

ASSESSMENT REPORT

LUDDENHAM CLAY/SHALE QUARRY Activities and Sequencing Modification (315-7-2003 MOD 3)

1 BACKGROUND

Epic Mining Pty Ltd (Epic Mining) owns and operates a clay/shale quarry, located at 275 Adams Road, Luddenham. The quarry site is situated approximately 3 kilometres (km) northeast of Luddenham in the Liverpool local government area (see **Figure 1**). The excavated clay/shale is used for the manufacture of dark and light coloured bricks and tiles in nearby brickworks.

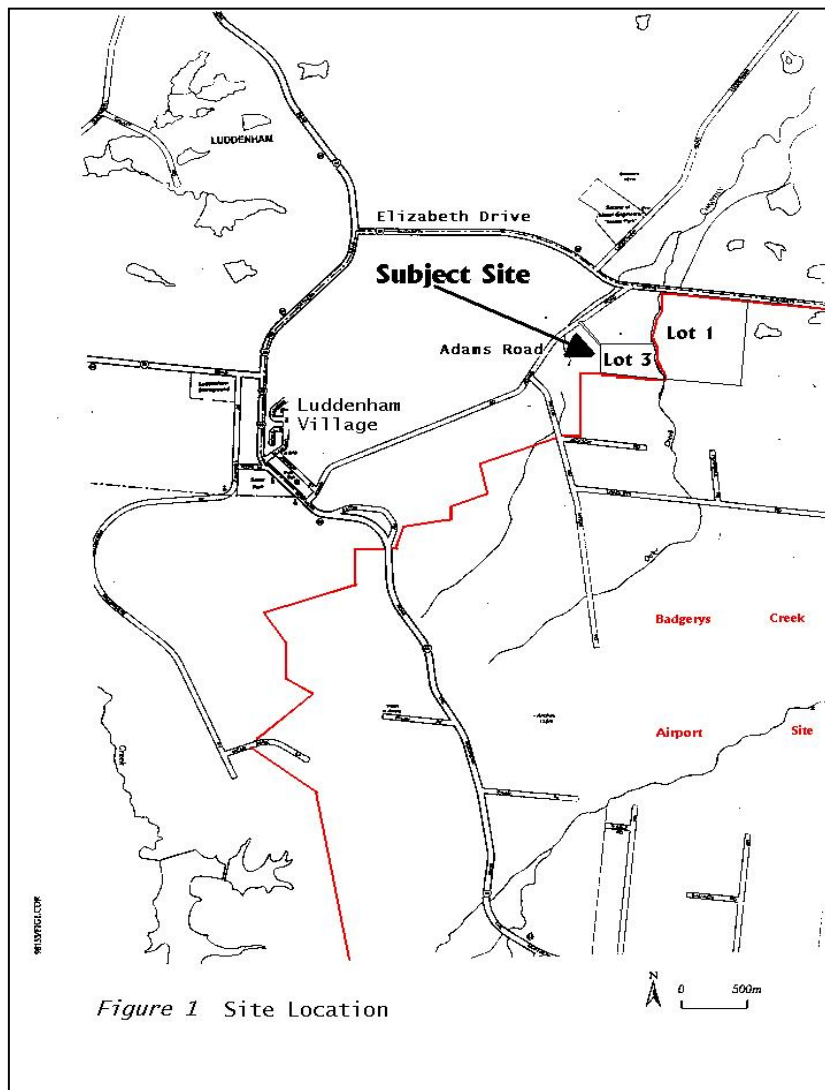


Figure 1: Regional Location

Development consent for the quarry was granted to Badger Mining Company Pty Limited on 23 May 2004, by the then Minister for Infrastructure, Planning and Natural Resources. The consent was acquired by Blue Sky Mining Pty Limited when the quarry commenced operations in January 2010, shortly before Epic Mining then took over the quarry site. The development consent permits the development and operation of a clay/shale quarry on Lot 3, DP 623799 (owned by Epic Mining) and the construction and use of an access road and service facilities on Lot 1, DP 838361 (owned by the Commonwealth of Australia). Under the development consent, Epic Mining is permitted to:

- produce a maximum of 300,000 tonnes per year of any combination of quarry products from the quarry; and
- transport the extracted material off-site, using an approved access road to Elizabeth Drive.

The development consent for the quarry has been modified on two previous occasions:

- MOD 1 (approved 4 January 2006) – to relocate the proposed internal access road crossing of Oak Creek 200 metres (m) south of the originally proposed location; and
- MOD 2 (approved 28 January 2010) – to construct additional noise attenuation bunds, amend the date of the first independent environmental audit and extend the development consent lapse date to 31 December 2024.

The existing operations involve extraction from the eastern part of the quarry pit and stockpiling of quarry products prior to dispatch by road. The clay/shale products are transported to local brickworks via the approved access road to Elizabeth Drive (see **Figure 2**). The quarry extraction area is bounded to the north and west by a 4 m high earth bund, which provides an acoustic shield for residences located to the west of the quarry. The approved site layout is shown on **Figure 3**.

Epic Mining currently leases part of Lot 1, DP 838361 from the Commonwealth (see **Figure 4**). This parcel of land forms part of the approved Badger's Creek airport site. Epic Mining has been advised that the airport construction would not directly encroach on the areas currently used for temporary stockpiling activities at this stage. All private residents located on this land have been requested to vacate the land by June 2015. This will effectively reduce the number of sensitive receivers to the east of the quarry.

2 PROPOSED MODIFICATION

Epic Mining is seeking to modify its development consent under the former section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in relation to activities on the site including the:

- extraction sequencing;
- temporary stockpiling of excavated material within the approved quarry footprint on Lot 1;
- composting activities on Lot 1 for use in on-site rehabilitation and landscaping; and
- environmental monitoring program and monitoring locations.

The proposed operations would be the same as the approved operations, except for the need for interim stockpiling of product rather than the immediate transport of excavated materials off-site. This step is required to allow the freshly quarried material to "sour" (ie allowing trapped salts to leach out) which is required before the material can be used in brickmaking. The main components of the proposed modification are detailed below and described in Epic Mining's supporting Environmental Assessment (EA) (see **Appendix A**).

Temporary Product Stockpiles and Quarry Extraction Sequence

Although temporary stockpiling of materials for souring purposes is a standard procedure in clay/shale quarrying operations, this activity was not described in the original EIS for the project. Epic Mining has identified the need to temporarily stockpile selected excavated materials, both on-site within the approved quarry footprint and on the adjacent Lot 1 prior to transportation off-site. Some of this material has already been stockpiled (see **Figure 2**). Epic Mining is now seeking approval for these temporary stockpiles, through a modification of its development consent.

The maximum area that is likely to be used for stockpiling activities is 60,000 m² within the approved quarry footprint and 140,000 m² on Lot 1. However, on average the areas used for stockpiling are estimated to be 50% smaller. Epic Mining proposes to stockpile up to 100,000 m³ of clay and shale product within the approved quarry footprint and up to 190,000 m³ on Lot 1. Due to the nature of the stockpiling activities, these volumes are likely to vary at any given time and the typical volumes of product stockpiled are likely to be much lower. The maximum height of the stockpiles would be 5 m.



Figure 2: Local Context and Surrounding Land Uses



Figure 3: Approved Site Layout

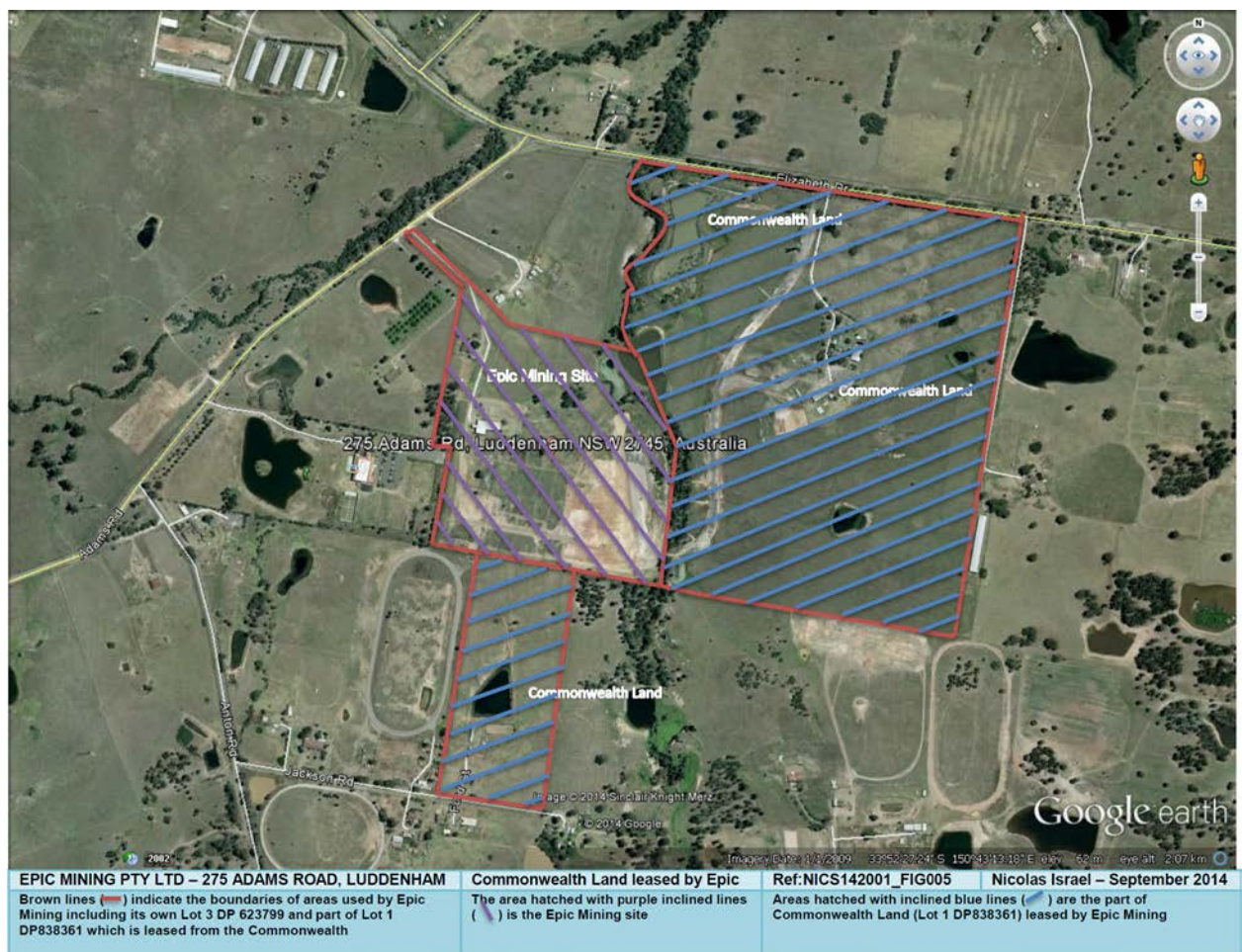


Figure 4: Commonwealth Land Leased by Epic Mining

Epic Mining is also seeking to revise its quarrying extraction sequence, which involves extraction of material in stages with benches progressing from east to west (ie in the opposite direction to the approved extraction sequence). Only two benches would be quarried at any one time. No changes to the approved quarrying footprint (including pit depth) are proposed.

On-site Composting

Epic Mining undertakes composting activities on Lot 1 for use as part of landscaping and rehabilitation works (see **Figure 2**). Epic Mining is seeking approval for this activity through a modification to the development consent.

Environmental Monitoring

Epic Mining is seeking a modification to its environmental monitoring program, specifically to remove the requirement to undertake noise and air quality monitoring at the Hubertus Country Club, located west of the quarry.

The proposed modified quarry layout is shown on **Figure 5**.

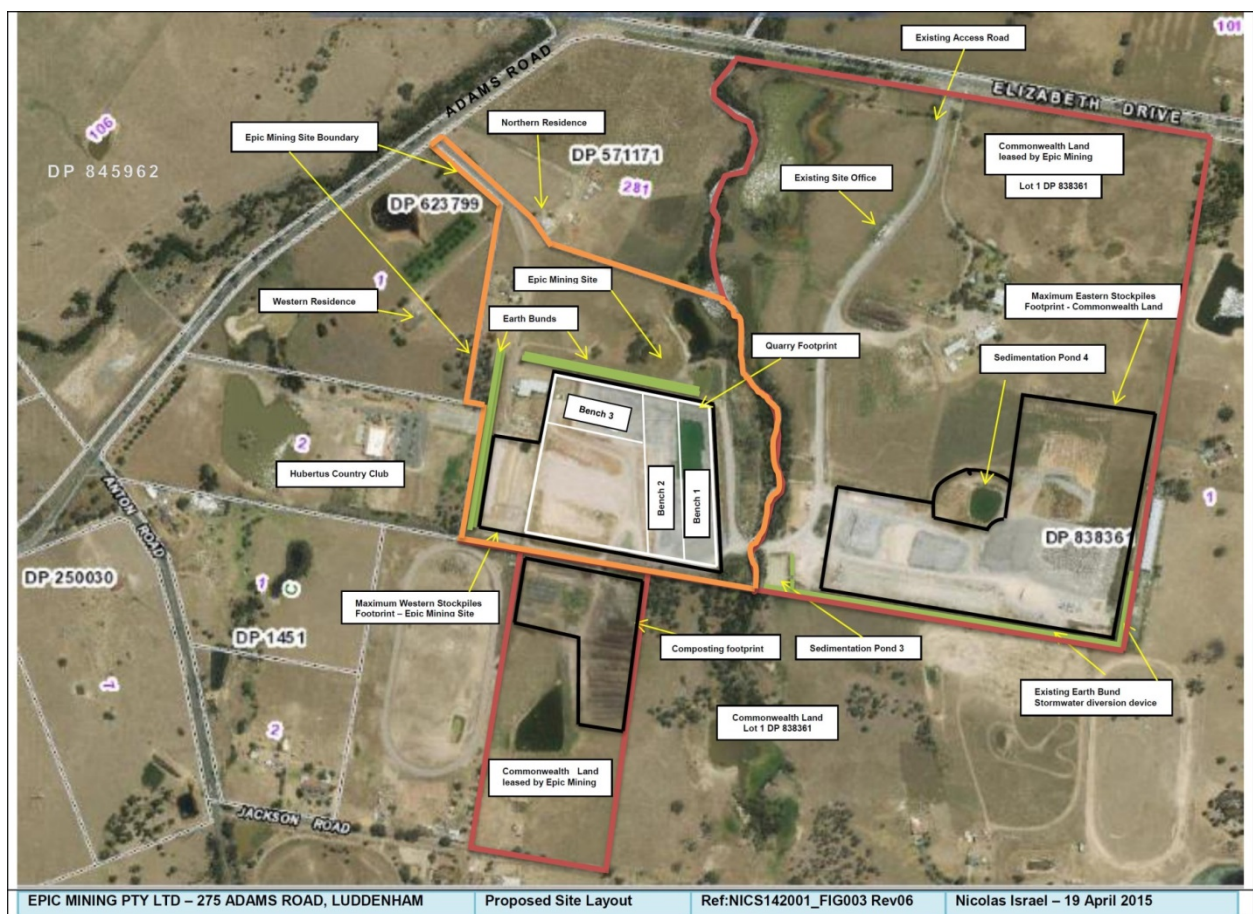


Figure 5: Modified Quarry Layout

3 STATUTORY CONTEXT

3.1 Section 75W

The quarry was originally approved under Part 4 of the EP&A Act. However, under clause 8J(8)(c) of the *Environmental Planning and Assessment Regulation 2000*, all existing consents for State significant development (ie those which were State Significant Development prior to the introduction of Part 3A) are to be modified under Section 75W of the EP&A Act. Since Part 3A of the EP&A Act (which includes section 75W) has been repealed, the Luddenham clay/shale quarry is subject to the transitional provisions in Schedule 6A of the EP&A Act. These require that any modification to the development consent must continue to be made under the former section 75W.

The Department is satisfied that the proposal can be characterised as a modification to the approved project rather than a new project. The proposed modification is minor in nature and would not lead to:

- changes to the extraction methods or operating hours;
- changes in the approved quarry extraction area nor volume of resource to be extracted; or
- appreciable increases in environmental impacts associated with the existing development.

Given these considerations, the Department is satisfied that the proposal is within the scope of the former section 75W, and may be determined accordingly.

3.2 Permissibility

The permissibility of activities undertaken and proposed to be undertaken on the site is principally controlled by the *Liverpool Local Environmental Plan 2008* (the LEP). Under the LEP, Lot 3 is zoned RU1 Primary Production and development for the purpose of extractive industries is permitted within this zone.

Lot 1 is within Zone SP1 Special Activities, which relates to the much larger area of land owned by the Commonwealth and intended to be used for the Badgerys Creek airport. Development is permitted with consent within this zone solely for the purpose of 'Commonwealth activities', including development that is ordinarily incidental or ancillary to such development. The Commonwealth has leased particular parts of Lot 1 to Epic Mining for purposes related to its quarrying activities on Lot 3, including the stockpiling and composting activities. Since these activities are taking place with the agreement of the Commonwealth, they must be construed as 'Commonwealth activities' and/or development that is ordinarily incidental or ancillary to such development, and therefore as permissible with consent.

3.3 Approval Authority

The Minister for Planning is the approval authority for the proposed modification. However, under the Minister's delegation dated 16 February 2015, the Director Resource Assessments who reports to an Executive Director in the Planning Services Division can determine the application because:

- Liverpool City Council (Council) did not object to the proposed modification;
- there were no public submissions in the nature of objections; and
- Epic Mining has not declared any reportable political donations.

3.4 Environmental Planning Instruments

A number of environmental planning instruments (EPIs) apply to the modification, including:

- SEPP (*Mining, Petroleum and Extractive Industries*) 2007 (the Mining SEPP);
- SEPP (*Sydney Region Growth Centres*) 2006;
- SEPP No. 33 – *Hazardous and Offensive Development*;
- SEPP No. 55 – *Remediation of Land*;
- *Sydney Regional Environmental Plan No. 9 Extractive Industries*; and
- *Liverpool Local Environmental Plan 2008*.

The Department has assessed the modification against the relevant provisions of these EPIs, as well as Epic Mining's consideration of these matters in its EA. The Department is satisfied that they either do not apply to the proposed modification or do not substantially govern the carrying out of the development. Based on this assessment, the Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

4 CONSULTATION

After accepting the EA for the proposed modification, the Department:

- publicly exhibited the EA from Wednesday 3 December 2014 until Tuesday 16 December 2014 on the Department's website and at the:
 - Department's Information Centre;
 - Council's office; and
 - Nature Conservation Council's office;
- advertised the exhibition of the EA in the *Liverpool Leader* and *Liverpool Champion*; and
- notified relevant State government agencies and Council.

5 SUBMISSIONS

The Department received a total of 5 submissions on the proposal (see **Appendix B**), all of which were from State government agencies, as follows:

- Division of Resources and Energy (DRE) within the Department of Trade and Investment, Regional Infrastructure & Services;
- Office of Environment and Heritage (OEH);
- Roads and Maritime Services (RMS);
- Sydney Catchment Authority (SCA); and
- Environment Protection Authority (EPA).

5.1 Government Agencies

None of the government agencies objected to the proposed modification. No submission was received from either the NSW Office of Water or Council.

EPA was the only agency that raised any issues in its submission and requested further clarification regarding the on-site composting activities and amended environmental monitoring program. EPA indicated that it had no objections to either the proposed temporary stockpiling activities or environmental monitoring locations. However, EPA sought clarification of the locations of the water sampling points and ground water monitoring bores. It noted that proposed monitoring locations reported in the EA were different from existing locations and that there was insufficient information provided to justify the changed monitoring locations.

5.2 Response to Submissions (RTS)

In January 2015, Epic Mining submitted a response to the issues raised in submissions (see **Appendix C**) which was made publicly available on the Department's website.

Epic Mining clarified that there were no changes to the locations for water sampling points and groundwater monitoring bores, as questioned by EPA (and that the discrepancies between proposed and existing locations were an error).

The RTS was forwarded to EPA to determine whether it had any residual concerns about the proposed modification. The EPA provided the following comments and recommendations:

- the composting activities do not exceed the licensing thresholds under the POEO Act, although the scale of the activities is significant and would be added to the site's Environment Protection Licence 12863;
- the composting activities exceed the threshold for waste disposal and must be licensed, unless subject to an exemption under the *Recovery Compost Exemption 2014* under the *Protection of the Environment Operations (Waste) Regulation 2014*; and
- the proposed modification is likely to result in changes to noise emissions from the site; therefore quarterly noise monitoring should continue for a period of 12 months if the modification is approved, after which time the frequency of monitoring may be reviewed and reduced if appropriate.

The EPA's recommendations regarding noise monitoring have been considered in Section 6.2.

6 ASSESSMENT

In assessing the merits of the proposed modification, the Department has considered the:

- original environmental impact statement (EIS) and existing conditions of consent for the quarry;
- EA for the modification (see **Appendix A**), submissions (see **Appendix B**) and RTS (see **Appendix C**);
- relevant content of previous environmental assessments for the project, current environmental management plans and monitoring results;
- provisions of relevant EPIs, policies and guidelines; and
- relevant provisions of the EP&A Act, including the objects of the Act.

The Department considers that the key assessment issues relating to the modification are the potential surface water, noise and dust impacts associated with the proposed temporary stockpiling activities. The findings of the Department's assessment are summarised below.

6.1 Surface Water

The EA includes an assessment of potential impacts on surface water resources and revised surface water management plans for both the quarry extraction area and the temporary stockpiling and composting areas on Lot 1.

Water management at the site is well established and the existing operations are managed under the quarry's Water Management Plan, with no discharge occurring from the site, including nil discharge to Oaky Creek. Oaky Creek is an ephemeral drainage line at the upper end of the Cosgroves Creek catchment (part of the Hawkesbury – Nepean River catchment) which is located between the existing quarry extraction area and Lot 1 (see **Figure 2**).

Water Quality

The temporary stockpiling and composting activities have the potential to generate increased levels of sediment and contaminant laden runoff into Oaky Creek.

Surface water runoff from the quarry's operational areas is currently managed via the use of clean and dirty water diversion drains, sediment and barrier fencing, earth banks, swales and sedimentation ponds. In order to prevent the contamination of clean water and ensure compliance with statutory obligations, Epic Mining proposes to continue to operate the existing site water management system and integrate additional erosion and sediment controls into the system to manage runoff associated with the temporary stockpiling areas, particularly on Lot 1. These controls include:

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

Clean water would continue to be diverted around the site via earth bunds and dish drains. Surface waters from undisturbed areas would continue to flow to Oaky Creek as uncontaminated stormwater. Surface water runoff from the quarry extraction area would continue to flow directly into the main pit sump then into sedimentation ponds 1 and 2. No creek water flows directly into or through these sedimentation ponds. All surface water collected within the working area of the excavation site is to be retained and used for on-site dust suppression, stockpile conditioning and vegetation rehabilitation when required.

Surface water runoff from the proposed stockpiling area, located in the southwest portion of Lot 1, immediately west of the quarry site would be directed via existing and proposed earth bunds directly into sedimentation ponds 3 and 4. No discharge would occur to Oaky Creek. The stockpiles have also been oriented in an east-west direction, in order to assist surface water management.

The composting material stored on Lot 1 immediately to the south of the extraction area would generally absorb rainwater, under normal weather conditions. This would therefore reduce runoff from the composting area. Any stormwater runoff would be captured and diverted into the quarry's site water management system. The Department notes that composting is regulated under the *Protection of the Environment Operations Act 1997* (POEO Act). The quarry would continue to be operated in a manner that results in nil discharge of water to Oaky Creek.

A conceptual water management plan for the quarry site is shown on **Figure 6**. The proposed water management plan for the stockpile area on Lot 1 east of the quarry is shown in **Figure 7**.

Site Water Balance

The site has a minimum water requirement of approximately 25 megalitres per year (ML/year), which is currently sourced from runoff water collected in the pit sump or from the existing sedimentation ponds. The EA estimates up to 30 ML/year would be required for the proposed modification, due to the need to water the stockpiled raw materials to assist in dust suppression and for fretting and souring in the short-term. Surface water runoff from the quarry site is 3.22 ML for a typical 5 day 90th percentile rainfall event.

The Department notes that a comprehensive refurbishment of sedimentation ponds 1, 2, 3 and 4 has recently occurred, involving de-silting to increase capacity, shore stabilisation and compaction of the bottom and side walls. The current combined capacity of the pit sump and sedimentation ponds 1, 2 and 3 is 221 ML. The pit sump is capable of holding 50 times the typical rainfall event volume and the capacity of sedimentation ponds 1 and 2 is sufficient to hold 8 times this volume.

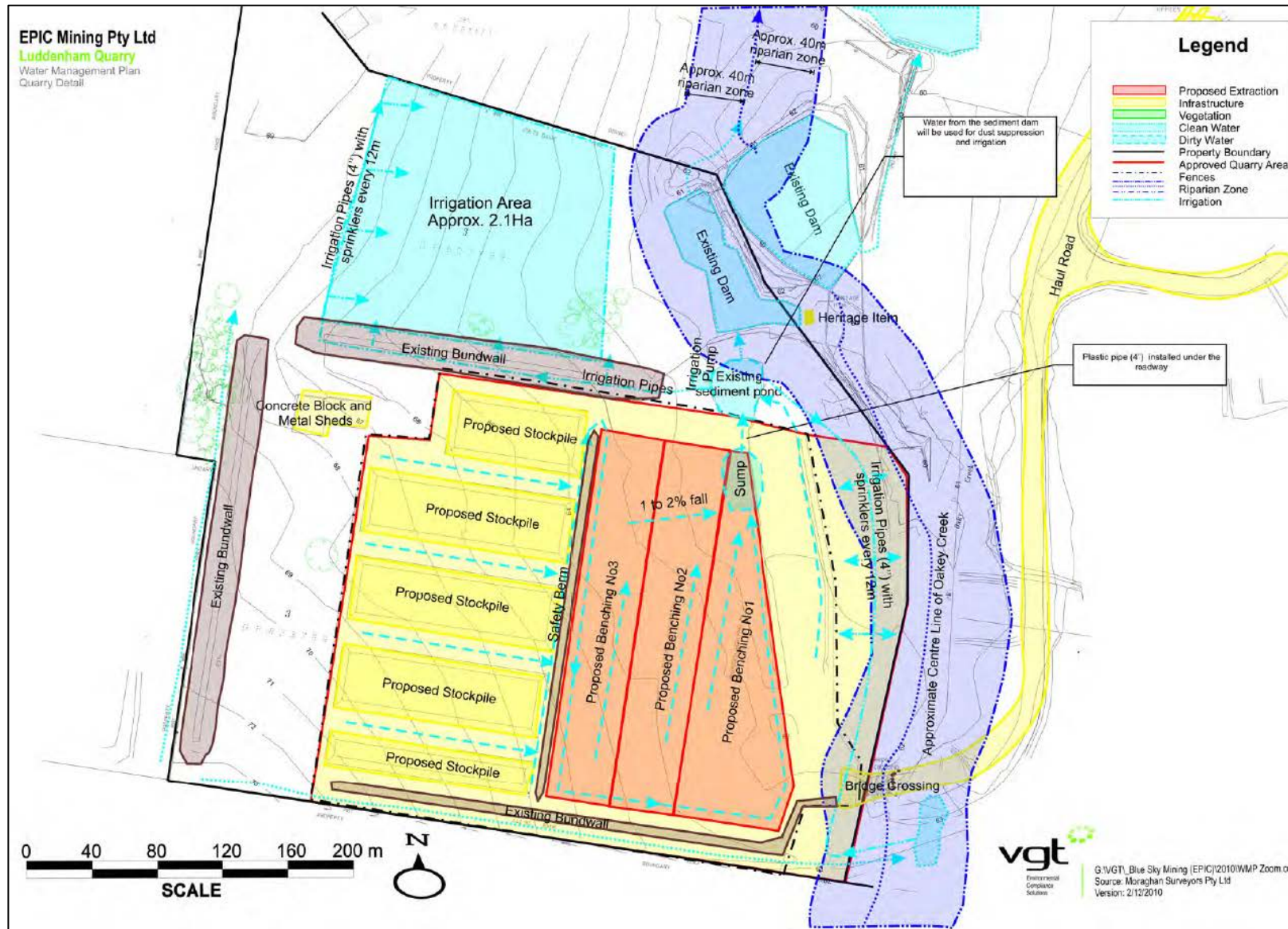


Figure 6: Conceptual Water Management Plan – Quarry Site (Lot 3)

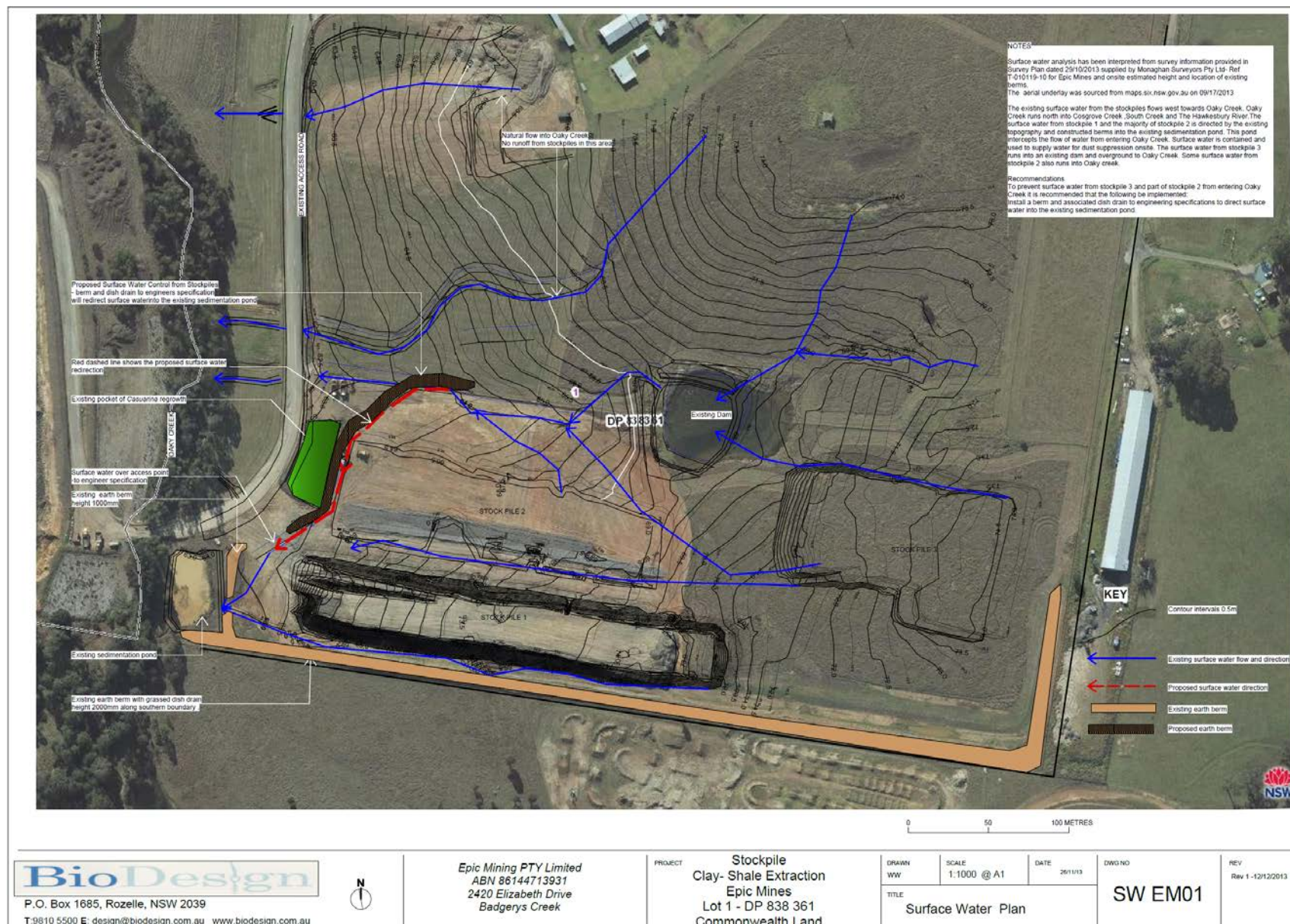


Figure 7: Proposed Water Management Plan – Commonwealth-owned Land

Sedimentation pond 3 has a capacity of 3 times the annual rainfall at 100% runoff.

The change in extraction sequence (ie moving in a westerly direction) means the capacity of the excavated cell would continue to increase and be able to hold and store more surface water runoff. Should additional water be required during dry periods, Epic Mining proposes to source this water from the existing farm dams located on Lot 1.

Conclusion

It is the Department's view that the site water management system for the site has been effective in avoiding potential impacts of erosion and sedimentation on surface water resources. The proposed modification would not result in any significant change to the approved quarrying footprint, therefore would not significantly increase surface water runoff collection. No water has been discharged from the site since the commencement of the project; and monitoring conducted both upstream and downstream of the quarry on Oaky Creek has not identified any adverse impacts on surface water quality attributable to the quarry operations.

To ensure that the proposed stockpiling and composting activities are undertaken in a manner that minimises potential impacts on water resources, the Department has recommended that Epic Mining update the project's Water Management Plan in consultation with EPA and NOW, with a particular emphasis on updating the erosion and sediment controls.

6.2 Noise

Epic Mining has a noise monitoring program to monitor the quarry's noise impacts. Noise monitoring is currently undertaken at 5 locations surrounding the site, including the Hubertus Country Club. The results of noise monitoring undertaken to date have indicated that noise levels have remained well below the relevant noise criteria. The Department also acknowledges the ongoing performance of the existing noise attenuation bunds which provide an acoustic shield for residences to the north and west of the quarry.

However, the Department notes that Epic Mining has not explicitly assessed the impacts of the change in the quarrying extraction sequence. Notwithstanding, the noise assessment notes that there is potential for an exceedance of the noise criteria by approximately 3 dB(A), should the following activities be undertaken at the same time:

- quarrying activities at the surface or to about 2 m below the surface;
- materials being transported to one of the stockpiling areas; and
- other materials being removed from the other stockpiling area and transported off-site.

Whilst such a scenario is unlikely, the Department recommends that the existing consent condition limiting the use of mobile equipment to 1 truck and 1 excavator when extraction operations are being undertaken in the western area of the quarry pit (until the quarry floor is at least 1.5 m below the existing ground level) is retained for the changed extraction sequence proposed. This will ensure the amenity of nearby residences is protected (particularly at North House). Overall, the Department is satisfied that the proposed modification would not result in significant noise impacts on surrounding residences.

Epic Mining is also seeking to reduce the number of noise monitoring locations from 5 to 4, by discontinuing monitoring at the Hubertus Country Club. The Department accepts Epic Mining's justification for discontinuing monitoring at the Country Club, given that monitoring results from this location are heavily influenced by localised activities and are not considered representative of emissions from the quarry's operations. The Department considers that the quarry's noise impacts can be adequately monitored at the remaining 4 monitoring locations, given the history of compliance, the limited number of residences surrounding the quarry (none of which has raised concerns regarding noise) and the planned future changes in land use on the adjacent Commonwealth-owned land. The Department also notes that EPA has now accepted the reduction in noise monitoring locations.

Under the existing conditions of approval, Epic Mining is required to undertake quarterly noise monitoring. EPA has recommended that quarterly noise monitoring should continue for a period of 12 months following approval of the proposed modification, after which the frequency of monitoring may be reviewed and reduced if a history of compliance has been established. Epic Mining has agreed to this proposed recommendation.

Conclusion

The Department has recommended a condition requiring Epic Mining to update the project's Noise Management Plan to reflect the proposed modification.

6.3 Air Quality

The proposed temporary stockpiling activities have the potential to generate increased levels of dust and a reduction in air quality at surrounding residences.

Epic Mining monitors the quarry's air quality impacts through a series of 5 dust deposition gauges. The results of air quality monitoring undertaken to date have indicated that average deposited dust levels have remained well below the relevant dust deposition criteria. Epic Mining proposes to continue to implement a range of dust mitigation measures for the quarry, including:

- use of water carts on unsealed haul roads;
- ensuring there is continuous availability of water in the ponds for dust suppression purposes;
- prompt stabilisation of all excavated areas to reduce dust emissions;
- rehabilitation of disturbed areas; and
- restrictions on speed limits (20 km/h) for vehicles travelling within the site.

The Department accepts that, given the nature of the material (clay and shale), there is limited opportunity for dust generation as a result of the proposed stockpiling activities. With the implementation of the proposed dust mitigation measures, the Department is satisfied the proposed modification would not result in significant air quality impacts at surrounding residences.

Similarly to the justification provided for the reduced noise monitoring program, the Department accepts Epic Mining's justification for discontinuing dust monitoring at the Hubertus Country Club, given the monitoring results are heavily influenced by localised activities and not considered representative of contributions from the quarry's operations. The Department considers that the quarry's dust impacts can be adequately monitored via the remaining network of four dust gauges, given the history of compliance, the limited number of residences surrounding the quarry (none of which has raised concerns regarding air quality) and the planned future changes in land use on the adjacent Commonwealth-owned land. The Department also notes that EPA has no objection to the proposed monitoring network.

Conclusion

The Department has recommended a contemporary condition requiring Epic Mining to update the project's Air Quality Monitoring Program for the proposed modification.

6.4 Other Issues

The Department's assessment of other issues is set out in **Table 1**.

Table 1: Assessment of Other Issues

Issue	Potential Impact and Assessment	Conclusion and Recommendation
<i>Rehabilitation</i>	<ul style="list-style-type: none"> • Epic Mining proposes to undertake small scale composting activities on Lot 1. • The composted material is proposed to be used in rehabilitation works and considered to be a component of site rehabilitation. 	<ul style="list-style-type: none"> • The Department has recommended that Epic Mining review and update the quarry's Rehabilitation Plan to reflect the on-site composting activities. • No additional conditions or amendments are considered necessary.
<i>Heritage</i>	<ul style="list-style-type: none"> • No items of Aboriginal cultural heritage significance are located within the proposed temporary stockpiling areas. The only known site of Aboriginal significance near Oak Creek would continue to be managed in accordance with existing consent conditions. • No European heritage items are located on or in the vicinity of the site. 	<ul style="list-style-type: none"> • The Department is satisfied that the proposed modification would not result in any significant impacts on Aboriginal cultural heritage. • No additional conditions or amendments are considered necessary.
<i>Visual</i>	<ul style="list-style-type: none"> • Site topography and the existing noise attenuation bunds predominantly shield views of the temporary stockpiles, particularly when viewed from the north and west. • While the stockpiles would be visible from Lot 1 to the south and east, visual impacts would be short-term, given the approved airport development. The airport development also limits the capacity for Epic Mining to implement any additional visual mitigation measures such as tree planting on Lot 1. 	<ul style="list-style-type: none"> • Given the temporary nature of the stockpiles, the existing visual screening effects of the noise attenuation bunds and the pending airport development on Lot 1, the Department is satisfied that the proposed modification would have negligible visual impacts. • No additional conditions or amendments are considered necessary.

7 RECOMMENDED CONDITIONS

The Department has prepared a Notice of Modification (see **Appendix D**) to reflect the proposed modification and provide updated and contemporary conditions of consent. It has also prepared a consolidated development consent (see **Appendix E**) which reflects the changes to the development consent resulting from the Notice of Modification.

Epic Mining has reviewed and accepted the recommended conditions of consent.

8 CONCLUSION

The Department has assessed the merits of the modification application and its supporting EA, the submissions received and the RTS, in accordance with the relevant requirements of the EP&A Act.

The assessment found that the environmental impacts of the modified development would not be significantly different from the existing development, with the exception of potential surface water impacts. However, no surface water impacts have been identified to date associated with the existing quarrying and stockpiling activities.

In this regard, the Department considers that any impacts can be appropriately controlled via Epic Mining's existing on-site water management systems together with the implementation of the Department's recommended conditions of approval. The Department has recommended conditions strengthening the requirements relevant to the management of surface water resource impacts, specifically through the preparation and implementation of an updated Water Management Plan.

Overall, the Department is satisfied that with the implementation of the recommended conditions and Epic Mining's proposed mitigation measures, the impacts of the proposed modification would be minimal and can be adequately managed.

9 RECOMMENDATION

It is RECOMMENDED that the Acting Director Resource Assessments, as delegate for the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of Section 75W of the EP&A Act;
- **approves** the application to modify the development consent, subject to conditions, under Section 75W of the EP&A Act; and
- **signs** the attached Notice of Modification (see **Appendix D**).

Jacqui McLeod
13/5/2015

Jacqui McLeod
Team Leader
Resource Assessments

Colin Phillips
13/05/2015

Colin Phillips
Acting Director
Resource Assessments

APPENDIX A: ENVIRONMENTAL ASSESSMENT

Refer to Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4406

APPENDIX B: SUBMISSIONS

Refer to Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4406

APPENDIX C: RESPONSE TO SUBMISSIONS

Refer to Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4406

APPENDIX D: NOTICE OF MODIFICATION

APPENDIX E: CONSOLIDATED DEVELOPMENT CONSENT