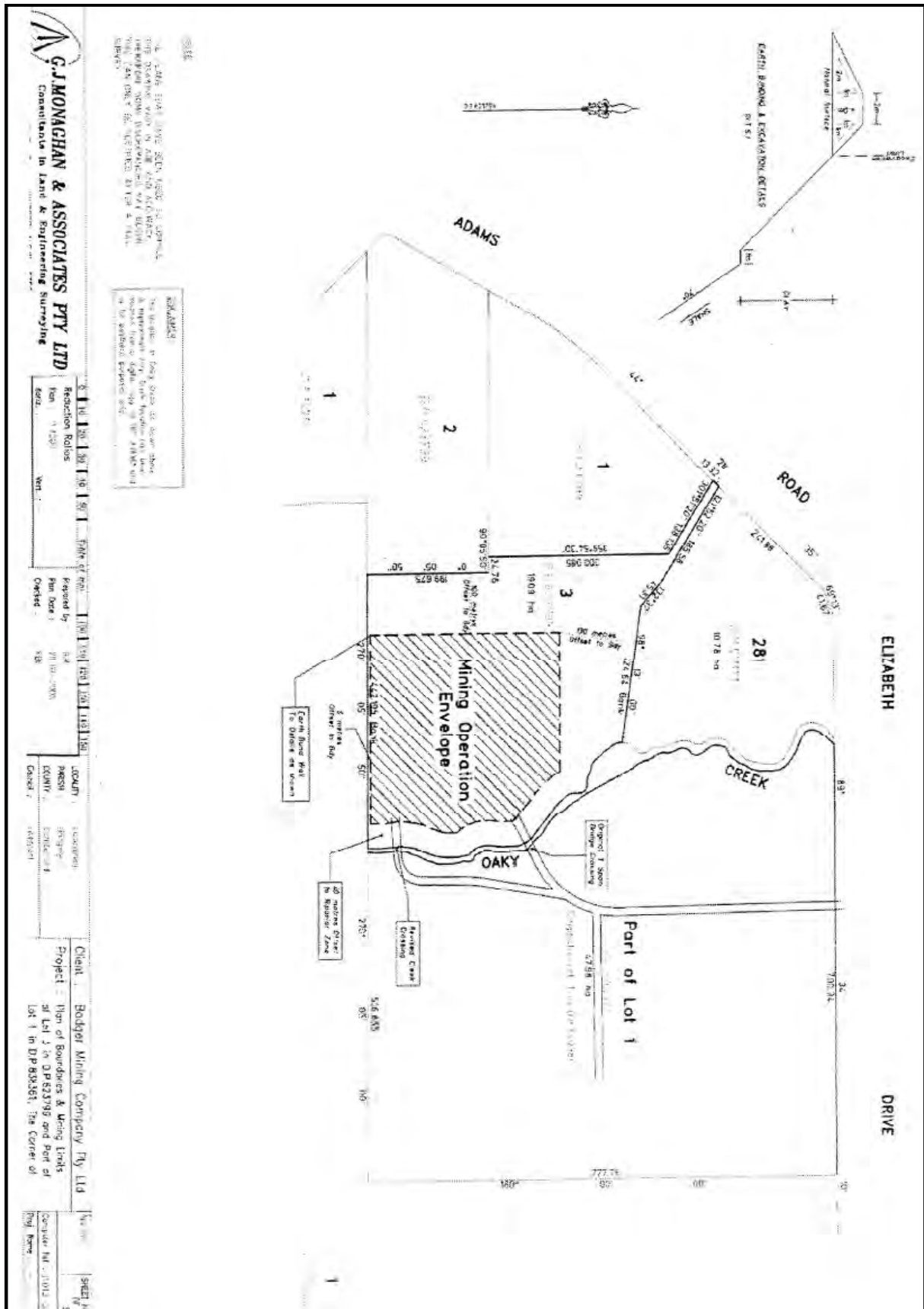


FIGURE THREE

# PRE-MOP ENVIRONMENT

## MINE GEOLOGY

The Luddenham Area lies within the central part of the Sydney sedimentary basin. This basin is a large depression that began to form in the early Permian times and gradually filled with a variety of sedimentary strata, including a thick sequence of coal measures. The Hawkesbury Sandstone is a widespread and continuous sheet of sandstone that was deposited in Triassic times. This originally horizontal expanse of sandy sediments continued to form a shallow central depression that filled with mainly fine grained sediments forming a series of shaly and silty strata named the Wianamatta group; it included the Ashfield Shales and Bringelly Shale.

## EXISTING LANDFORM

The project site is located in rural landholdings (Zoned RU1) that are used for grazing. Horse training activities are also prevalent in the area along with market gardens.

There is a small produce business that operates on the property. Once the quarry is operational the business will be relocated and existing buildings removed from site.

The surface of the site area lies approximately 60 - 70 metres above sea level and from reports prepared by the Geological Survey it was deduced that Wianamatta group of sedimentary strata below the site are about 120m thick. As the combined thickness of the Ashfield Shale and Minchinbury Sandstone is some 60 metres thick, the Bringelly Shale is about 60 metres thick. Clean surface water runoff is diverted around the site via bundwalls and sediment dams are used to trap any dirty water runoff from the disturbed areas. The site operates with nil water discharge to the environment.

Temporary vegetation is encouraged where possible in order to minimise erosion and dirty water. A current site aerial photograph shows the *Site Existing Landforms & Environmental Management Systems. Figure Four.*

## EXISTING LANDFORMS & ENVIRONMENTAL MANAGEMENT SYSTEMS



**FIGURE FOUR**

## PROPOSED MINING ACTIVITIES

### EXPLORATION

There is no exploration activities planned during this MOP period.

### LAND PREPARATION

Top soils in this area are typically thin in the order of 0.3m thick. They are of a silty clay loam texture and are classified as A Horizon of the weathered profile. As a result the topsoils are resistant to erosion and weathering due to the high clay content.

Any topsoil generated by the operations will be stored for long periods generally in forms of the clean water diversion and will be seeded with native species to prevent erosion. Tree clearing has occurred sometime ago.



Clearing operations will be undertaken in an easterly to westerly direction as the active mine face progress upslope.

## **CONSTRUCTION**

No construction activities are planned for the MOP period.

## **MINING**

The current method for brickmaking selective mining technique of ripping and cross ripping of shale/sandstone with a bulldozer and pushing the material into stockpiles, to be loaded into articulated dumptrucks and then layered into stockpiles for external sale, will be maintained. This technique gives the greatest flexibility to provide the correct clay-shale mixes and removes unwanted shale-sandstone materials.

Many raw material product types are to be extracted from the site: These include: Red Clay, Pink-White Clay, Brown Shale, Apricot Shale, Sandstone and Cream Shale. They will be stockpiled separately behind the operational mine face and loaded out for external sale using an excavator or front-end loader.

Mining will progress towards the west from Oaky Creek and will continue with benches and batters at heights as required. *A Mining & Extraction Operational Plan* showing benching, slopes, ramp design and batters is shown as an **Appendix**.

Generally mining will occur once every year and a campaign may last up to 3 - 5 months. Road haulage is restricted to dry periods. This will eliminate any dirt from being transported onto Elisabeth Drive during wet periods.

Dust management will be undertaken by the sites own 20,000L water cart. Drawing water from various site dams and main pit sump. The watercart will be used to maintain the dust on dirt haulroads and to wash down the main asphalted road to Elisabeth Drive.

Material haulage will occur for the duration of the year as specified in the DA. *A Road Transport Protocol* has been indorsed by as part of the DA. A copy is available for viewing at the site office.

The current annual volume of material utilised from this mine is approximately 150,000 cubic metres, which is consistent with DA approval of 300,000T per year.

## **MINERAL PROCESSING**

No mineral processing is undertaken on the site.

## **WASTE AND OVER BURDEN MANAGEMENT**

In general little overburden material is generated in the mine but what overburden is available, is used to batter back the mined mine face for rehabilitation or used in bundwall construction. There is no processing waste, tailings or rubbish generated on-site. Any dumped rubbish is removed by the mining contractor.

## **PRODUCT STORAGE**

Product is stockpiled in 4-5 metre mounds for external transportation. As previously mentioned there are many products to be selectively extracted and therefore stockpiled.

Stockpile amounts are generally restricted to the volume of material extracted during any mining campaign as mining is only undertaken when existing stockpiles have been exhausted. A site stockpile general layout can be found in attached *Mining & Extraction Operational Plan* and *Current Detailed Site Survey* are attached as **Appendix's**.

Stockpiling and storage of material is an essential part of the souring and fretting process, it is a necessity within the brickmaking industry. The process of souring and fretting allows raw materials that are to be kiln fired for the heavy clay manufacturing industry to sit and weather. The souring process allows for any unwanted salts to be leached out through exposure to moisture, either by rain or by mechanical wetting. Also the process allows raw materials to fret in the open environment allowing for easier processing through the brick factories. Fretting also allows larger solid pieces of shale/sandstone to naturally break into smaller pieces by being exposed to moisture and hot/cold environments.

Stockpiles are to be built as square as feasibly possible. The top of all stockpiles are to be built with a small safety bund around the edges. The bund will have a dual purpose, it will capture and hold water for souring, fretting and will reduce the risk of falls.

A *Typical Stockpile Cross Section* is available in attached *Mining & Extraction Operational Plan* as an **Appendix**. The raw material stockpiles will be built so as to allow free drainage of dirty surface water for collection in to the pit sump. Raw material stockpiles will be compacted with the use of the mining equipment. Articulated dump trucks will compact material as they traverse the stockpiles and a dozer will further compact the material as it shapes the stockpile. The side walls of the stockpiles will be further smoothed and compacted by an excavator. This will help eliminate erosion and therefore minimise the amount sediment that will enter the dirty water system.

## **WATER MANAGEMENT**

Epic Mining's general approach to water management is based on following fundamental factors:

- ✓ Where practicable runoff will be diverted around active mine areas, areas of disturbance or areas which do not carry stable pastures to limit the volume of water containing or potentially containing elevated levels of suspended solids which require management.
- ✓ All runoff leaving the site will be clarified by settling in sediment ponds and have low velocity flow. This is achieved via trickle release of the water collected in the sediment ponds.
- ✓ All water that is captured on-site is to be re-used where possible to eliminate the usage of town water.
- ✓ A site watercart will be used consistently during operational hours and a series of irrigation pipe network with sprinklers has been installed on the site to irrigate the surrounding owned land. This will ensure that riparian zones are well watered and site bundwalls are kept green to reduce erosion.
- ✓ All surface water that falls within the quarry approved footprint will be diverted to the pit sump. The dirty water collection sump will be located at the lowest point of the

extraction area. This water is to be firstly used for dust suppression on internal haulroads while mining is occurring and secondly for moisture conditioning and souring of raw material stockpiles. The dirty water sumps will be maintained as a dry sump throughout the year.

An up to date site survey with an aerial photograph overlay has been produced to detail the surface water measures to be implemented. The plan is attached as an **Appendix**. *Epic Mining Pty Ltd Luddenham Quarry Water Management Plan*. Prepared by VGT Environmental Compliance Solutions. The plan outlines the measures that will be undertaken to ensure full environmental compliance is achieved.

## CLEAN WATER MANAGEMENT

All clean surface water is diverted around the exaction site via bundwall construction. These bundwalls will require regular maintenance to maintain their design performance.

Topsoil and vegetation cleared from the current mine face will be pushed up along the top of the active face and provide a clean water diversion bank. A current site aerial photograph shows the *Existing Landforms & Environmental Management Systems*. **Figure Four**.

## DIRTY WATER MANAGEMENT

Dirty water from the quarry extraction and stockpile area is directed into a holding sump located on the lowest point in the north-eastern side of the pit floor. The sump will be maintained as a dry sump. Dirty water will be pumped from the pit sump into holding dams located adjacent to the haulroad.

The dirty water will be used on-site for dust suppression, raw material moisture manipulation and vegetation management. A series of irrigation pipe work has been installed through the Riparian zone and up along the northern bund to the irrigation paddock. A fixed pump has been installed at the main sedimentation pond and will be used to operate the irrigation network and fill the site watercart for dust suppression.

The dirty water holding dams have been enlarged from its original state and de-silted. The dams will have regular maintenance to ensure maximum efficiency. In the event of the dam overflowing the dirty water will enter a secondary dam that will also be maintained as a dry dam. If required the dirty water will then be treated with the appropriate flocculent and tested against discharge limits set by the sites EPA licence. It is envisaged that very little dirty water will require treatment as measures implemented will ensure that all dirty water is re-used onsite. A current site aerial photograph shows the *Existing Landforms & Environmental Management Systems*. **Figure Four**.

## HAZARDOUS MATERIALS

Where possible no hazardous materials are held on-site. All vehicles associated with the extraction operation are to be filled by use of a portable fuel truck which is removed from site

upon completion of re-fuelling. Contractors are required to clean up all spills of fuel or oil when on site.

A Hazardous Material Register has been established as per OH&S requirements.

## **OTHER INFRASTRUCTURE**

No other infrastructure other than the items shown on aerial photos exists on the site and none is planned.

## **ENVIRONMENTAL MANAGEMENT CONTROLS**

### **NOISE AND AIR POLLUTION**

Noise and air quality monitoring will be undertaken during the MOP period. The limits are set in both the *Site EPA Licence and DA* both of which are attached as **Appendix's**. The proximity of the site to Elisabeth Drive, as well as its rural location means that there is little effect on the amenity of neighbours. Dirty water collected over the site is utilised for dust suppression during mining and haulage activities as required, alleviating any potential impacts of nuisance dust.

### **EROSION-SEDIMENT MINIMISATION**

Very little erosion occurs on the site due to the slope of the land and the installed water diversion banks. Epic Mining will continue to monitor the site and remedy any erosion or sediment entrainment where practicable using similar methods to those currently used.

### **SURFACE WATER POLLUTION**

The primary source of surface water pollution is the entrainment of sediment during rainfall events. Epic Mining's approach to minimising dirty water is to divert clean water around the site via bunds. Dirty water from the approved extraction/stockpile area will be captured within the quarry void. A pit sump will be established at the lowest point within the pit. The storage capacity of the pit sump far exceeds the surface dirty water capture rates in rain fall events per year.

Dirty water will be used for site dust suppression and in vegetation rehabilitation zones. Any surplus dirty water will be clarified using appropriate flocculants. During normal operations it is expected that very little water will be treated and discharged from the site.

Water to be discharged from the site will be tested to meet site discharge limits as set out in the sites EPA licence.

### **THREATENED FLORA-FAUNA PROTECTION**

No threatened or regionally significant plant species were recorded in the site by previous studies, nor are they likely to occur. Mainly due to heavy clearing activities that have occurred on the site over the past 100 years.

However, special provision has been made in the landscaping program for improvement and regeneration of local threatened flora species. A 40m Riparian zone has been installed along the eastern boundary. The Riparian zone has restricted access and runs adjacent to Oaky Creek.



Irrigation pipe work has been installed throughout the Riparian zone. Water is to be utilised from both the Dirty and Clean Water catchment programs. The programmed activities are spelled out in the sites *Vegetation Management Plan*. *Vegetation Management Plan* is available upon request for viewing at the site office.

## **WEED CONTROL & MANAGEMENT**

Noxious weed populations are non-existent and are not expected to present any issues in the future. Within the sites *Vegetation Management Plan* a management and monitoring system will be implemented to eliminate any weed outcrop. Spraying of weeds will occur as per the *Vegetation Management Plan*. Regular slashing of paddocks will also help assist with elimination of weed outcrops.

## **ABORIGINAL/NATURAL HERITAGE**

Two archaeological assessments of the proposed site have been carried out by Umwelt (Australia) Pty Limited, Environmental and Catchment Consultants.

The initial assessment occurred in 1991. It identified an area of Aboriginal cultural significance within the riparian zone on the western side of Oaky Creek. A second study, in consultation with the Gandangara Local Aboriginal Land Council (LALC), was completed in September 2000. In 1991, Aboriginal archaeological material was observed around the margin of a dam that had been excavated for prior agricultural uses on the site in the 1930's in the floodplain of Oaky Creek and less than 20 metres from the creek bank. Water levels in the dam are highly variable, and the artefacts were observed on a surface exposed by low water levels. Some 22 pieces of flaked stone were observed, scattered across an area of 140 square metres within the dam. None of the artefacts could be considered to be in situ. The artefacts, which included flakes, flaked pieces and two cores, were considered to be the remnants of a former site that had been largely destroyed by previous earthworks. A small area of relatively intact floodplain surface remained between the dam margin and the bank of Oaky Creek, but it was considered that there was low potential for further in situ archaeological material to remain.

During the site inspection on 15 June 2000, the area of the Aboriginal site was readily located and it is considered that the condition of the site has not deteriorated significantly since 1991. The site has been assessed as having moderately low scientific significance, but is valued by the local Aboriginal community, and it is the view of the Gandangara LALC that the site has cultural value and should be conserved in situ. Conservation of the site is feasible and achievable within the current quarry plan for the property. The method and management of this protection has been agreed between Epic Mining and the LALC.

## **BUSHFIRE**

The Fire Control Officer of Liverpool City Council has advised that the site is in an area where grass fires occur from time to time, often lit by the burning out of stolen cars. The Council does

not have any records of past fires or maps indicating the general directional paths or extent of fire events.

Discussion with the District Fire Control office at Liverpool in June 2002 identified that neither Lot 3 nor Lot 1 are considered to constitute any level of bush fire risk and are not listed on any register or plan of bush fire prone areas.

The site consists predominantly of gently sloping grassland with the only areas of vegetation being located within the riparian zone around Oaky Creek, and a small stand of gum trees against the western boundary behind the house on Lot 3. The entire area of the house and the adjacent horse yards will be outside the precincts of the quarry. It is therefore considered to be of low bush fire risk.

The employment of good site management including preventing the accumulation of excessive fuel loads from grassland and vegetation will ensure that no bush fire risk develops on the site. A glass slashing program has been implemented as part of the *Site Vegetation Management Plan*. The site maintains a 20 foot slashed fire break around the entire site to help prevent grass fire from progressing to neighboring properties.

No blasting or processing is carried out within the subject area and no explosives or hazardous materials are stored on the mining lease. All mining operations are carried out by subcontractors and all fuel, oil and rubbish is stored and treated off-site.

## **PUBLIC SAFETY**

The approved quarry footprint is fenced by 6 foot mesh fencing with 3 strand barbed wire. The main entrance at Elizabeth Drive has a lockable gate. There is also a second lockable entrance gate located at the quarry entrance. The site has been sign posted to inform the public not to enter the site. Also a two large signs have been installed at the quarry's Elizabeth drive entrance. The signs have relevant contact numbers and site information for the public.

## **SITE INSPECTIONS**

As part of the ongoing mine operation a monthly site inspection/audit will be conducted.

Usually this will occur in the first week of each month.

The inspection will be conducted with the assistance of a check list and will insure that any irregularities are addressed and reported. Some of the items covered by the check list include the following:

- ✓ Haulroad conditions, Ramp design and bundwall conditions
- ✓ Pit wall conditions and slumping
- ✓ Site signage
- ✓ PPE and communication
- ✓ General housekeeping

The full Site Inspection Check list can be found as an Appendix to sites Mine Safety Management Plan.

## PROPOSED REHABILITATION ACTIVITIES

It is planned to rehabilitate the portions of the mine that are no longer active as part of the mining sequence, with an aim to minimising the total amount of disturbed land.

There is a *Vegetation Management Plan* that has been implemented to revegetate the area around Okay Creek and the block of land behind the existing house in Lot 3.

## STAKEHOLDER CONSULTATION

Epic Mining has consulted with the NSW RTA, Liverpool City Council, Penrith City Council, Department of Environment Climate Conservation and Water, NSW Planning and the EPA on addressing any issues raised by the relevant authority.

## REHABILITATION STATUS AT MOP COMMENCEMENT

Temporary vegetation is encouraged where possible in other areas in order to minimise erosion and dirty water.

## PROPOSED REHABILITATION STATUS AT MOP FINISH

Extraction will not be completed by the end of the proposed MOP period and therefore rehabilitation will be a combination of final and temporary vegetation.

Temporary vegetation will be encouraged over these areas whilst no mining activities are undertaken. Where possible finished faces will be battered back to either a 30 degree slope for clay strata or 70 degree slope for shale strata.

## REHABILITATION OF DISTURBED LAND

Any topsoil available is stored in bund walls and used later to rehabilitate mined areas. Very little erosion occurs on site due to the gentle upslope. Some of the active faces will show minor erosion, however all sediment is collected within the dirty water system. The lack of rainfall in the last few years has aided in minimising erosion on disturbed slopes.

A *Site Rehabilitation Plan* has been approved by NSW Planning. In the plan Local Eucalypt and Acacia species will be planted along the Riparian Zone adjacent to Oak Creek and the identified Wood plains area.

A weed eradication program will be continued in conjunction with clearing activities ahead of mining to minimise the spread of weeds in the disturbed areas.

## WATER MANAGEMENT (REHABILITATED LAND)

Water received over areas where rehabilitation is incomplete will be treated as dirty water and collected in the sediment dams for clarification prior to discharge. Clean water diversions will remain in place upslope of the rehabilitation areas. Where possible, once vegetation has been established over rehabilitated areas and the risk of sediment entrainment is minimised, rainfall will be diverted around the site as clean water.

## **FINAL REHABILITATION**

### **REHABILITATED AREAS AND FEATURES**

It is not expected that the mining operations will cease by the end of the proposed MOP period, so final rehabilitation will be incomplete. The final landform, however, will be consistent with the current surrounding land use activities which include farming and open paddocks.

This will be undertaken progressively in portions of the mine that are no longer active thereby minimising the total amount of disturbed land.

*A Site Rehabilitation Plan* has been submitted and approved by NSW Planning.

### **CALCULATION OF SECURITY DEPOSIT**

It has been approved that a security bond is not applicable to be paid to the DPI as a very large security bond (\$166,750) has been lodged with the Planning NSW. As part of the DA approval process, Schedule 4 clause 37.

### **INFRASTRUCTURE AREAS**

Due to the small scale of the mine operations, there is no major infrastructure, other than the stockpile area and the access road from Elisabeth Drive. The weighbridge and associated building are portable and will be easily removed when operations are completed.

It is noted that the tar sealed haulroad from Elizabeth Drive to the entrance to the existing quarry is on Commonwealth land. The road will be handed over the Commonwealth when operations are completed on site.

### **TAILINGS AND REJECTS EMPLACEMENTS**

No tailings or rejects are generated by this operation.

### **WASTE ROCK DUMPS**

No waste rock will be generated from the operation.

### **ACTIVE MINE AND VOIDS**

There is currently no void on site. It is expected that the void space will be created at the rate of 150,000m<sup>3</sup> per annum. This figure is greatly depended on the health of the local brickmaking market.

### **THIRD PARTY PROJECT MANAGEMENT AND CONTINGENCIES**

Due to the progressive nature of the current rehabilitation and small scale of the site, the estimated cost of the Third Party involvement has been limited to environmental monitoring, surveying with the addition of a 'contingency' cost.



## **APPENDIX:**

<b>APPENDIX A</b>	<b>NSW LPI TITLE SEARCH CERTIFICATE</b>
<b>APPENDIX B</b>	<b>PRIVATE MINING AGREEMENT 40</b>
<b>APPENDIX C</b>	<b>ENVIRONMENTAL PROTECTION AUTHORITY LICENCE 12863</b>
<b>APPENDIX D</b>	<b>DEVELOPMENT APPROVAL CONDITIONS 315-7-2003</b>
<b>APPENDIX E</b>	<b>TYPICAL EXTRACTION OPERATION PLAN</b>
<b>APPENDIX F</b>	<b>CURRENT DETAILED SITE SURVEY with proposed Raw Material storage yard &amp; Extraction sequence. Monaghan Surveyors Pty Ltd</b>
<b>APPENDIX G</b>	<b>EPIC MINING, LUDDENHAM QUARRY, WATER MANAGEMNT PLAN Prepared by VGT Environmental Compliance Solutions</b>

**APPENDIX A**  
**NSW LPI TITLE SEARCH CERTIFICATE**

## **APPENDIX B**

### **PRIVATE MINING AGREEMENT 40**

## **APPENDIX C**

### **ENVIRONMENTAL PROTECTION AUTHORITY LICENCE 12863**



## **APPENDIX D**

### **DEVELOPMENT APPROVAL CONDITIONS 315-7-2003**

## **APPENDIX E**

### **TYPICAL EXTRACTION OPERATIONAL PLAN**

**APPENDIX F**  
**CURRENT DETAILED SITE SURVEY**  
**Monaghan Surveyors Pty Ltd**

## **APPENDIX G**

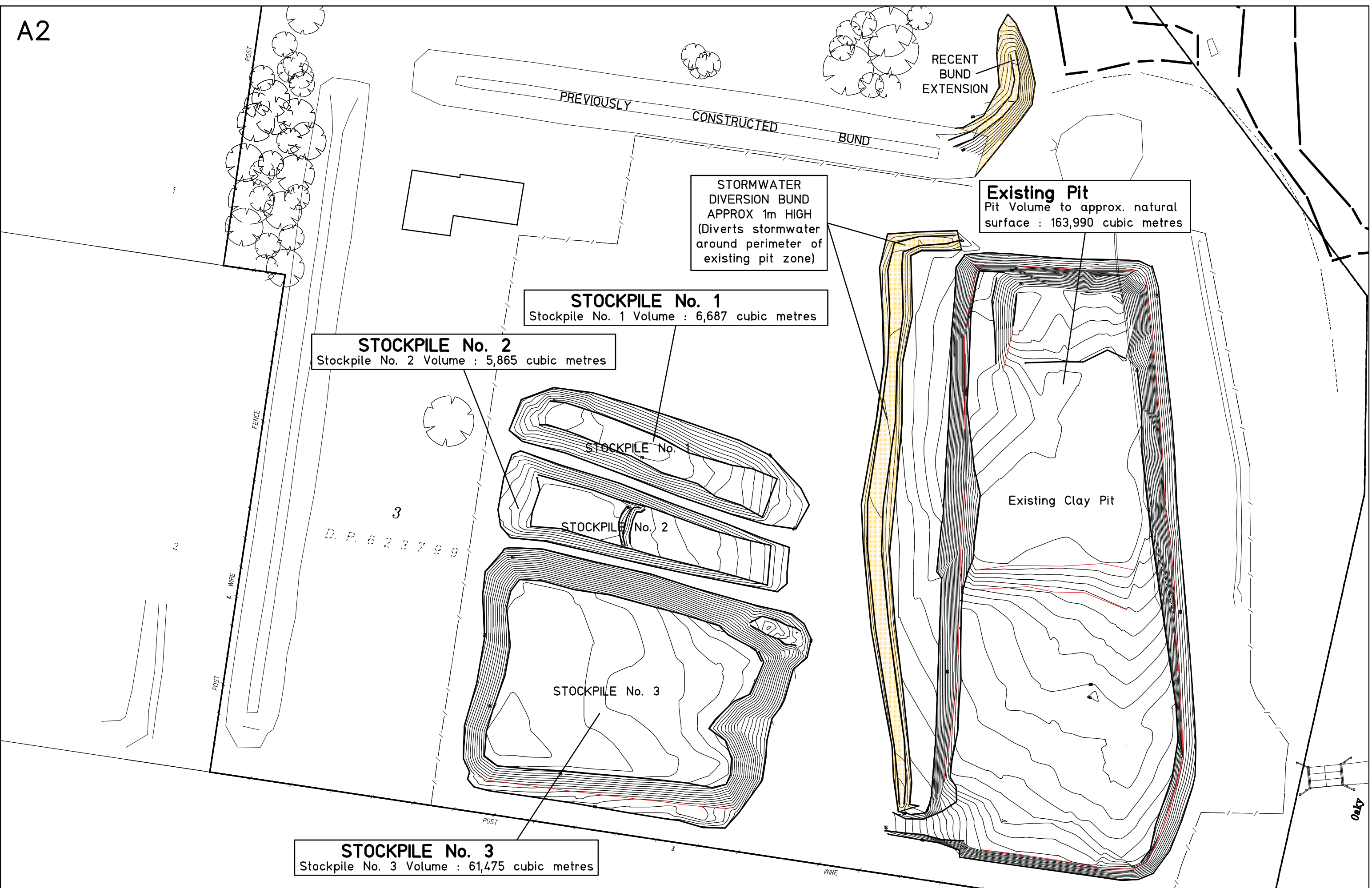
# **EPIC MINING, LUDDENHAM QUARRY WATER MANAGEMENT PLAN**

**Prepared by VGT Environmental Compliance Solutions**



APPENDIX I - Current Detailed Site Survey Monaghan Surveyors Pty Ltd Ref No, 01019-V1  
Epic Mining Commonwealth Land Site Survey  
Epic Mining site and Commonwealth land Relationship  
Commonwealth land leased by Epic Mining

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# **EPIC MINING PTY LTD – 275 ADAMS ROAD, LUDDENHAM**

Brown lines (—) indicate the boundaries of areas used by Epic Mining including its own Lot 3 DP 623799 and part of Lot 1 DP838361 which is leased from the Commonwealth

## **Commonwealth Land leased by Epic**

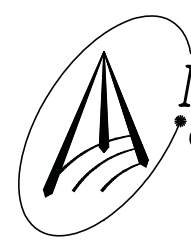
The area hatched with purple inclined lines ( ) is the Epic Mining site

## **Ref: NICS142001\_FIG005**

Areas hatched with inclined blue lines ( ) are the part of Commonwealth Land (Lot 1 DP838361) leased by Epic Mining

## **Nicolas Israel – September 2014**





**MONAGHAN SURVEYORS PTY LTD**  
Consultants in Land & Engineering Surveying  
P.O. Box 39 , WINDSOR N.S.W. 2756  
Ph. (02)4577-5393 Fax (02)4576-7830  
email: mailbox@monaghansurveyors.com.au

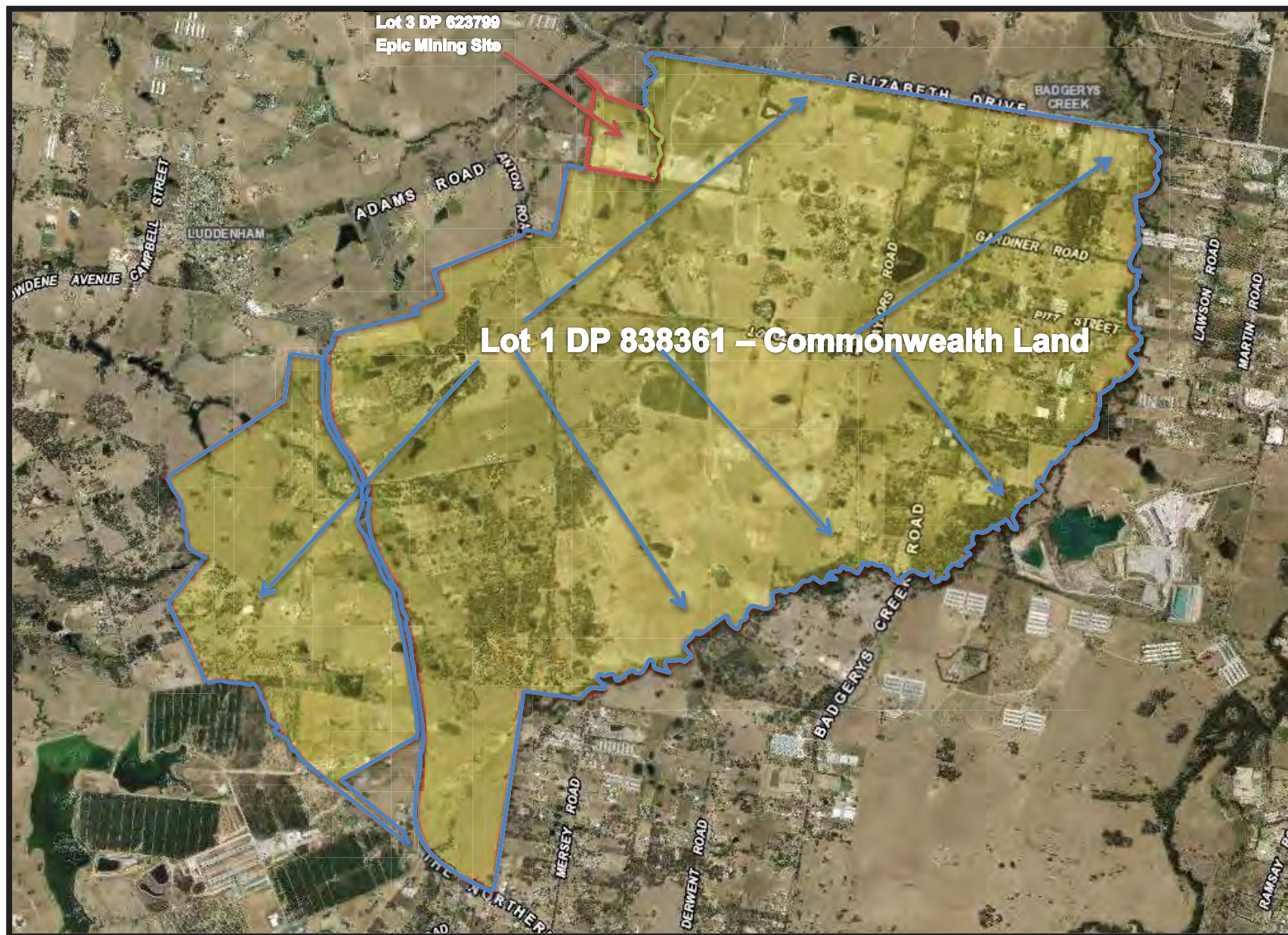
Amendment No.	Date	0	10	20	30	40	50	Table of mm	100	110	120	130	140	150
		Reduction Ratios												
		Plan : 1:1000												
		Horiz. : — Vert. : —												
		Contour Interval :												
		Datum : A.H.D. (approx.)												
		Origin :												
		Prepared by : GJM												
		Plan Date : 29-10-2013												
		Checked :												
		Surveyed by : G.Monaghan												
		Survey Date : 25-09-2013												
		Authorised :												




LOCALITY : Badgerys Creek  
PARISH : BRINGELLY  
COUNTY : CUMBERLAND  
Council : LIVERPOOL  
Council Ref : —  
Approval Date : —

Client : Epic Mining  
Project : Plan of Contours & Detail  
over Part of Lot 1 in D.P.838361  
Elizabeth Drive  
Badgerys Creek

Approved :  
SHEET No. 1  
OF  
1 SHEETS  
Computer Ref : 01019-20130925  
Proj. Name : Epic Mining  
REF :  
T-01019-10





EPIC MINING PTY LTD – 275 ADAMS ROAD, LUDDENHAM	LOT 1 DP 838361 – COMMONWEALTH LAND RELATIVE TO EPIC MINING SITE	Ref: NICS142001_FIG001	Nicolas Israel – September 2014
The boundaries of Lot 1 DP 838361 are marked with blue lines as such 	The boundaries of Epic Mining site (Lot 3 DP 623799) are marked with red lines as such 	The common boundaries between both Lot 1 DP 838361 and Lot 3 DP 623799 are marked with green lines as such 	

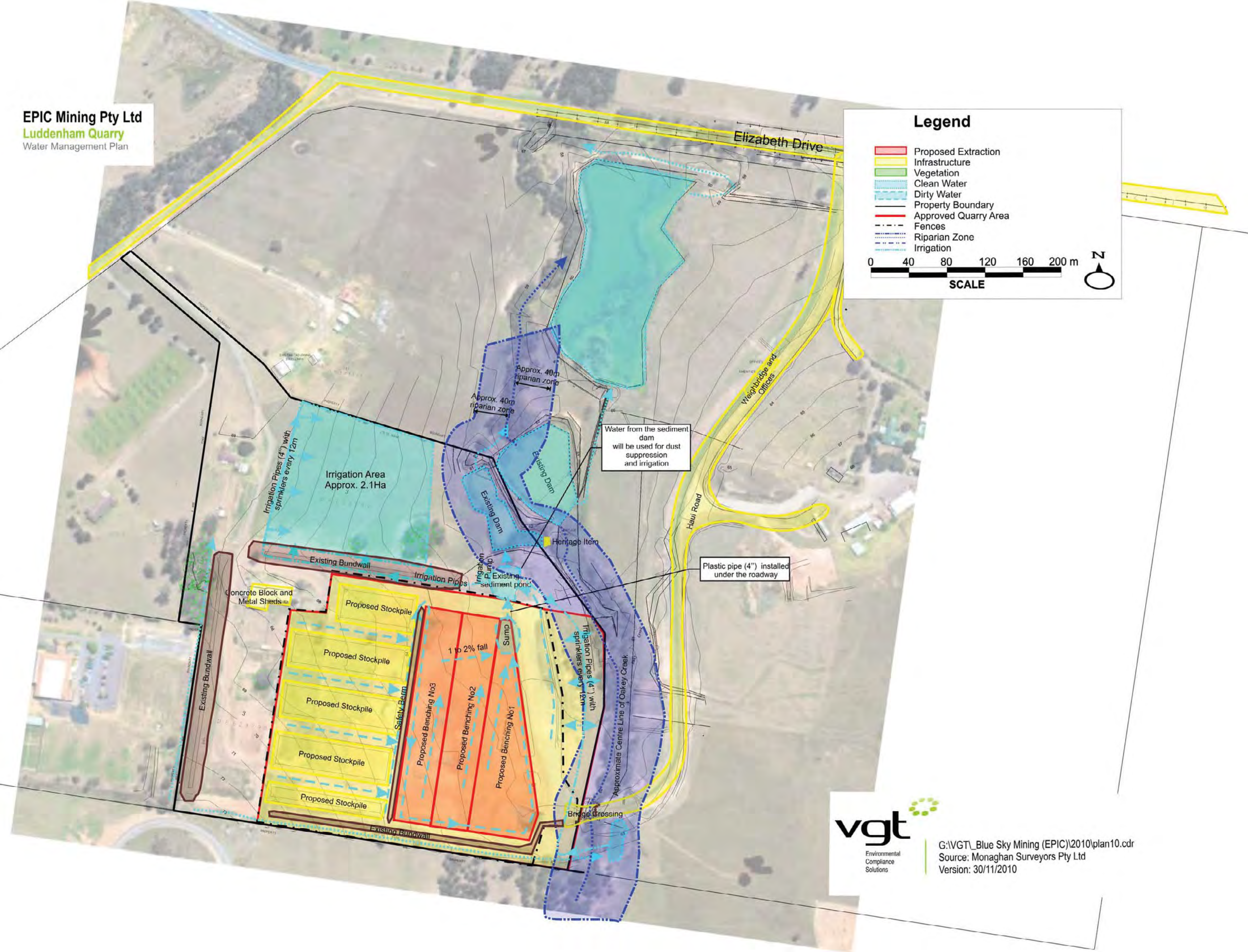
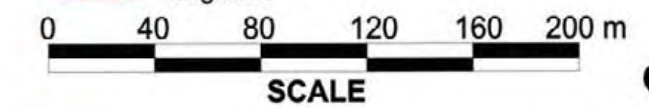
**APPENDIX J - Epic Mining Luddenham Quarry Water Management Plan Prepared by VGT**

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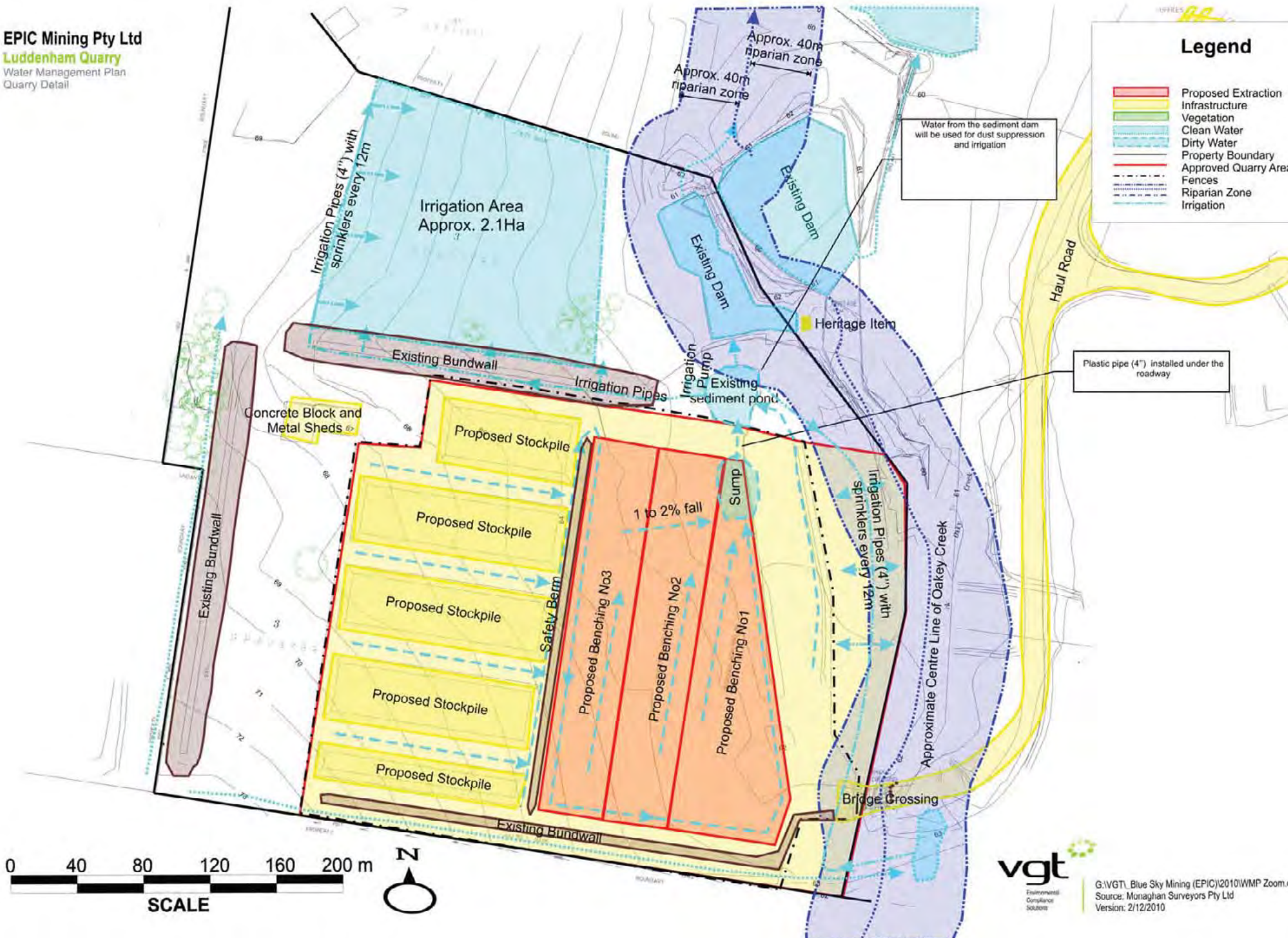


# Legend

- Proposed Extraction
- Infrastructure
- Vegetation
- Clean Water
- Dirty Water
- Property Boundary
- Approved Quarry Area
- Fences
- Riparian Zone
- Irrigation







**Legend**

- Proposed Extraction Infrastructure
- Vegetation
- Clean Water
- Dirty Water
- Property Boundary
- Approved Quarry Area
- Fences
- Riparian Zone
- Irrigation

Plastic pipe (4") installed under the roadway



APPENDIX K – Correspondences from Government Agencies (DoPI, OEH, EPA, etc ...)



NSW GOVERNMENT  
**Department of Planning**

Contact: Anna Bradley  
Phone: (02) 9228 6503  
Fax: (02) 9228 6466  
Email: [anna.bradley@planning.nsw.gov.au](mailto:anna.bradley@planning.nsw.gov.au)

Mr Nigel White  
Planning Directions Pty Ltd  
PO Box 607  
PARRAMATTA NSW 2124

Dear Mr White

**Luddenham Clay Shale Quarry  
Appointment of Community Consultative Committee Members**

I refer to your letter, dated 3 March 2009 and accompanying applications for positions on the Luddenham Quarry Community Consultative Committee (CCC), in accordance with condition 8 of schedule 5 of the quarry's development consent.

The Department has considered these applications and the Director-General approves the appointment of the following community representatives to the CCC:

- Mr John C Wilkinson of 4 Annie Spence Close, Emu Heights (Chairperson);
- Mr Allen Thomson of 18 Tenison Ave, Cambridge Gardens;
- Mr Alan Montgomery of 19 Michael Ave, Luddenham;
- Mr Donald James Himsley of RMB 131 Homestead Road, Orchard Hills; and
- Ms Donna Quinn of 1 Burke Ave, Werrington.

The Director-General also approves the appointment of the following company representatives to the CCC:

- Mr Dennis Pethybridge; and
- Mr Nigel White.

It would be appreciated if you would inform all applicants of the Director-General's decision and provide each member with a copy of the Department's publication *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* at the first CCC meeting. This guideline can be downloaded from the Department's website at [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au).

Please also advise when a representative of Liverpool City Council has been appointed

If you have any enquiries in relation to this matter, please contact Anna Bradley on 9228 6503.

Yours sincerely,

Howard Reed  
A/Manager  
Mining  
Major Development Assessment  
as Delegate for the Director-General

17.3.09.



NSW GOVERNMENT

**Department of Planning**

Contact: Colin Phillips  
Phone: (02) 9228 6483  
Fax: (02) 9228 6466  
Email: [colin.phillips@planning.nsw.gov.au](mailto:colin.phillips@planning.nsw.gov.au)

Mr Nigel White  
Planning Directions Pty Ltd  
PO Box 607  
PARRAMATTA NSW 2124

Our ref:

Dear Mr White

**Luddenham Clay Shale Quarry  
Approval of Management Plans**

I refer to your recent letters and emails seeking the Director-General's approval of accompanying management plans required by the Minister's consent for the Luddenham Clay/Shale Quarry (DA 315-7-2003).

The Department has reviewed these plans and believes that they fulfil the requirements of the quarry's consent. Accordingly, the Director-General has approved the quarry's:

- Air Quality Monitoring Program (condition 8 of schedule 4);
- Noise Management Plan (condition 18 of schedule 4);
- Site Water Management Plan (condition 24 of schedule 4), incorporating a Surface Water Monitoring Program (condition 25 of schedule 4), Erosion and Sediment Control Plan (condition 27 of schedule 4) and an Irrigation Management Plan (condition 28 of schedule 4);
- Groundwater Monitoring Program (condition 26 of schedule 4);
- Site Rehabilitation Plan (condition 33 of schedule 4);
- Vegetation Management Plan (condition 34 of schedule 4); and
- Environmental Management Strategy (condition 1 of schedule 5).

In accordance with condition 13 of schedule 3, the Director-General has also approved Mr Greg Foster of G and M Planning Services as a suitably qualified and independent person to assess the Applicant's compliance with all relevant conditions prior to commencement of development at the site.

In addition, the Department has considered the requirements of the consent for an independent audit within 2 years of the date of the consent, unless otherwise decided by the Director-General. As a result the Director-General directs that the first independent environmental audit required by condition 6 of schedule 5 is conducted by 31 December 2010. Subsequent audits are to be conducted at an interval of every 3 years.

Should you have any enquiries on this matter, please contact Colin Phillips at the details above.

Yours sincerely

Howard Reed 17.4.09  
**A/Manager  
Mining**  
as Delegate for the Director-General



## Planning

Contact: Haley Rich  
Phone: 9228 6516  
Fax: 9228 6466  
Email: [haley.rich@planning.nsw.gov.au](mailto:haley.rich@planning.nsw.gov.au)

Mr Nigel White  
Planning Direction Pty Ltd  
PO Box 607  
PARRAMATTA NSW 2124

Dear Mr White

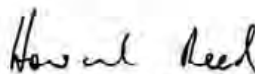
**Adams Road Quarry, Luddenham (DA 315-7-2003 MOD 2)**  
**Section 96(1A) Modification – Noise Bunds**  
**Notice of Modification**

I would like to advise you that on 28 January 2010, the Director, Major Development Assessment, as delegate for the Minister for Planning, approved the application to modify the development consent (DA 315-7-2003) to accommodate the 'as built' location of the acoustic bund walls at the Adams Road Quarry in Luddenham.

I have attached a copy of the Notice of the Modification for your information. A copy of this document, together with the consolidated consent and the Department's Assessment Report can be viewed on the Department's website under "Notices of Determination – Other Developments" ([www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)).

If you have any enquiries on this matter, please contact Haley Rich.

Yours sincerely

  
Howard Reed 29.1.10  
Manager Mining



# Notice of Modification

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, I modify the development consent referred to in Schedule 1, as set out in Schedule 2.



Chris Ritchie  
A/Director  
Major Development Assessment

Sydney, 28<sup>th</sup> January

2010

### SCHEDULE 1

The development consent (DA 315-7-2003) for the Luddenham clay/shale quarry, which was granted by the Minister for Infrastructure, Planning and Natural Resources on 23 May 2004.

### SCHEDULE 2

1. Delete the definition for "DEC" in the list of Definitions in Schedule 2, and insert in alphabetical order the following:

DECCW	Department of Environment, Climate Change and Water
SEE	Statement of Environmental Effects

2. Delete all references to "DECC" and replace with "DECCW".
3. In condition 2 of schedule 3, delete all words after "Castle Pty Ltd" and replace with:
  - e) Modification Application DA 315-7-2003 MOD 2 and the accompanying SEE titled "*Section 96(1A) Modification Application, 275 Adams Road Luddenham*" produced by Planning Direction Pty Ltd and dated 3 November 2009 and "*Acoustic Report – Clay/Shale Quarry at 275 Adams Road Luddenham*" produced by Golders Associates Ltd and dated 15 December 2009; and
  - f) conditions of this consent.
4. Delete condition 3 of schedule 3 and replace with:
  3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
6. After condition 4 of schedule 3 insert the following:
  - 4A. The Applicant shall prepare revisions of any strategies, plans or programs required under this consent 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.



7. Delete condition 5 of schedule 3 and replace with:

5. The Applicant may undertake quarrying operations on the site until 31 December 2024.

*Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General. Consequently, this consent will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been properly rehabilitated.*

8. After condition 12 of schedule 4 insert the following:

- 12A. When extraction operations are taking place in Bench 1, as indicated on Figure 1 in Appendix 1, operations are restricted to the use of 1 truck and 1 excavator, until the quarry floor is at least 1.5m below the existing ground level.

8. In condition 6 of schedule 5, delete the first sentence and replace with:

Before 31 December 2010, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development.

9. After condition 10 of schedule 5 insert:

#### APPENDIX 1 GENERAL SITE LAYOUT



Figure 1: General Layout of the Site



Contact: Kane Winwood  
Phone: 02 9228 6298  
Fax: 02 9228 6466  
Email: [kane.winwood@planning.nsw.gov.au](mailto:kane.winwood@planning.nsw.gov.au)  
Our ref: 10/23791-1

Mr Samuel Tarabori  
Operations Manager  
Epic Mining  
PO Box 177  
KEMPS CREEK NSW 2178

Dear Mr Tarabori

**Luddenham Clay Shale Quarry (DA 315-7-2003)  
Stockpile Modification**

I refer to the modification application and associated information from Planning Directions Pty Ltd dated 7 December 2010 regarding the above proposal. I also refer to your letter of 4 August 2011 regarding the same. Please accept my apologies for the delay in responding formally on this matter.

The Department has reviewed the above and is not in a position to assess the proposal at this stage, given the lack of detail in the information provided.

As advised at our meeting and subsequent email in October 2010, certain information must be provided to enable the Department to assess the proposal. This information is required to enable a comparison between what is approved and what is proposed in the modification, both in terms of statutory requirements (eg consistency of the proposed modification with what is approved) and assessment of the potential environmental impacts.

The points raised in the Department's abovementioned email are reproduced below, with additional comments provided for clarification and to help ensure that subsequent information provided to the Department in an environmental assessment (EA) for the proposed modification is adequate.

- *A summary of the approved operations, including clear figures and plans showing the approved development (including ancillary infrastructure such as access road, weighbridge and site offices) and noting any other relevant statutory approvals and their requirements.*

Information to be provided includes the details of all conditions of the development consent (DA 315-7-2003) or other operating licences, along with operational aspects of the development which may be affected by, or be relevant to, the proposed modification.

To supplement the verbal description of the above points, the EA should include figures showing the currently approved layout of the development site, cross sections of the extraction area and noise/visual bunds, and the approved extraction sequence (given that extraction staging is an aspect of the development for which a modification is being sought).

- *A detailed description and justification of the proposed modification, supported by clear figures and plans showing the proposed modified development.*

The EA must clearly describe each of the changes to the development being sought, and how the proposal would change operational aspects of the quarry.



Information provided to date about the proposed stockpiles (gleaned from figure 01019-T6) includes a maximum height of 6m, an approximate length of 100-120 m and a batter slope of generally 1 in 2. Additional information to be provided includes the maximum proposed volume of material to be stockpiled, the maximum predicted area covered by the stockpiles, and how storage and handling of the material in the stockpile would occur (for example, equipment types and numbers to be used in managing the stockpiles, for how long the stockpiles are to be utilised, how long each stockpile would remain on site and how material in the stockpiles would be cycled over time).

It is also noted that the plans provided do not appear to reflect the configuration of stockpiles that have been constructed to date (as shown in the aerial photograph dated 16 May 2011). If the modification is approved, stockpiles would need to match the configuration shown in the figures provided in support of the modification.

- *An assessment of the potential impacts of the proposal, addressing key issues including soil and water, noise, air quality, visual, and the measures to be implemented to avoid, minimise and/or mitigate the potential impacts (including a description of the existing and proposed environmental management and monitoring regime).*

To satisfy the objects of the *Environmental Planning and Assessment Act 1979*, the EA needs to consider all of the potential impacts of the proposed modification and what measures are proposed to avoid, minimise or mitigate those impacts, with consideration of the significance of the residual impacts following the implementation of these measures.

The EA must contain a logical, ordered review of each environmental issue which is relevant to the proposal. This generally should explain the existing conditions of the site and surrounds, how the proposal may change those conditions (if no management measures are in place), what measures are proposed to reduce the risks of environmental impact and the significance of any residual impacts.

- *A conclusion justifying the modification on economic, social and environmental grounds, taking into consideration whether the modification is consistent with the objects of the Environmental Planning & Assessment Act 1979.*

This conclusion must be based on the findings of the assessment and state the overall benefits and impacts of the proposal.

Many examples of environmental assessment reports prepared for other clay, sand and stone quarries are available on the Department's website ([www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)) and may be a useful reference to understand the standard of reporting which is expected.

I trust that this information will be of assistance for the preparation of the environmental assessment report in support of the proposal to modify DA 315-7-2003. If you have any further questions or clarifications, please contact Kane Winwood.

Yours sincerely



Howard Reed 29.1.12  
A/Director  
Mining & Industry Projects



## Sam Tarabori

---

**From:** Howard Reed [Howard.Reed@planning.nsw.gov.au]  
**Sent:** Wednesday, 18 January 2012 3:55 PM  
**To:** Sam Tarabori  
**Cc:** George Mobayed; Kane Winwood  
**Subject:** Re: Luddenham Quarry Modification  
**Attachments:** ATT00004.jpg

Hello Sam,

yes, we received the letter.

Regarding the s.75W modification, I have asked Kane Winwood, who is now back in the Mining Team, to finalise the inadequacy letter and request for amended information as an early priority. You can contact Kane on 9228 6298, but I suggest that you leave it a couple of days so that he can re-acquaint himself with the project.

Re the green waste, I confirm my telephone response to you of 30 November that the importation of green waste used in rehabilitation is covered by the terms of your existing consent. That is, if green waste is imported for other purposes (such as landfill or making of compost for sale), then it will require a modification to your existing consent. Providing all green waste imported is used in site rehabilitation, or other activities not requiring consent (such as may be the case for soil supplementation or landscaping), then I do not see that a consent modification is required.

Kind regards,

Howard Reed  
A/Director Mining & Industry Projects,  
Major Project Assessments  
Department of Planning & Infrastructure  
ph 9228 6308 fax 9228 6466

>>> "Sam Tarabori" <samuelt@epi.mining.com.au> 17/01/2012 2:35 pm >>>  
Howard,

A Happy New Year to you.

In December 2011 after our phone conversation,  
I mailed you the attached letter in reference to the DA modification for the quarry at Luddenham.  
The purpose for the email is to check if you had received the letter and if so the status of the S75W.



**Environment,  
Climate Change  
& Water**

Our reference: DOC11/31442

Mr Peter Rimmer  
Manager Resource Recovery & Waste  
Centre for Organic & Resource Enterprises  
Suites 701-703, 107 Walker Street  
NORTH SYDNEY NSW 2060

**Standard Post**

Dear Mr Rimmer

**Re: Epic Mining Pilot Program for the Reuse of Residue Waste Products**

Thank you for your email dated 7 July 2011, seeking additional advice in relation to the pilot program for the reuse of residue waste at Epic Mining ("the licensee") in Luddenham ("the site"), being facilitated by the Centre for Organic and Resource Enterprises ("CORE").

Please be aware that the Office of Environment and Heritage ("OEH") does not provide legal or operational advice and encourages you to seek any necessary legal advice to ensure that CORE and the licensee meet all of their environmental and legal obligations. To assist you, OEH provides the following response to the seven matters you have raised:

1. Resource Recovery Exemptions only apply when the waste that is the subject of an exemption is applied to land. A material that meets the conditions of an exemption is still a waste and licensing thresholds for processing, storage and receipt of waste are still applicable for waste processors.

The intent of clause 7.2 mentioned in your email is to ensure that exempted waste is land applied and not stored for extended periods of time to reduce any potential risks to the environment or human health. Hence, waste received at the site as part of the licensee's pilot program, must be land applied at an application rate that ensures less than 2,500 tonnes of waste are stored at the site at any time.

2. If the waste received at the site does not exceed threshold limits outlined in the *Protection of the Environment Operations Act 1997* ("POEO Act"), an Environment Protection Licence ("EPL") would not be required for waste related activities only. As you are aware, current activities (Extractive activities - other land-based extraction) at the site are the subject of EPL number 12863, hence any additional activities that require licensing will be incorporated into this EPL.
3. Noted.
4. OEH draws your attention to Clauses 41 & 42 of Schedule 1 of the POEO Act which outline threshold limits for the receipt, processing (non-thermal treatment) and storage of waste.

The Department of Environment, Climate Change and Water is now known as  
The Office of Environment and Heritage, Department of Premier and Cabinet

PO Box A290 Sydney South NSW 1232  
59-61 Goulburn St Sydney NSW 2000  
Tel: (02) 9995 5000 Fax: (02) 9995 5999  
TTY (02) 9211 4723 ABN 30 841 387 271  
[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)



Clause 41 states that the non-thermal treatment of general waste is declared to be a scheduled activity if "it involves having on site at any time more than 2,500 tonnes, or 2,500 cubic metres, whichever is the lesser, of general waste". It also states that the non-thermal treatment of liquid waste is declared to be a scheduled activity if it "involves having on site at any time more than 200 kilograms of liquid waste (other than clinical and related waste)".

Clause 42 states that the storage of waste is declared to be a scheduled activity if "more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste (other than waste referred to in paragraph (a) or (b)) is stored on the premises at any time", or if "more than 30,000 tonnes of waste (other than waste referred to in paragraph (a) or (b)) is received per year from off site".

To assist you, a copy of Clauses 41 & 42 is enclosed with this letter.

5. As outlined in point 1.
6. As outlined in point 4 above, the processing (non-thermal treatment) of liquid waste has a different threshold from other types of waste. OEH draws your attention to Clause 41 of Schedule 1 of the POEO Act which prescribes a threshold limit of 200 kilograms of liquid waste (other than clinical and related waste) at any one time.

For the purposes of Clause 41 (processing (non thermal treatment)) and Clause 42 (waste storage), 1 litre of waste is taken to weigh 1 kilogram.

7. a. OEH is unable to provide comment on this matter as it is the responsibility of the Department of Planning and Infrastructure.
- b. OEH has no objection to the proposed pilot project commencing for a trial period of 12 months, provided that current environment protection legislation and existing EPL conditions are complied with. In addition, to ensure that the environment is well protected from any adverse impact resulting from the proposed activities, OEH will attach relevant conditions to the EPL number 12863. These conditions may include monitoring and reporting requirements and a provision for the review of the proposal at the end of the 12 month period.
- c. Noted. Please note that the raw mulch cannot be excluded from storage threshold limits as suggested in the mass balance table provided.
- d. OEH is unable to provide comment on this matter as it is the responsibility of the Department of Planning and Infrastructure.

As discussed previously, in addition to meeting the requirements of environment protection legislation, the licensee will also need to ensure that the proposed facility holds the relevant planning consents or approvals from the appropriate regulatory authority.

I trust this information is of assistance to you. Should you have any enquiries regarding this matter, please contact Helen Prifti on (02) 9995 5717.

Yours sincerely



22/7/11

**HENRY MOORE**  
**Manager Waste Reform**  
**Environment Protection and Regulation Group**

Enc: Clauses 41 & 42 of Schedule 1 of the POEO Act



#### 41 Waste processing (non-thermal treatment)

(1) This clause applies to the following activities:

**non-thermal treatment of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing otherwise than by thermal treatment.

**non-thermal treatment of hazardous and other waste**, meaning the receiving of hazardous waste, restricted solid waste, clinical and related waste or asbestos waste, whether from on site or off site, and its processing otherwise than by thermal treatment.

**non-thermal treatment of liquid waste**, meaning the receiving of liquid waste (other than waste oil), whether from on site or off site, and its processing otherwise than by thermal treatment.

**non-thermal treatment of waste oil**, meaning the receiving of waste oil from off site and its processing otherwise than by thermal treatment.

**non-thermal treatment of waste tyres**, meaning the receiving of waste tyres from off site and their processing otherwise than by thermal treatment.

(2) However, this clause does not apply to any of the following:

- (a) processing of contaminated soil or groundwater, or sewage within a sewage treatment system (whether or not that system is licensed),
- (b) the storage and transfer of liquid waste that is generated and treated on site prior to sewer discharge, or lawful discharge to waters.

(2A) The activity of non-thermal treatment of liquid waste is declared to be a scheduled activity if it meets the criteria for that activity set out in Column 2 of the Table to this clause.

(3) Each other activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

- (a) it meets the criteria set out in Column 2 of that Table, and
- (b) more than 50% by weight of the total amount of waste received per year requires disposal after processing.

(4) For the purposes of this clause, 1 litre of waste is taken to weigh 1 kilogram.

Table

Column 1 Activity	Column 2 Criteria
non-thermal treatment of general waste	involves having on site at any time more than 2,500 tonnes, or 2,500 cubic metres, whichever is the lesser, of general waste involves processing more than 120 tonnes per day, or 30,000 tonnes per year, of general waste
non-thermal treatment of hazardous and other waste	involves having on site at any time more than 200 kilograms of waste (other than clinical and related waste) involves having on site at any time any quantity of clinical and related waste



non-thermal treatment of liquid waste	involves having on site at any time more than 200 kilograms of liquid waste (other than clinical and related waste) involves having on site at any time any quantity of liquid waste that is clinical and related waste
non-thermal treatment of waste oil	involves having on site at any time more than 2,000 litres of waste oil involves processing more than 20 tonnes of waste oil per year
non-thermal treatment of waste tyres	involves having on site at any time more than 50 tonnes of tyres (where 100 tyres are taken to weigh 1 tonne) involves processing more than 20 tonnes of tyres per day or 5,000 tonnes of tyres per year

#### 42 Waste storage

- (1) This clause applies to **waste storage**, meaning the receiving from off site and storing (including storage for transfer) of waste.
- (2) However, this clause does not apply to any of the following:
  - (a) the storage of stormwater,
  - (b) the storage of up to 60 tonnes at any time of grease trap waste, waste lead acid batteries or waste oil collected for recovery (but not when accompanied by any other kind of waste),
  - (c) the storage of sewage within a sewage treatment system,
  - (d) the storage and transfer of liquid waste that is generated and treated on site prior to sewer discharge, or lawful discharge to waters.
- (3) The activity to which this clause applies is declared to be a scheduled activity if:
  - (a) more than 5 tonnes of hazardous waste, restricted solid waste, liquid waste, clinical or related waste or asbestos waste is stored on the premises at any time, or
  - (b) more than 50 tonnes of waste tyres or 5,000 waste tyres is stored on the premises at any time, or
  - (c) more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste (other than waste referred to in paragraph (a) or (b)) is stored on the premises at any time, or
  - (d) more than 30,000 tonnes of waste (other than waste referred to in paragraph (a) or (b)) is received per year from off site.
- (4) For the purposes of this clause, 1 litre of waste is taken to weigh 1 kilogram.



## Office of Environment & Heritage

Your Reference  
Our reference  
Contact

Epic Mining Pty Limited  
: DOC11/52703@LIC08/497-05  
: Nicolas Israel, 9995 6821

Mr Samuel Tarabori  
Epic Mining Pty Limited  
P O Box 177  
KEMPS CREEK NSW 2171

Dear Mr Tarabori

**EPIC MINING PTY LIMITED – 275 ADAMS ROAD LUDDENHAM  
ENVIRONMENT PROTECTION LICENCE 12863  
USE OF THE EXEMPT WASTE LIME SLURRY FOR REHABILITATION PURPOSES**

I refer to your email and attachments dated 16 November 2011, regarding a request to allow your company to use the exempt waste lime slurry as part of your rehabilitation works on the above site.

I also refer to our letter from Henry Moore (Manager Waste Reform), dated 22 July 2011 regarding this and other issues.

Following careful consideration of all relevant factors involved including the potential impact on the environment as a result of the proposed use of the lime slurry, I am pleased to advise you that your proposal has been approved subject to your company's compliance with the following requirements:

1. the conditions included in the specific exemption issued under *Part 6 of the Protection of the Environment Operations (Waste) Regulation 2005* issued on 7 August 2007 by Mark Gorta, Manager Waste Management Section,
2. current environmental legislation, in particular the *Protection of the Environment Operations Act 1997*,
3. the conditions included in the Environment Protection Licence No 12863 issued for your activities at 275 Adams Road, Luddenham, and
4. the requirements outlined in our letter of 22 July 2011 especially in relation to the quantities of wastes imported, processed and/or stored on site. We strongly recommend that records of the quantities of wastes imported, processed and/or stored on site be kept to ensure that licensing thresholds for such wastes are not exceeded otherwise we will be required to follow a different process.

I hope the above information is helpful to you, however, if you wish to discuss the matter further, please contact Mr Nicolas Israel on (02) 9995 6821.

Yours sincerely

24 November 2011

**KIERAN HORKAN**  
**Unit Head Sydney Industry**  
**Environment Protection Authority**



## Office of Environment & Heritage

Your Reference : Epic Mining Pty Limited  
Our reference : Licence 12863@ LIC08/497-05  
Contact : Nicolas Israel, 9995 6821

Mr Sam Tarabori  
Quarry Manager  
Epic Mining Pty Limited  
PO Box 177  
KEMPS CREEK NSW 2171

Dear Mr Tarabori

### **EPIC MINING PTY LIMITED – 275 ADAMS ROAD LUDDENHAM EPL #12863 – SECTION 58 LICENCE VARIATION NOTICE**

I refer to your request for a minor change to your Environment Protection Licence under the provisions of Section 58 of the Protection of the Environment Operations (POEO) Act 1997. The request was made during the last site inspection conducted by Nicolas Israel and other staff from the Environment Protection Authority (EPA) on 5 July 2011. Your request relates to certain conditions included in your Environment Protection Licence (EPL) No 12863.

Based on the information available to EPA, consultation with your Company's representatives and following careful consideration of the proposed changes and its environmental impact, I am pleased to advise you that your request has been approved.

Please find attached the Section 58 notice No 1502055 for your consideration. Please read this document carefully and place it in your EPL folder for future references. Attached is also a copy of the new EPL.

If you wish to discuss the matter further, please contact Mr Nicolas Israel on (02) 9995 6821.

Yours sincerely

28 November '11

**KIERAN HORKAN**  
Unit Head Sydney Industry  
Environment Protection and Regulation





## Office of Environment & Heritage

Your Reference : Epic Mining Pty Limited  
Our reference : Licence 12863 @ LIC08/497-05  
Contact : Nicolas Israel, 9995 6821

Mr Sam Tarabori  
Quarry Manager  
Epic Mining Pty Limited  
PO Box 177  
KEMPS CREEK NSW 2171

Dear Mr Tarabori

**EPIC MINING PTY LIMITED – 275 ADAMS ROAD LUDDENHAM**  
**EPL #12863 – PROPOSED MODIFICATIONS TO YOUR ACTIVITIES ON SITE**

I refer to your request for comments from the Environment Protection Authority (EPA) regarding the proposed modification to your approved activities on site. The request was made during the site inspection conducted by staff from the EPA and staff from the Department of Planning and Infrastructure (DP&I) on 5 July 2011.

Your request is associated with your application to the DP&I to modify the way excavated materials are handled after being excavated. The initial proposal included the installation of a conveyor to transport excavated materials from the excavation area (quarry pit) directly onto trucks. The trucks will transport the materials immediately off site to the buyer's premises. The modification is to remove the conveyor from the process and simply store the excavated materials on site in different stockpiles. This modification is required for the following three main reasons:

- The excavated materials must be matured/seasoned before they can be used in the brick manufacturing industry,
- the excavated materials must be separated depending on their characteristics including their firing colours, and
- the buyer may not have the capacity to store the materials on its site and/or process the materials immediately through its brick making plant.

It is therefore more economically viable and environmentally suitable for this stage of the process to occur at the seller's (quarry) rather than the buyer's site.

Based on the information currently available to the EPA, consultation with the licensee, observations made during the site inspections conducted by EPA officers including assessment of the results of the monitoring conducted in the last 12 months and the fact that no complaints have been received, it can be concluded that the environmental benefits with regard to the economical viability of the activities conducted on site outweigh by far any potential environmental impact. Hence, the EPA has no objection for the modification to proceed provided that the licensee complies with the following requirements:

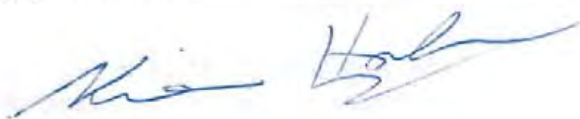
1. The licensee must comply with current environmental legislation,
2. the licensee must comply with current EPL conditions including limit, monitoring and reporting requirements, and
3. the licensee must reduce the height of the highest stockpile by approximately 1.6 metres.



Notwithstanding the above, we believe that no changes to the existing EPL are required since current conditions are sufficient to manage any environmental issues associated with the proposed activities conducted on site.

If you wish to discuss the matter further, please contact Mr Nicolas Israel on (02) 9995 6821.

Yours sincerely



22 May 2012

KIERAN HORKAN  
Unit Head Sydney Industry  
Environment Protection and Regulation



Your reference :  
Our reference: : DOC13/19035 & LIC08/497-06  
Contact: : Rod Fox 9995 6839

Mr S Tarabori  
Quarry Operations Manager  
Epic Mining Pty Limited  
PO Box 177  
KEMPS CREEK NSW 2178

Dear Mr Tarabori

I refer to your letter dated 19 April 2013 and the attached Licence Variation Application (LVA) seeking a variation to Environment Protection Licence (EPL) No.12863 (**the Licence**) issued by Environment Protection Authority (EPA) to Epic Mining Pty Limited' (**the Licensee**). The licence authorises Extractive activities to be undertaken by the licensee at 275 Adams Road Luddenham NSW 2525 (**the Premises**).

I also refer to the meeting at the premises between EPA officers Chris Kelly and Rod Fox and Samuel Tarabori the Quarry Operations Manager on 15 May 2013 to discuss the LVA seeking a variation to licence conditions relating monitoring and reporting requirements.

As indicated at the meeting the Environment Protection Authority (EPA) agrees in principal to varying the frequency of the monitoring and reporting requirements set out in the conditions of the licence and will vary the licence accordingly. You were also advised that the EPA undertook a review of the licence and have identified a number of other licence Conditions that would be amended as part of the licence variation. Prior to completing the licence variation the licensee will be given the opportunity to comment on any proposed changes to the licence conditions.


During the inspection undertaken on 15 May 2013 the appropriateness of some of the licensed dust and noise monitoring points was discussed and in particular the influence that some external dust and noise sources may be having on the monitoring results obtained.

As the dust and noise monitoring points form part of the development consent issued for the premises you should seek clarification from the relevant consent authority if a variation to the current consent is required to relocate and/or reduce the number of dust and noise monitoring points at the premises. The EPA will require a copy of any advice provided to you by the consent authority before it will consider varying any EPL conditions relating to the number and location of the dust and noise monitoring points.

As agreed at the meeting on 15 May 2013 the EPA will progress the determination of the LVA when you provide a copy of the advice given to you by the consent authority

If you wish to discuss this issue further please contact Rod Fox on 9995 6839.

Yours sincerely

  
**CHRIS KELLY** 23/5/2013  
Acting Unit Sydney Industry  
Environment Protection Authority

## APPENDIX L - Letters from Non-Government Organisations

---





Carne Specialist Horticultural Services Pty / Ltd  
10 the Glade Wahroonga NSW 2076  
A.B.N. 84 140 085 187  
(02) 9487 2446  
Director: [chris.carne@gmail.com](mailto:chris.carne@gmail.com)  
0407 485 437

To Whom it May Concern,

Re: Epic Quarry Mining site Badgerys Creek.

In 2009, my team prepared, planted out and maintained the riparian zone with oakey creek community keystone specimens (forestry tubestock size). Overall i would refer to this planting project as a success, although we had to rectify some initial attrition. Recent weather has ensured that these specimens have gone on to be advanced specimens. These plantings should continue to flourish if the trend of specimen vigour continues. I think that these plants have perhaps been most aided by the collection and ample useage of harvested rainwater. This alone is a standout factor that i wish other projects had at their disposal.

Weed management was difficult at first but has become easier with persistence. Predominantly hand weeding and spot spraying has been the most successful methods. (Woody weeds have been cut / poisoned.)

I have reviewed the modification application and I think that the earthworks and water collected in the quarry should be suitably contained and disposed of without adverse impacts to our planted area. Since works have commenced I have not seen any change in soil condition occurring.

The planted species are now well advanced and will not be adversely affected by the works that the boys at Epic are doing.

If you have any questions please feel comfortable in contacting me on the channels above.

Kind regards,

A handwritten signature in black ink, appearing to read "C. Carne". The signature is fluid and cursive, with the first letter of the first name being a large capital 'C'.

Chris Carne

B Sc, BR2, Arb 2, Arb, 3, Dip Arb (pending)

Director

## AUTHORITY

We the undersigned are the occupants of the land situated at 285 Adams Road Luddenham NSW 2745.

We are aware that a Development Approval exists and as a result, extraction works have commenced or are nearing commencement on the adjacent property known as 275 Adams Road Luddenham NSW 2745.

We do not object to the extraction operation to occur and have no issues with any noise or dust generated as a result by the mining or truck movements relating to the site operation.

Yours faithfully,

IAN DICKSON

PRINT NAME:

PRINT NAME:

THYRA MORRIS

PRINT NAME:

Morris

PRINT NAME:

DATE: 13-11-2011

Thursday, 21<sup>st</sup> October 2010

EPIC Mining Pty Ltd  
PO Box 177  
KEMPS CREEK 2178

ATTN: Samuel Tarabori

***RE: DA 315-7-203; Dust and Acoustic Issues at Adams Road Clay Shale Quarry***

Dear Samuel,

I have reviewed the basic stockpile plans provided by Epic and they appear to be typical for a clay shale quarry.

The proposed stockpiling operations will be constrained within the bunded perimeter of the consented quarry operation area. The majority of the stockpile operations will occur below the bund wall levels.

The possible noise and dust impacts will be minimized by:

1. Watercart use, on all roads during hauling;
2. Water will be sprayed onto the stockpile to create a crust to reduce airborne dust; and
3. Best practice methods are recommended for construction and maintenance techniques to minimise noise and dust impacts.

The noise and dust monitoring programs as identified in Schedule 4 of your consent DA 315-7-203 will also provide surety that the construction and maintenance of these stockpiles occurs within the prescribed environmental limits.

The results of the monitoring program will be reported annually in an Annual Environmental Management Review (AEMR). This report will be prepared by VGT, of which I have been authorised by the Department of Planning, by letter dated 11<sup>th</sup> October 2009 to undertake annual rehabilitation audits for your site. If any exceedances of environmental limits, breaches of consent or any complaints are identified during the reporting period then these will also be presented in the AEMR.

If you have any further questions regarding this please call me.

Yours Sincerely



Greg Thomson



PO Box 2335 Greenhills NSW 2323  
P (02) 4028 6412 E mail@vgt.com.au  
www.vgt.com.au ABN 79 103 636 353

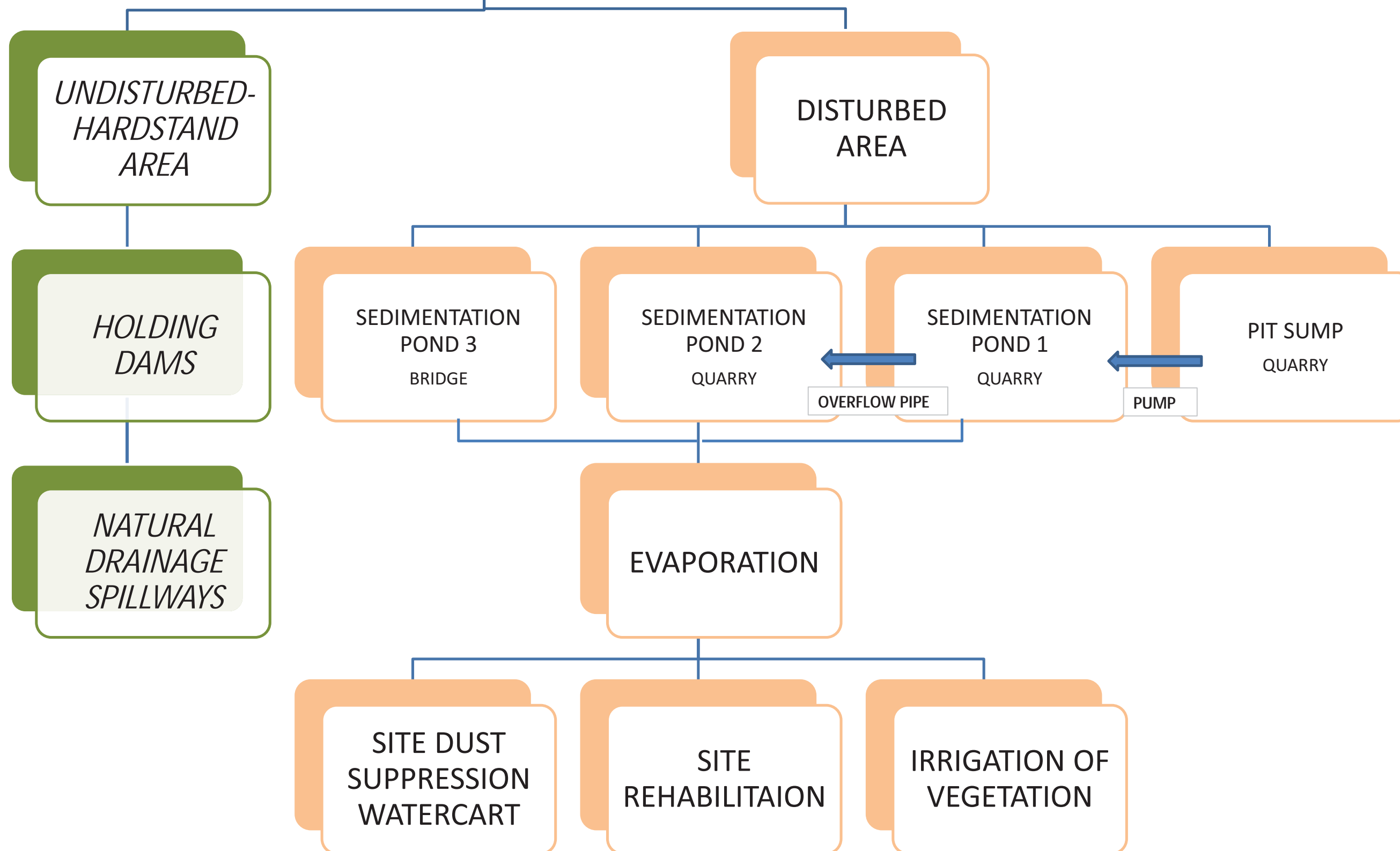
P (02) 4028 6412

## APPENDIX M - Schematic of Site Surface Water & Town Water Management Plan (Flowchart)

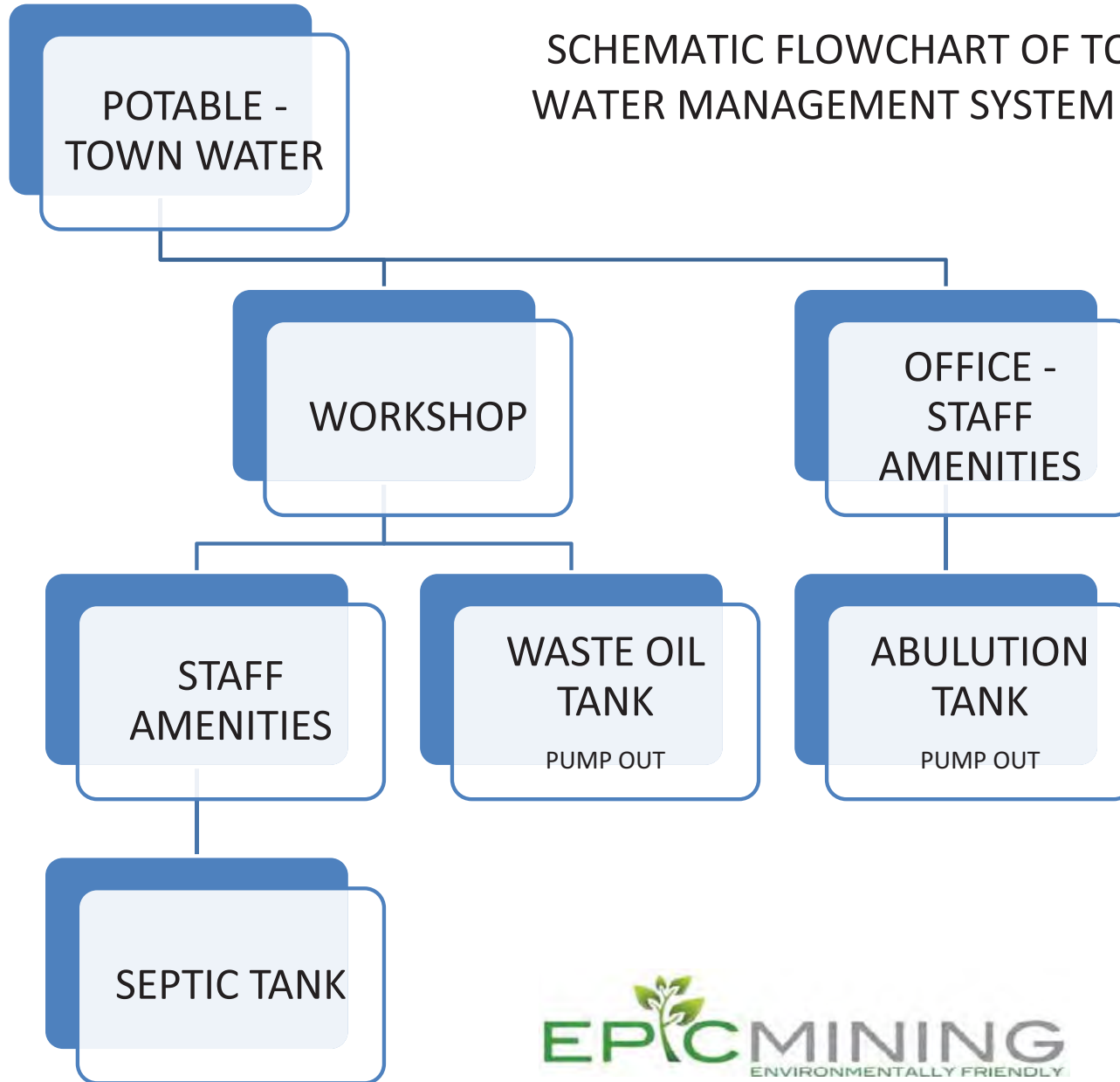


**RAINFALL  
PRECIPITATION**

**SCHEMATIC FLOWCHART OF SURFACE  
WATER MANAGEMENT SYSTEM 2013**



## SCHEMATIC FLOWCHART OF TOWN WATER MANAGEMENT SYSTEM 2013



## APPENDIX N - Visual Photographs of Quarry from Neighbouring Sites



**PHOTO 1 – View of Quarry from Elizabeth Drive Entrance**



**PHOTO 2 – View from Elizabeth Drive. Dust/Noise Monitoring Point 1**





**PHOTO 3 – View from Hubertus Country Club Carpark**



**PHOTO 4 – View from Residence on Commonwealth Leased Land**





**PHOTO 5 – View from Adjoining Northern Neighbouring Property**



**PHOTO 6 – View from Commonwealth Leased Land Elizabeth Drive**

APPENDIX O - Dust Monitoring Results  
Water Monitoring Results

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# SURFACE WATER SAMPLING REPORTING

REPORTING PERIOD FROM 5 June 2012 - 4 June 2013

EPA Licence Ref: M6  
Site Ref: WS1  
Location: Oaky Creek Crossing Elizabeth Drive (Down Stream)

Date of Sample	Biological Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
Concentration Limits	150	50	5.5-8.5	30		
Time of Reading	2	4	6.1	5		
21/11/2012						
18/02/2013	0	14	6.6	0 Shallow	VGT	
19/06/2013						

Average	0.0	14.0	6.6	0.0		
Min	0	14	6.6	0		
Max	0	14	6.6	0		

EPA Licence Ref: M7  
Site Ref: WS2  
Location: Upstream in Oaky Creek.

Date of Sample	Biological Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
Concentration Limits	150	50	5.5-8.5	30		
Time of Reading	3	1	9.1	5		
01/03/2013	0	46	6.5	0 Dark, Odour, Shallow	VGT	

Average	0.0	46.0	6.5	0.0		
Min	0	46	6.5	0		
Max	0	46	6.5	0		

EPA Licence Ref: M7  
Site Ref: WS2  
Location: Sed Holding Pond or Pit Floor Sump

Date of Sample	Biological Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
Concentration Limits	150	50	5.5-8.5	30		
Time of Reading	2	4	8.1	6		
01/03/2013	0	9	8.4	0 Sed Holding Pond 2	VGT	
02/03/2013	0	11	9.2	0 Sed Pond 1	VGT	
03/03/2013	0	12	8.6	0 Sed Pond 2	VGT	
04/03/2013	0	58	7.5	0 Bridge Dam Turbine	VGT	
05/03/2013		6	8.6	0 Pit Sump	VGT	

Average	0.0	19.2	8.5	0.0		
Min	0	6	7.5	0		
Max	0	58	9.2	0		

# SURFACE WATER SAMPLING REPORTING

REPORTING PERIOD FROM 18 JANUARY 2011 - CURRENT

EPA Licence Ref: M6  
Site Ref: WS1  
Location: Oak Creek Crossing Elizabeth Drive (Down Stream)

EPA Licence Ref: M7  
Site Ref: WS2  
Location: Upstream in Oak Creek, Entrance to Quarry

EPA Licence Ref:  
Site Ref:  
Location: Sed Holding Pond or Pit Floor Sump

Date of Sample	Biochemical Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
----------------	----------------------------------	-------------------------------	----	---------------------	----------	------------

Concentration Limits	150	50	5.5-8.5	30		
----------------------	-----	----	---------	----	--	--

18/02/2010					No Flow	
18/02/2010					No Flow	
21/07/2010					No Flow	
19/08/2010		28	6.9		No Flow	VGT
20/09/2010	12	68	6.6 Less Than 5		No Flow, Floating Veg	VGT
21/10/2010	6	14	6.8 Less Than 5		No Flow, Floating Veg	VGT
22/11/2010	7	6	6.9 Less Than 5		No Flow	VGT
20/01/2011	31	69	7.2 Less Than 5		No Flow, Floating Veg	VGT
22/03/2011	12	9	7.3 Less Than 5		No Flow, Floating Veg	VGT
20/06/2011						
20/06/2011						
21/07/2011	2	4	6.8 Less Than 5		No Flow	VGT
23/08/2011	3	31	6.6 Less Than 5		No Flow	VGT
20/12/2011	2	34	7.1 Less Than 5		Flowing	VGT
19/01/2012	1	6	6.9 Less Than 5		No Flow	VGT
20/02/2012	4	57	6.9 Less Than 5		Strong Flow	VGT
21/03/2012	7	14	7.3 Less Than 5		No Flow	VGT
19/04/2012	9	64	7 Less Than 5		Fast Flowing, Rains	VGT
19/04/2012	9	64	7 Less Than 5		Fast Flowing, Rains	VGT
21/11/2012						
18/02/2013	0	14	6.6	0 Shallow		VGT
19/06/2013						
23/07/2013						

Date of Sample	Biochemical Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
----------------	----------------------------------	-------------------------------	----	---------------------	----------	------------

Concentration Limits	150	50	5.5-8.5	30		
----------------------	-----	----	---------	----	--	--

18/02/2010					No Flow	
18/02/2010					No Flow	
21/07/2010					No Flow	
19/08/2010		13	7.3		No Flow	VGT
20/09/2010	17	143	7.1 Less Than 5		No Flow, Floating Veg	VGT
21/10/2010	14	31	7.2 Less Than 5		No Flow, Floating Veg	VGT
22/11/2010	13	30	6.5	22 Dump car in creek		VGT
20/01/2011	7	9	7.1 Less Than 5		No Flow, Floating Veg	VGT
22/03/2011	86	280	6.6 Less Than 5		No Flow	VGT
20/06/2011	1	165	6.7 Less Than 5		No Flow	VGT
21/07/2011	4	280	6.6 Less Than 5		No Flow	VGT
23/08/2011	4	329	6.9 Less Than 5		No Flow	VGT
20/12/2011	5	55	7.1 Less Than 5		Flowing	VGT
19/01/2012	3	104	7.2 Less Than 5		No Flow	VGT
20/02/2012	5	39	6.9 Less Than 5		Strong Flow	VGT
21/03/2012	8	12	7.3 Less Than 5		No Flow	VGT
19/04/2012	8	29	7 Less Than 5		Fast Flowing, Rains	VGT
19/04/2012	8	29	7 Less Than 5		Fast Flowing, Rains	VGT
21/11/2012						
18/02/2013	0	46	6.5	0 Dark, Odour, Shallow		VGT
19/06/2013						
23/07/2013						

Date of Sample	Biochemical Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH	Oil & Grease (mg/L)	Comments	Tested By:
----------------	----------------------------------	-------------------------------	----	---------------------	----------	------------

Concentration Limits	150	50	5.5-8.5	30		
----------------------	-----	----	---------	----	--	--

18/02/2010					Pit Floor	VGT
18/02/2010		27	7.8		Sed Holding Pond 1	VGT
21/07/2010	4	33	7.2 Less than 5		Sed Holding Pond 1	VGT
19/08/2010		13	7.6		Sed Holding Pond 1	VGT
20/09/2010	8	15	8.6 Less Than 5		Sed Holding Pond 1	VGT
21/10/2010	5	1	8.9 Less Than 5		Sed Holding Pond 1	VGT
22/11/2010	8	76	7.1 Less than 5		Sed Holding Pond 1	VGT
20/01/2011	19	68	8.1 Less than 5		Sed Holding Pond 1	VGT
22/03/2011	27	63	8.1 Less than 5		Sed Holding Pond 1	VGT
20/06/2011	4	10	8.1 Less than 5		Sed Holding Pond 1	VGT
20/06/2011	4	9	8.4 Less than 5		Sed Holding Pond 2	VGT
21/07/2011						
23/08/2011						
20/12/2011						
19/01/2012						
20/02/2012	5	173	7.6		12 Sed Holding Pond 1	VGT
21/03/2012						
19/04/2012						
19/04/2012						
21/11/2012						
18/02/2013	0	11	9.2		Sed Holding Pond 2	VGT
18/02/2013	0	12	8.6		0 Sed Pond 1	VGT
18/02/2013	0	58	7.5		0 Sed Pond 2	VGT
18/02/2013					0 Bridge Dam Turbid	VGT
18/02/2013					0 Pit Sump	VGT
18/02/2013	2	25	8.6		5 Bridge Dam	VGT
18/02/2013	2	4	8.3		5 Pit Sump	VGT
19/06/2013						
23/07/2013						

Average	7.4	33.3	7.0	0.0		
Min	0	4	6.6	0		
Max	31	69	7.3	0		

Average	11.6	114.3	6.9	0.0		
Min	0	9	6.5	0		
Max	86	329	7.3	0		

Average	6.4	37.3	8.4	3.1		
Min	0	4	7.5	0		
Max	27	173	9.2	12		

APPENDIX P – Western Stockpiles Visual Analysis Illustration  
Eastern Stockpiles Visual Analysis Illustration

---



KEY

existing stockpile zone

Photo - photo position and direction

no view of clay extraction stockpiles due to natural topography

no vision of clay extraction stockpiles due to earth berm

filtered vision of clay extraction stockpiles

Recommended indigenous tree planting in clumps



Photo 2- Earth berm obscures view from Hubertus Country Club



Photo 1- View from the base of stockpile 1 looking east



Photo 3- View from Elizabeth Drive at the entrance looking south- stockpiles not visible



Photo 4- View from Elizabeth Drive showing distant stockpiles



Photo 5- View from Driveway on Elizabeth Drive showing distant stockpiles



Photo 6- Internal view from Commonwealth leased residence



Photo 7- Internal view looking west from the highest point on the site



maps.six.nsw.gov.au

1/1



Photo 9- View from corner post of Jackson Road, Commonwealth leased residence.



Photo 8- View from back paddock of Ferndale Street, Commonwealth leased residence.

### VISUAL ANALYSIS

**Context**  
The stockpile of extracted clay and shale sits on Commonwealth Land Lot 1- DP 838361, Badgerys Creek. The Commonwealth land extends for approximately 1km to the east and greater than 1km to the south; It is dissected to the north by Elizabeth Drive . Within the Commonwealth land are several leased residential properties. To the west are several private lots as shown on the aerial map. Epic Mines is carrying out extractive industry processes in the property immediately to the west of the stockpile area.

**Description**  
The stockpile is located 600m south of Elizabeth Drive at number 2420. The area comprises three piles of clay-shale running east-west totalling approximately 2.74 ha. Stockpile 3 to the east has its highest point at an RL 74.5m, 0.5m above the natural ground level of the highest surveyed point of the site. The view from the base of stockpile 1 represents the most extreme view point of the pile; the pile is 7m high from its base at the western end and 4m high from its base at the eastern end. The view in Photo 1 shows the pile from its western end. Stockpile 2 rises to a maximum of 4m above the immediate surrounding ground levels.

**Methodology**  
The stockpile has been visually assessed on the 01/10/2013 from key points including public roads, private properties and internal views from Commonwealth leased residences. A scale of impact has been done by percentage visibility and categorised as None = no visibility, Very Low = 10% visibility, Low = 25% visibility, Moderate = 50% visibility, High = 75% visibility and Extreme = 100% visibility . The analysis has been divided into external views from outside Commonwealth land or roads bisecting Commonwealth land and internal views from leased residences in Commonwealth land. Recommendations to mitigate adverse view impacts are proposed. Photo 1 provides the baseline Extreme view used as an analytical standard.

**External Views**  
Interrupted distant views of the stockpile are available from Elizabeth Drive, as shown in Photos 3, 4 & 5. The impact visibility is Low. All other external views are obscured by the natural topography &/or constructed earth berms as shown on the plan and in Photo 2. The impact is None.

**Internal Views**  
The immediate view from the base of the stockpiles is shown in Photo 1. This represents the Extreme visual of the stockpile. This view is only available from Oaky Creek directly beneath the stockpiles, otherwise this view is blocked by the riparian vegetation and topography to the west. Stockpile 1 is visible from the leased residences at the end of Ferndale Street (Photo 8) and Jackson Road( Photo 9). Existing vegetation makes the impact from Jackson Road Low and from Ferndale St Moderate.

Photo 6 is taken from the leased residences north of the stockpile looking towards the south and shows a High visual impact. Photo 7 is taken immediately to the east of the stockpile. There is no residence located for over 600m or road for 1000m further east. The impact from the east of the site looking west is Very Low to None. All internal views from the west looking east are none.

**Recommendations**  
The visual external impact is Low to None so no mitigation measures are necessary with regard to them. The visual impact from leased residences on Commonwealth land is Low to Moderate south of the stockpile and High directly north of the piles. To reduce the internal visual impact it is recommended that clump plantings of 3 to 5 indigenous trees along the existing berm to the south and scattered clump plantings to the north be undertaken to mitigate these visual impacts. The feasibility of implementing this recommendation is dependent on the acceptability of these plantings under any future plans for the Commonwealth site.





Photo 1 – North of the western stockpile area (300 m)



Photo 2 – North East of the western stockpile area (240 m)



Photo 3 – South of the stockpile area 325 m)



Photo 4 – North West of the stockpile area (285 m)



Photo 5 – North West of the stockpile area (615 m)



Legend	
Photo direction	0000
Site Boundary	000
Stockpile area	000
View obscured due to site topography	000
View filtered due to trees/bushes/shrubs	0000
Area visible	000
Recommended mitigation measures	00



Photo 6 – North of the stockpile area (255 m)



Photo 7 – Site address at main entry (535 m)



Photo 8 – Corner Adams Road & Elizabeth Drive (680 m)



Photo 9 – Corner Elizabeth drive and main site entry point (810 m)



Photo 10 – North East of the stockpile area (590 m)





Photo 8

Elizabeth Dr

Photo 9

Elizabeth Dr

Photo 7

Photo 4

Photo 6

Photo 5

Photo 10

Photo 1

Photo 2

Photo 11

Photo 3

Adams Rd

Adams Rd

Adams Rd

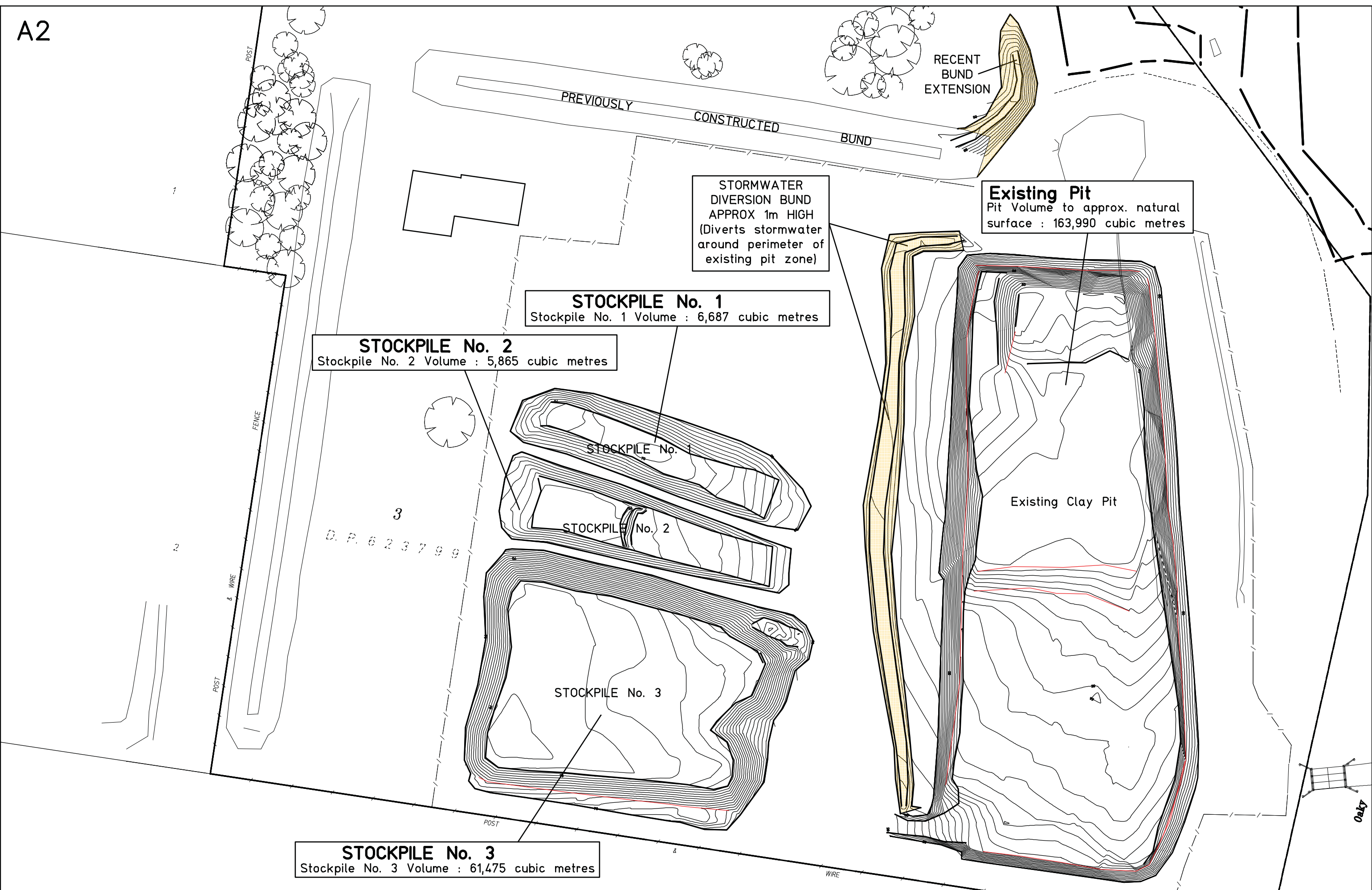
Anton Rd

Jackson Rd

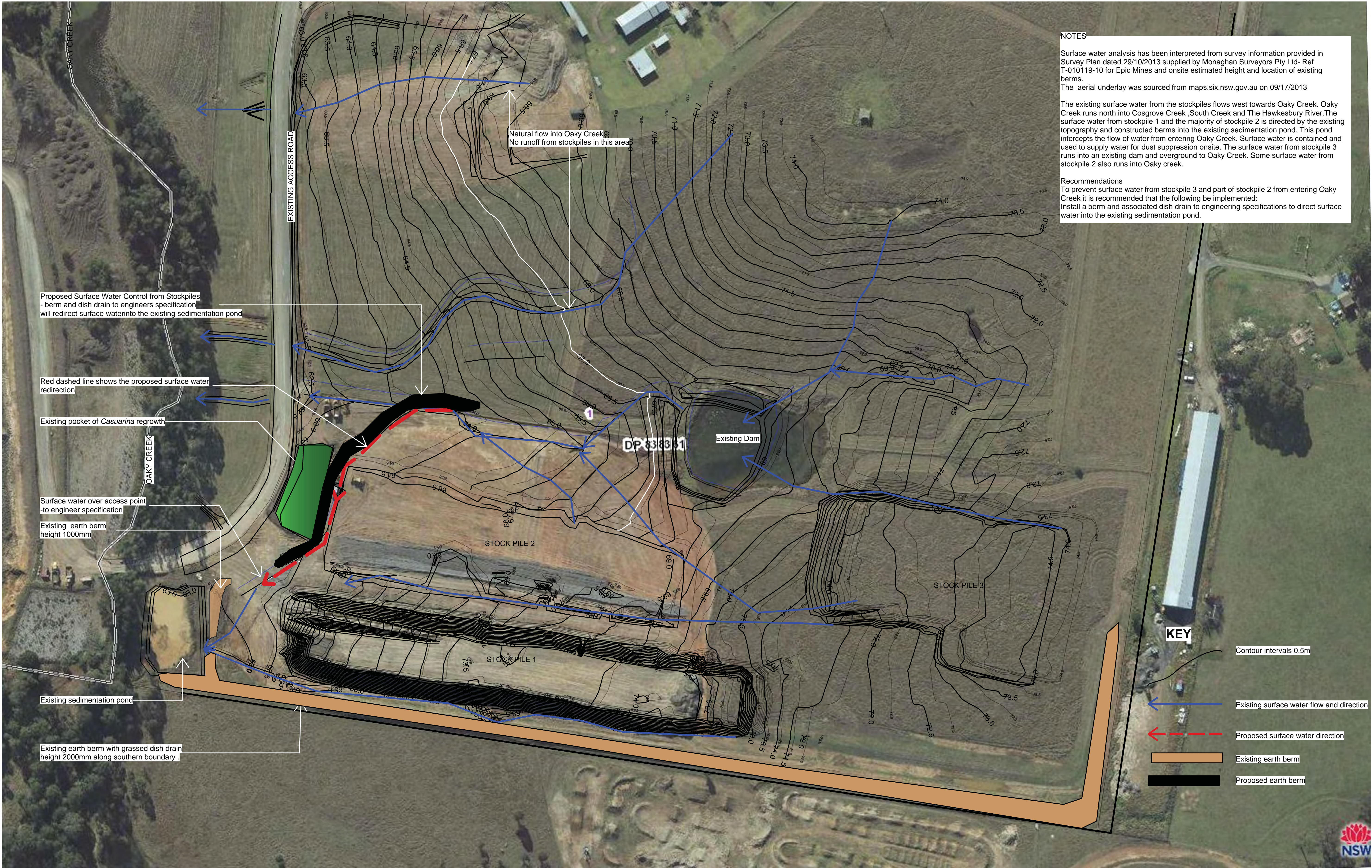


APPENDIX Q – Western Stockpiles Surface Water Management Illustration  
Eastern Stockpiles Surface Water Management Illustration

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**NOTES**

Surface water analysis has been interpreted from survey information provided in Survey Plan dated 29/10/2013 supplied by Monaghan Surveyors Pty Ltd- Ref T-010119-10 for Epic Mines and onsite estimated height and location of existing berms.

The aerial underlay was sourced from maps.six.nsw.gov.au on 09/17/2013

The existing surface water from the stockpiles flows west towards Oaky Creek. Oaky Creek runs north into Cosgrove Creek, South Creek and The Hawkesbury River. The surface water from stockpile 1 and the majority of stockpile 2 is directed by the existing topography and constructed berms into the existing sedimentation pond. This pond intercepts the flow of water from entering Oaky Creek. Surface water is contained and used to supply water for dust suppression onsite. The surface water from stockpile 3 runs into an existing dam and overground to Oaky Creek. Some surface water from stockpile 2 also runs into Oaky creek.

**Recommendations**

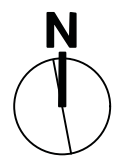
To prevent surface water from stockpile 3 and part of stockpile 2 from entering Oaky Creek it is recommended that the following be implemented:

Install a berm and associated dish drain to engineering specifications to direct surface water into the existing sedimentation pond.

- KEY**
- Contour intervals 0.5m
  - Existing surface water flow and direction
  - Proposed surface water direction
  - Existing earth berm
  - Proposed earth berm

**BioDesign**

P.O. Box 1685, Rozelle, NSW 2039  
T:9810 5500 E: design@biodesign.com.au www.biodesign.com.au



Epic Mining PTY Limited  
ABN 86144713931  
2420 Elizabeth Drive  
Badgerys Creek

PROJECT  
Stockpile  
Clay- Shale Extraction  
Epic Mines  
Lot 1 - DP 838 361  
Commonwealth Land

DRAWN  
WW

SCALE  
1:1000 @ A1

DATE  
25/11/13

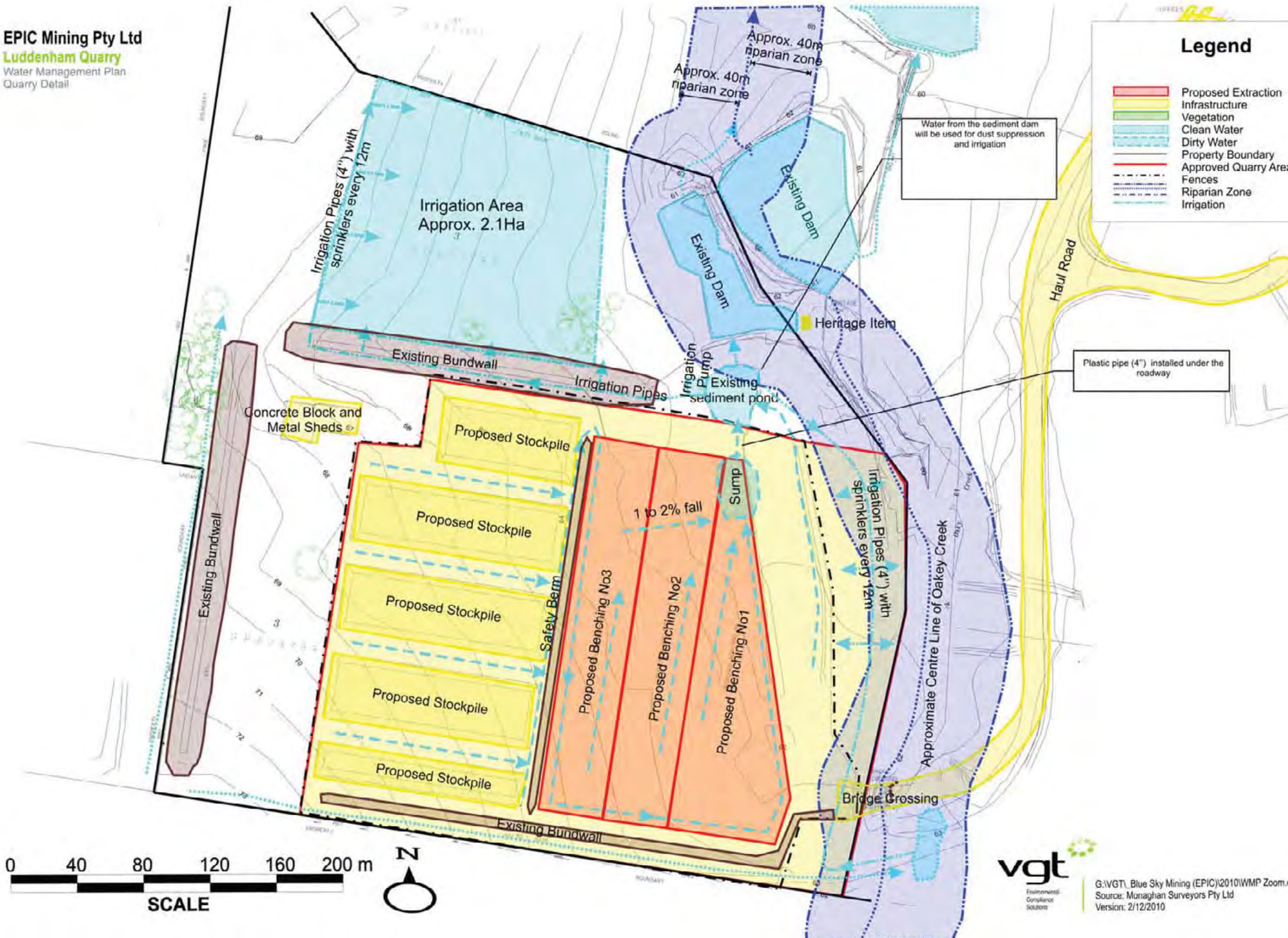
DWG NO

SW EM01

REV  
Rev 1 -12/12/2013

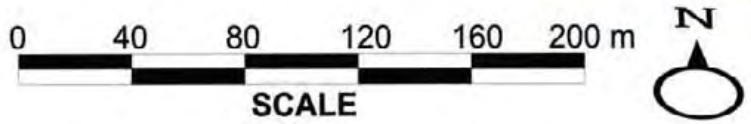
TITLE  
Surface Water Plan





### Legend

- Proposed Extraction Infrastructure
- Vegetation
- Clean Water
- Dirty Water
- Property Boundary
- Approved Quarry Area
- Fences
- Riparian Zone
- Irrigation



## APPENDIX R – Proposed Locations of Environmental Discharge & Monitoring Points



POINT ID	EASTING	NORTHING
D1	288909	6249690
D2	289843	6249430
D3	288675	6248860
D4	289502	6249145
N1	288909	6249690
N2	289843	6249430
N3	288950	6248930
N4	289547	6248773
WS1	289160	6249975
WS2	289200	6249110
WMS1	289410	6249615
BMS1	288990	6249230
BMS2	289197	6249323
BMS3	289193	6249376



EPIC MINING PTY LTD – 275 ADAMS ROAD, LUDDENHAM	PROPOSED ENVIRONMENTAL MONITORING POINTS	Ref:NICS142001_FIG002	Nicolas Israel – September 2014
Dust Monitoring Points - <span style="color:red">■</span>	Noise Monitoring Points - <span style="color:red">★</span>	Weather Monitoring Station - <span style="color:red">▲</span>	Groundwater Monitoring Bore - <span style="color:red">●</span>



#### APPENDIX S – Copy of Independent Environmental Auditor’s Report

# **INDEPENDENT ENVIRONMENTAL AUDIT**

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For Epic Mining

17/10/2013

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# AUDIT REPORT

An Environmental Management Audit of Epic Mining's operations and administration systems was undertaken on 17.10.2013, to satisfy the ongoing audit requirements of the NSW Government Department of Infrastructure, Planning and Natural Resources. This audit is based on the requirements listed in the Development Application and in conjunction with the standards for Environmental Auditing and Environmental Management Systems.

Based upon the evidence reviewed and the responses to questions raised during the audit, enquiries specific to external consultant reports and to system effectiveness, including the systems witnessed and from sampling records and documentation specific to the audit requirement of the D.A., plus the Environment Protection Licence conditions and the requirements of the requisite standards; it is my opinion that Epic Mining Pty Ltd's operations and environmental administration systems comply with the conditions and requirements stated within the above mentioned criteria.

During the audit it was noted that Epic Mining may wish to consider the following observations as possible opportunities for continual improvement of its Environmental Management System:

- Develop an Environmental Management Policy stating Epic Mining's commitment to environmental management as a base document supporting overall actions and activities for stakeholders including workers, contractors, the community and other interested parties.
- Establish a specific Environmental Accident/Incident reporting, investigation and corrective action plan for effective management of matters that may need appropriate action and follow through for operational and/or system improvement.



Neil Laidler MBA, BBus  
Principal Consultant  
Australian Workplace Management Pty Ltd  
Lead Auditor Quality, Safety and Environmental Management Systems  
Registered JAS-ANZ Auditor



# AUDIT REQUIREMENT

The NSW Government Department of Infrastructure, Planning and Natural Resources have requested an audit of Epic Mining's Environmental Performance. Amongst other things the request for an Independent Environmental audit includes, as per Schedule 6 of the DA, the following relevant items:

- c) Assess the environmental performance of the development, and its effects on the surrounding environment;
- d) Assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
- e) Review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and, if necessary,
- f) Recommend measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems.

An audit was undertaken at the Epic Mining site and office at 275 Adams Road, Luddenham NSW 2525 on 17<sup>th</sup> October 2013.

The audit was conducted with reference to the ISO 19011:2003 and in accordance with the requirements of ISO 14001:2004. Australia has adopted these international standards for auditing Environmental Management Systems.

## THE AUDIT PLAN AND AREAS COVERED

- Opening meeting;
- Scope and plan of audit;
- Discussion of DIPNR requirements;
- Viewing procedures processes, plans, reports, correspondences, legislative and regulatory requirements;
- Site tour, taking notes and photographs of operational activities including:
  - o Extraction
    - Extraction of clay and shale;
    - Loading of clay and shale;
    - Storage of clay and shale;
    - Bunding;
    - Dam rehabilitation;
    - Drainage works (stormwater run-off control);
    - Dust suppression;
    - Bio-diesel fuel storage;
    - Monitoring stations;
  - o Rehabilitation
    - Non-commercial composting of green waste;
    - Regeneration of riparian zone;
    - Irrigation of grassed area; and
    - Re-vegetation of areas previously disturbed.
  - o Administration, Workshop and Laboratory Activities
    - Storage of documentation;
    - Contractor management, induction package and awareness program; and
    - Equipment storage and servicing.

- Assess the environmental performance of the development, and its effects on the surrounding environment;
- Assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
- Review the adequacy of the Applicant's Environmental Management Strategy and Environmental Monitoring Program; and, if necessary,
- Recommend measures or actions to improve the environmental performance of the development, and/or the environmental management and monitoring systems.

The audit report has been arranged sequentially as per the table below listing the order within the standard of mandatory elements that must be observed within Environmental Management Systems, and covers the NSW Government Department of Infrastructure, Planning and Natural Resources requirements and the Environment Protection Licence for Epic Mining No. 12863 and the ISO 14001:2004.

Environmental Management Systems as relevant to the operations of the company.

Standard Reference	Requirements
4.3.1	Environmental Aspects
4.3.2	Legal and Other Requirements
4.3.3 4.4.7 4.5.1	Objectives, Targets and Programs Monitoring and Measurement Evaluation of Compliance
4.4.1	Resources, Roles and Responsibilities
4.4.2	Competence, Training and Awareness
4.4.3	Communication
4.4.4 4.5.4	Documentation and Records
4.4.6	Operational Control
4.5.2	Evaluation of Compliance
4.5.3	Corrective and Preventative Action Audit and System Review

# AUDIT FINDINGS

## 4.3.1 ENVIRONMENTAL ASPECTS

<b>Air:</b>	Dust
<b>Water &amp; Land:</b>	Discharge to waters and ground water
<b>Noise:</b>	Operations
<b>Community:</b>	Operations
<b>Flora and Fauna:</b>	Loss of Habitat

Positive impacts:

- Removal of rubbish and replanting indigenous species in riparian zone;
- Trial plot of casuarina self-germinated trees;
- Removal of dead trees and replacement with similar species from tube stock;
- Bunding: control run-off and erosion;
- Compost: green waste composted, mixed with clay and used as top dress for re-vegetation/rehabilitation;
- Re-vegetation of areas with grass;
- Noise attenuation walls at boundaries;
- Reuse of silt from dams, blended with saleable products; and
- Use of council green waste, composted on site, blended with unsaleable clay and used for re-vegetation projects;
- Grass in adjacent paddocks kept short to reduce the potential for pests, vermin and wildfires;
- All fuel used onsite is biodiesel – operation is carbon neutral.

The flora and fauna assessment notes:

“All the vegetation remnants that will be cleared have highly altered and disturbed structures. None of the plant or animal species recorded on the subject site were identified as rare or threatened”. (Section 5.2, second paragraph Flora and fauna assessment, prepared by Ambrose Ecological Services Pty Ltd).

No koala roost or food trees were found on the site.

Mine site- former cleared land, used for dairying, late horse grazing paddocks. Only “natural” vegetation was a section of creek, part of which had been dammed and site of rubbish tipped. Creek has been cleared of rubbish and dead trees, and planted with tube stock. Weed suppression remains a problem.

A trial plot exists of self-seeded casuarinas trees near the creek.

## 4.3.2 LEGAL AND OTHER REQUIREMENTS

Epic Mining operates within the requirements of:

- Protection of the Environment Operations Act NSW(1997);
- Work Health and Safety Act 2011;
- Environment Protection Licence No: 12863;
- Development Consent;
- Pollution Incident Response Management Plan;
- Emergency Response Plan;
- Vegetation Management Plan;
- Noise Management Plan; and
- Bushland Management Plan.

#### **4.3.3, 4.4.7 & 4.5.1 OBJECTIVES, TARGETS AND PROGRAMS, MONITORING AND MEASUREMENT & EVALUATION OF COMPLIANCE**

Objectives and targets appear within various management plans and as stipulated within the Environment Protection Licence.

A monitoring and reporting program has been prepared and implemented on site to obtain data for analysis and record results for comparative purposes against specified criteria expressed within the Environment Protection Licence requirements.

Mandatory monitoring is performed by specialized consultancies.

Sighted reports for specialised providers (see below).

All environmental monitoring requirements are performed as per the schedule within the Environment Protection Licence by third party consultants. Sighted records for the following:

##### **Air and Water Monitoring**

VGT Environmental Compliance Solutions.

NATA Accredited Laboratory – 15230.

Engaged to collect samples of dust from 5 static monitoring stations on a monthly basis, and PM10 monthly at positions 2 and 4 setup for a 24 hour basis. (Refer to site plan).

On some occasions the results appear to be marginally outside of the target range for dust, however the reports qualify these results as influenced by random events of contamination (e.g. bird droppings, feathers, and insects).

Also engaged to collect water samples (grab samples) from up-stream and downstream the creek that runs through the property. (Licence requirement). The site operators also voluntarily obtain further water sampling from all the dams onsite at the same frequency.

##### **Noise Monitoring**

Global Acoustics Pty Limited.

Environmental Noise Modelling and Impact Assessment providers.

Engaged to collect samples of noise across 5 static monitoring stations on a quarterly basis.

Records examined show that sample results are mainly within the specified criteria.

Reports are analysed upon receipt for areas requiring attention. Variances are reported to the NSW Environment Protection Authority in Parramatta, when the analysis results become available.

#### **4.4.1 RESOURCES, ROLES AND RESPONSIBILITIES**

Epic Mining have a flat but effective management structure. The Quarry is driven by the pro-active on-site presence of the Operations Manager who is responsible for the day-to-day activities of the operations and administrative functions.



The organization is well resourced, as evidenced by current IT technologies, modern communications, including two-way radios onsite, offices, amenities, repair and maintenance facilities.

#### **4.4.2 COMPETENCE TRAINING AND AWARENESS**

The Operations Manager has a Bachelor of Applied Science, and has extensive relevant industry experience. He has been previously employed in the following roles:

- Concrete and soil tester 1997-1998;
- Raw materials and quarry supervisor 1998-2000;
- Raw materials manager 2000-2006;
- Operations Manager for Lion Quarries 2006-2009;
- Safety Advisor and Consultant for the development of safety systems and protocols; and
- Operations Manager of Epic Mining.

His qualifications, academic and professional experience, and demeanor show that he is qualified and competent in his role as Operations Manager.

#### **4.4.3 COMMUNICATION**

Epic Mining adequately demonstrated various communication methods, contract and information dissemination via tool box meetings, inductions, agreements, reports, minutes of management meetings, diary notes, contents of registers, reports from consultants and Epic Mining reports to authorities.

Community meetings between the Manager, neighbours and other interested parties were discontinued after poor attendance. The Operations Manager now visits the five neighbouring property owners/residents on a regular basis, to listen to any of their concerns.

Regular communication and consultation with the NSW Environment Protection Authority who is the Appropriate Regulatory Authority, under the Protection of the Environment Operations Act 1997, for the activities conducted on site.

The NSW Police have expressed an interest in using the mine site for training purposes, including search and rescue exercises.

The Rural Fire Service has been in touch about using the water in the dams for aerial fire-fighting.

#### **4.4.4 & 4.5.4 DOCUMENTATION AND RECORDS**

The organization maintains files and registers containing recorded evidence of its responsibilities and obligations. Sighted within the Administration Office were consultants' reports, correspondence, test and monitoring results, etc. Files are securely maintained within the administration office which is locked when the Operations Manager is not in attendance. The building is secured with barred numerals and other security systems.

#### **4.4.6 OPERATIONAL CONTROL**

The organization has identified activities that are associated with specific environmental aspects and impacts. Accordingly, specific procedures have been established, implemented and maintained to reduce the likelihood and to effectively control situations that could lead to unintended consequences.

#### **4.5.2 EVALUATION OF COMPLIANCE**

The organization undertakes reviews regularly to monitor environmental performance data. External consultants monitor licence requirements and regularly report results. These results are collated by Epic Mining to check that performance is within the necessary tolerances and ranges. Variations are explained. The results are collated and sent to the NSW EPA as part of the reporting requirements included in the EPL 12863.

#### **4.5.3 CORRECTIVE AND PREVENTATIVE ACTION & AUDIT AND SYSTEM REVIEW**

It was evident that system elements are reviewed and re-evaluated, e.g. Road Transport Protocol', (November 2010), and the contractor management systems.

Additionally regular audits are undertaken by other interested parties ensuring compliance with a wider range of obligations, eg. Department of Primary Industries, NSW EPA, and inspection by the Federal Government over the stockpile lot, as Managing Agent, via the Department of Infrastructure and Transport.

## RECORDS AND REPORTS REFERENCED

1. Environment Protection Licence  
Number 12863  
Anniversary date 05 - June  
Licence Version Date 28 – November - 2011
2. Dust Monitoring Reports  
Prepared by: VGT Environmental Compliance Solution  
PO Box 2335  
Greenhills NSW 2323
3. Water Testing Results  
Prepared by: VGT Environmental Compliance Solution  
PO Box 2335  
Greenhills NSW 2323
4. Noise Report  
Prepared by: 'Global Environmental Solutions'  
SLR Consulting Australia P/L  
Prepared By: Global Acoustics Pty Ltd
5. Vegetation Management Plan for a Shale Quarry.  
Adams Road, Luddenham  
Prepared by: UBM Ecological Consultants  
Building P5, Yarramundi Road  
  
University of Western Sydney (Hawkesbury)  
PO Box 652  
Richmond NSW 2753
6. Community meeting notes –up to late 2010, when the manager began regular visits to the occupants of the 5 neighbouring properties.
7. Flora and Fauna Assessment  
Prepared by: Ambrose Ecological Service Pty Ltd
8. Road Transport Protocol, November 2010  
Prepared by: Samuel Tarabori  
Approved by: Dennis Pethybridge
9. Noise Management Plan  
Prepared by: Golder Associate  
December 2009
10. Site Rehabilitation Plan  
Prepared by: Conacher Environmental Group  
April 2009
11. Bushland Management Plan  
Prepared by: Ambrose Ecological Service Pty Ltd  
October 2001

12. Acoustic Assessment  
Prepared by: Douglas Nicolaisen and Associates  
December 2002
13. Contractor Management Part 1 & Part 2  
Induction Package  
Mine Safety Management Plan  
Prepared by: Samuel Tarabori  
March 2010
14. Emergency Response Plan  
Prepared by: Samuel Tarabori  
May 2012
15. Pollution Incident Response Management Plan  
Prepared by: Samuel Tarabori  
May 2012
16. Mines Operations Plan  
Prepared by: Samuel Tarabori  
November 2010